

DESIGNING COMMERCIAL INTERIORS

THIRD EDITION

CHRISTINE M. PIOTROWSKI, FASID, IIDA

WILEY

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I first want to dedicate this to my family and friends for all their support.

I also want to dedicate this book to all the designers and students who have made this a better world by their efforts in the design of commercial interiors.

To my parents, Casmier and Martha, for watching over me while this was written.

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Preface

The commercial interior design profession has changed and, therefore, this edition has been influenced by those changes. The importance of global and cultural influences on design impacts all types of facilities. Sustainable design is a critical issue in the design of commercial interiors, whether that means specifying low-VOC paints or helping a client achieve a high level of LEED certification. Accessibility for an aging population is an ongoing concern that is an absolute necessity in planning any of the facilities covered in this book. Security and code issues continue to be of utmost importance.

Interior design is still problem solving. Practitioners and students are requested to plan and specify interiors that are aesthetically pleasing, yet these interiors must also be functional and help meet the business goals of the client. No designer can solve the client's problems without appreciating the purpose and functions of the business. Understanding the business interests of the specific commercial facility is essential to help the interior designer make more informed design decisions. Doing research about a facility before beginning to design and plan a project may not be fun, but research is an indispensable part of successful interior design practice. Of course, an ongoing premise of this book is the importance of learning the "business of the business."

The third edition remains a practical reference for many of the design issues related to planning a variety of commercial interior facilities. It retains its focus on the types of commercial design spaces most commonly assigned as studio projects and those typically encountered by the professional interior designer who has limited experience with commercial interior design. The book is organized similarly to the second edition so that the subject matter can be used by professors in whatever sequences are required for their specific classes. Professionals seeking information about specific types of facilities can easily reference the relevant chapters they need.

There are, of course, some changes to the outline of topics. In this edition, the first four chapters provide an overview of important issues that have an impact on commercial interior design work. Chapter 1 remains an introduction and overview of the commercial interior design profession. It gives the student a glimpse of what it is like to work in the field and where the jobs are. Chapter 2 includes material concerning the critical issues of global and cultural impacts, a discussion on sustainable design, and a brief overview of the triple bottom line. The discussion of the design of accessible restrooms has been placed in this chapter for easier reference, because this type of ancillary space can be found in all the project types.

Two new chapters provide additional background information important to commercial design. Chapter 3 focuses on research and the project process. Research is an important element of the design process; by carefully studying a project, the commercial designer can develop evidence to back up any design decisions—decisions that go beyond aesthetics. Discussions in this chapter include research methodologies, problem solving, and evidence-based design. The design process and programming are also covered in this chapter. Chapter 4 concerns project management. This material has been returned to the text at the suggestion of reviewers. Many important topics in project management are included here to help the student realize that a project cannot

be completed without someone managing all the parts and pieces involved. Topics included in this overview are working relationships, project delivery methods, and the project process. A section on adaptive use has been placed here, as this design assignment can be applied to any type of facility.

The chapters that focus on the types of commercial facilities were selected based on the comments by reviewers as to which types of facilities are most often assigned in classes. They are also the most common categories of commercial facilities that a professional may encounter. They are corporate and small offices, lodging, food and beverage, retail, healthcare, and senior living. A concluding chapter discusses planning the design of a variety of recreational facilities, including fitness centers and spas, golf clubhouses, and auditoriums.

These chapters are updated and reorganized to have similar content from type to type. Their basic outline is similar to that established in the second edition. New material appears in chapters to discuss topics of interest to the specific type of facility. For example, brief discussions on collaborative office spaces and the knowledge worker have been added to the office discussions. Information on the changing lodging guest has been added to the lodging facilities chapter. A discussion of the forces impacting healthcare and senior living design has been added to those chapters.

New images and graphics—many in color—have been added to enrich the text. It is exciting to exhibit these great project accomplishments in color in this edition. These new images enhance the discussions of design detail and design applications. The detailed "Design Applications" sections in Chapters 5 through 12 are provided to clarify important characteristics in designing these facilities. Existing design applications have been updated. New design applications discussions include small professional offices, quick-service restaurants, a small gift store, specialized medical practice suites, and hospice care facilities. The discussion of the fitness center and day spa is essentially new material.

The glossary has been updated, and each chapter concludes with references to the topic, as well as general references and websites relevant to the chapter main topic. Website addresses of trade associations affiliated with the design industry are listed in the Appendix. With these references, students, professionals, and professors can obtain more detailed and specific information about the many different commercial interiors discussed. This combination will make this book an important reference for all readers.

I hope that this third edition will be a valuable resource as you undertake the interior design of commercial facilities. Whether you are a student or a professional, I hope that it will help you enjoy this very exciting and challenging career.

Christine M. Piotrowski

Acknowledgments

It is always a challenge to write a textbook. A revision is no exception. This third edition involved extensive research to update all the text, prepare the new material, and obtain new photos and drawings. Many people have provided guidance, support, and expertise in regard to this effort.

I want to especially thank educators and other reviewers who have had an important impact on this revision. A special thank you goes out to Robert Krikac at Washington State University; Paul Smead, Director of Design, Interiors HOK Houston (retired); Robin Wagner at Marymount University; Charlene Conrad, IDNS, IDC, of Conrad Interior Design; and LuAnn Holec, FASID, of Thoma-Holec Design for their reviews of materials and other suggestions.

In addition to the numerous designers, photographers, companies, and individuals who provided materials and assistance with the first two editions, nearly 30 new firms provided exciting new color images and drawings in order to enrich this edition. These new images make for a more visual experience to supplement the text. I thank them not only for their contributions, but for their patience in going through the process. Space does not allow us to name them individually here, but their names and/or their company names are gratefully provided in captions throughout the book.

I especially want to thank Herman Miller, Inc., The Cottage Inn, The Lied Lodge and Conference Center, and Hospice of the Valley in Phoenix, Arizona, for their contributions. A special thank you goes to Esther Gonzalez, ASID, who provided finished drawings from my sketches for many illustrations. Esther, your patience and perseverance are greatly appreciated.

There are some other people I would like to acknowledge. First, the many students in the commercial interior design classes I taught several years ago at Northern Arizona University. They showed me the need for this type of textbook. Their struggles helped instigate this book in the first place. Of course, I want to acknowledge Elizabeth A. Rodgers, my former coauthor, for her work and contributions to the earlier editions. I am also indebted to Paul Drougas, my previous editor, who encouraged me to develop this revision. He provided tremendous support in many ways in the early phases of this project as well as many previous projects.

I want to thank the staff at John Wiley & Sons for their guidance and assistance, especially Seth Schwartz, editor, professional development, my current editor, and Melinda Noack, senior editorial assistant, professional development. Also a big thank you to all the other production support staff who helped bring this book to reality.

Finally, every effort has been made to correctly provide the proper credit information of interior designers, architects, photographers, and the projects if the client chose to be identified. We apologize for any errors or omissions that may have occurred.

Christine M. Piotrowski

CHAPTER 1

Commercial Interior Design

You interact with commercial interiors every day. Perhaps you visit a textile showroom to pick up samples for a project or join a friend at an athletic club to work out. You may have a meeting with a client at a restaurant or need to keep your doctor's appointment for a checkup. Maybe you pick up your child at a daycare center. All these facilities and many others represent the kinds of interior spaces created by the division of the interior design profession commonly called commercial interior design.

Commercial interiors are those of any facility that serves business purposes. Facilities that fall under the category of commercial interior design include businesses that invite the public in, such as those mentioned above. Others restrict public access but are business enterprises such as corporate offices or manufacturing facilities. Commercial interiors are also part of publicly owned facilities such as libraries, courthouses, government offices, and airport terminals, to name a few.

These interiors can be as exciting as a restaurant in a resort hotel, or as elegant as a jewelry store on Rodeo Drive in Beverly Hills or a casino in an international hotel (Figure 1-1). A commercial interior can be purely functional, such as the offices of a major corporation or a small-town travel agency. It may need to comfort and treat the ill, as in a healthcare facility. It can also be a place to relax, as in a spa.

There are many ways to specialize or work in interior design and the built environment industry. Of course, the *built environment industry* includes those professions that are involved in the development, design, construction, and finishing of any type of building. Specializing can be very sensible, as the expertise one gains in a specialty can provide added value to clients. Be careful not to create a specialty that is too narrow, as there may not be sufficient business to support the firm. Numerous specialty suggestions are listed in Table 1-1.



Figure 1-1 High-limit area. Casino at the Venetian Resort, Macao. *Reproduced with permission of Wilson Associates.*

This challenging and exciting profession has had a huge impact on the interior design and construction industry in the United States and throughout the world. *Interior Design* magazine reports on the industry's 100 largest design firms. In the January 2014 issue, it reported that approximately $3 billion in design fees were generated by these firms in commercial projects alone in 2013 ("The Top 100 Giants" 2014, 84). This not only represents an increase from previous years, but it reflects only a portion of the total commercial interior design industry because it only relates to the top 100 firms reported by the *Interior Design* giants.

This chapter begins with a brief historical overview of the profession. An essential part of this chapter is the discussion of why it is important for the commercial interior designer to understand the client's business. It continues with an overview of what it is like to work in this area of the interior design profession. A brief discussion of topics focused on design professionalism concludes the chapter.

These terms are relevant to discussions in this chapter and throughout the book:

- *Business of the business*: Gaining an understanding of the business goals and purpose of the client before or during the execution of the project.
- *Commercial interior design*: The design of any facility that serves business purposes. May be privately owned or owned by a governmental agency.
- *Furniture, Fixtures, and Equipment* (FF&E): All the movable products and other fixtures, finishes, and equipment specified for an interior. FF&E is also called furniture, furnishings, and equipment.
- *Stakeholders*: Individuals who have a vested interest in the project, such as members of the design team, the client, the architect, and the vendors.

■ *Spec*: This is a slang term used to indicate a building that is developed and built before it has any specific tenants. Developers of commercial property are "speculating" that someone will lease the space before or after construction is completed.

Historical Overview

It is always helpful to have some historical context for a topic as broad as commercial interior design. This chapter provides a brief overview to set that context. Other chapters also include a brief historical perspective on the specific facility type. An in-depth discussion of the history of commercial design is beyond the scope of this book.

One could argue that commercial interior design began with the first trade and food stalls centuries ago. Certainly, buildings that housed many commercial transactions or that would be considered commercial facilities today have existed since early human history. For example, business was conducted in the great rooms of the Egyptian pharaohs and the palaces of kings; administrative spaces existed within great cathedrals and in portions of residences of craftsmen and tradesmen.

Another example comes from lodging. The lodging industry dates back many centuries, beginning with simple inns and taverns. Historically, hospitals were first associated with religious groups. During the Crusades of the Middle Ages, the *hospitia*, which provided food, lodging, and medical care to the ill, were located adjacent to monasteries.

In earlier centuries, interior spaces created for the wealthy and powerful were designed by architects. Business places such as inns and shops for the lower classes were most likely "designed" by tradesmen and craftsmen or whoever owned them. Craftsmen and tradesmen influenced early interior design as they created the furniture and architectural treatments of the palaces and other great structures, as well as the dwellings and other facilities for the lower classes.

As commerce grew, buildings specific to business enterprises such as stores, restaurants, inns, and offices were gradually created or became more common. Consider the monasteries (which also served as places of education) of the twelfth century, as well as the mosques and temples of the Middle East and the Orient; the amphitheaters of ancient Greece and Rome; and the Globe Theatre in London built in the sixteenth century. New types of interiors slowly began to develop. For example, offices began to move from the home to separate locations in a business area in the seventeenth century, and hotels began taking on their grand size and opulence in the nineteenth century (Tate and Smith 1986, 227). Furniture items and business machines such as typewriters and telephones, as well as other specialized items, were also being designed in the nineteenth century.

The profession of interior decoration—later interior design—is said by many historians to have its roots in the late nineteenth century. When it began, interior decoration was more closely aligned to the work of various society decorators engaged in residential projects. Elsie de Wolfe (1865–1950) is commonly considered the first professional, independent interior decorator. Sparke and Ownes called de Wolfe "the mother of modern interior decoration" (2005, 9). De Wolfe supervised the work required for the interiors she was hired to design. She also was among the first designers, if not the first, to charge for her services (Campbell

and Seebohm 1992, 17). In addition, she was one of the earliest women to be involved in commercial interior design. She designed spaces for the Colony Club in New York City in the early 1900s (Campbell and Seebohm 1992, 7).

Although most of the early commercial interior work was done by architects and their staff members, decorators and designers focusing on commercial interiors emerged in the early twentieth century. One woman designer most commonly associated with the beginning of commercial interior design was Dorothy Draper (1889–1969) (Tate and Smith 1986, 322). She started a firm in New York City and, beginning in the 1920s, was responsible for the design of hotels, apartment houses, restaurants, and offices. Her namesake firm still exists.

There were many changes in the building industry in the late nineteenth and into the twentieth century. These changes were led by the designs of architects such as Frank Lloyd Wright, Walter Gropius, Le Corbusier, Mies van der Rohe, and Charles Eames, to name just a few of these early change influencers, each having a profound impact on interior design of commercial facilities.

Commercial interiors changed for many reasons in the second half of the twentieth century. Technological changes in construction and mechanical systems, code requirements for safety, and electronic business equipment of every kind have impacted the way business is conducted throughout the world. Consumers of business and institutional services expect better environments as part of the experience of visiting stores, hotels, restaurants, doctors' offices—everywhere they go to shop or conduct business. Interior design and architecture must keep up with these changes and demands. This is one of the key reasons that an interior designer must be educated in a wide range of subjects and understand the business operations of clients.

The interior design profession also grew in stature in the twentieth century with the development of professional associations, professional education, and competency testing. The decorators' clubs that existed in major cities in the 1920s and 1930s were the precursors of the current two largest interior design professional associations in the United States, the American Society of Interior Designers (ASID) and the International Interior Design Association (IIDA). The Interior Designers of Canada (IDC), founded in 1972, is the professional association and advocacy group for designers in Canada. Provincial associations also exist in Canada. As interior design is a global profession, many associations are located in other countries to serve their professionals. An Internet search for "international design associations" will help you identify numerous such organizations.

In respect to professional education, competency testing, and licensing of design professionals, the most significant advances occurred in the second half of the twentieth century. Here are a few of those milestones:

- In 1963, the Interior Design Educators Council (IDEC) was organized to advance education in interior design.
- In 1970, the Foundation for Interior Design Education Research (FIDER) was incorporated to serve as the primary academic accrediting agency for interior design education.
- In 1974, the National Council for Interior Design Qualification (NCIDQ) was incorporated to provide for competency testing.

- In 1982, Alabama became the first state to pass title registration legislation for interior design practice.

- In 2005, FIDER changed the name of the organization to the Council for Interior Design Accreditation (CIDA).

Even when coupled with the brief history sections in other chapters, this overview does not give you a complete history of commercial interior design nor the profession. However, if you would like more information, many titles are listed in the references for you to explore.

Understanding the Client's Business

Would you want your doctor to diagnosis an illness or pain without first asking you questions about how you feel? Of course not! Although that example may be a little dramatic, designing any kind of commercial interior without asking questions and understanding the business of the business could lead to project failure.

Understanding "the business of the business" refers to understanding the goals and purposes of a business. In fact, it is important to understand the business specialty even before seeking projects in that specialty. The interior designer and team must understand the client's business in general and the client's goals for the project from a business point of view. This means that the design solutions and outcomes will be more functional for the client and lead to more creative design concepts.

The needs of each type of client will vary by their business focus. For example, space planning and product specifications are different for a pediatrician's suite than for the offices of a cardiologist. Planning decisions are different for a small gift shop in a strip shopping center than for one in a resort hotel. Understanding this from the outset is critical for the design firm.

An obvious advantage of understanding the client's business is that the interior design will be more functional, not solely focused on the aesthetic. Businesses seek interior design firms that are not "learning on the job" with the client's project. Creative solutions that are aesthetically pleasing are important to many clients. However, a creative and attractive office that does not work or is not safe is not helpful to the client. Creativity alone does not mean success in commercial interior design.

Five important issues influence the design direction and eventual solutions to commercial projects. They are

- *Type of facility.* Each type of facility has many different requirements. Space planning, furniture specification, materials that can be used, codes that must be adhered to, and the functions and goals of the business are just some of the many factors that influence the interior design, based on the type of facility.

- *Location.* The location of the business will relate to the client base the business wants to attract. The dollars spent on the interior may very well be different based on the project's location. Customer expectations will be greater when the business is located in a high-end area versus a strip mall.

- *Target customer.* When a business begins its planning, it determines a target client base. Different design decisions will be made based on that target client. For example, a hotel located along an interstate will have a different target client than those of a resort in the mountains.

- *The actual product of the business.* Design specifications for a coffee shop will be quite different from those for a luxury full-service restaurant. The design of the office of an advertising agency will vary from that of a law firm.

- *The client.* The client can be a sole proprietor (of any kind of commercial facility), a branch of a multilocation business, a developer, or the board of directors of a nonprofit. The client might be the board of directors and the facility manager for a major corporation, or the local jurisdictional governing body for the school district.

Every client has different business goals, and the interior designer is challenged to satisfy all their unique demands. Thus, understanding the business of the business and its characteristics is important to understanding how to go about designing the interior. The more you know about the hospitality industry, for example, the more effective your solutions will be for a lodging or food service facility. Gaining experience and knowledge about retailing will be an advantage for you in designing any kind of retail space. In fact, the more you know about any of the specialty areas of commercial interior design, the greater your success will be in working with those clients.

Subsequent chapters provide an overview of the business of many kinds of commercial interior design specialties. They will help you begin to appreciate the critical issues that a business client will expect you to understand as you become engaged in the project. These chapters will also provide references for many of the design issues related to planning and designing commercial interiors, as well as indicating areas for additional research.

Working in Commercial Interior Design

The design of commercial interiors is complex and challenging. The number of project details can be enormous, and organizing those details is of paramount concern for the designer. Commercial interior design requires the designer to be attentive to details, be comfortable with working effectively as part of a team, and have the ability to work with numerous stakeholders. He or she must also understand the client's type of business before accepting a contract.

Often the interior designer works with employees of the business rather than the owner. However, design decisions must also please the owner. Few commercial design projects will be undertaken without the involvement of an architect. Being able to collaborate with the architect as the team seeks to meet the functional and aesthetic goals of the client is critical.

Teamwork and collaboration are necessary components in commercial design. Because projects can be very large, it is difficult for one or two people to handle all the work. Willingness to be part of the team, effectively doing one's job, and offering to be involved are not only important in completing the project but also bode well for advancement in the firm. Whether your role is small (which will be the case at the



Figure 1-2 Employee lunch areas are often places for teamwork and collaborative discussions. *Photo courtesy of Gary Wheeler, FASID. WheelerKänik, London, England.*

beginning of your career) or you are the prime designer/project manager as your experience grows, your ability to work with a team and collaborate with others is fundamental to success. So do not be surprised if project managers and senior design staff are in charge of projects rather than an entry-level designer.

Effective communication goes hand in hand with teamwork. Project communications occur by email, texting, telephone, written documents, design graphics, and other electronic means. Designers use tablets, smartphones, and laptops on the job site as well as in the office. These electronic devices help document meetings, jot ideas, and provide a place to archive photographs of issues or good ideas on the site. Marketing and progress presentations are likely to be conducted using PowerPoint presentations, Pinterest, or other computer-based media. Naturally, skill with computer-aided drafting (CAD), SketchUp, or other media is mandatory in commercial interior design.

Communication must be conducted in a professional manner. Whether you are standing in front of your client discussing the project, sending an email, or texting a vendor (not while you are driving!), be professional in what you say and how you say it. Older clients may not easily interpret the shorthand used by many younger designers to communicate on wireless devices. One more caution: Those electronic messages don't just disappear; they are almost always archived by the client. What you say in an email must be what you can do or you could have legal and ethical problems.

In a commercial project, it is important to determine and discuss with whom the designer will be working. In residential design, the designer must satisfy the homeowner and family members. A commercial project involves satisfying several users in

addition to the actual property owner. Those who might have an impact on design decisions include the property owner, employees, and, very indirectly, the businesses customers.

There are many types of property owners, including:

- A single business owner developing a building and needing tenant improvements
- A developer having an office or retail structure built on spec
- A corporation building a branch facility
- A chain remodeling a property
- A government entity building agency offices, schools, or the like

Employees will also have an impact on and perhaps have direct input into the design of the facility. Research shows that if the facility has been designed with a pleasing and safe atmosphere as well as a functional environment, employees will work more effectively. An exciting interior for a restaurant that attracts large crowds willing to spend on food and drink will bring better-quality waitstaff to serve those customers. Unfortunately, employees don't usually get to vote on design decisions; however, they may vote unofficially through their willingness to stay with the company and serve its clients effectively.

A third influencer is the customer who comes to the facility. In some instances, the ambiance of a restaurant or the beauty of the setting influences whether a customer returns. In other circumstances, ambiance plays a minimal role in this decision. The relationship of a doctor to a patient is more important than the doctor's exquisitely designed office. If your local city government offices had marble on the walls and floors and gold faucets in the restrooms, as a citizen you might think that your tax dollars had been misspent. Designing for these various users is challenging, to say the least.

As for working on a project itself, commercial interior design projects follow all phases of the design process. Of course, the interior designer's responsibility within each phase will vary based on the project, licensing issues, and the designer's experience. Missing steps or doing any of the tasks halfheartedly can be disastrous. Margins for error are often nonexistent, as many projects are *fast-tracked*, where design plans for one phase of the project are created as construction is proceeding on another phase to ensure early occupancy. These challenges are discussed in Chapter 4. Being detail oriented and organized are very important qualifications for a commercial interior designer.

Commercial interior designers must know how to manage a project as well as design it. This task is defined as project management. *Project management* is a systematic process used to coordinate and control a design project from inception to completion. Project management requires leadership, planning, coordination, and control of a diverse set of activities, people, money, and time in order to accomplish the goals of the design project. Project management is primarily the responsibility of experienced designers who oversee the team of designers and others who are involved in a project.

Project delivery methods have evolved into four approaches. These will be discussed in some detail in Chapter 4. However, brief definitions are provided here to lend context to the overall scope of this chapter.

- *Design-bid-build*. This is the traditional project delivery method, where a client hires a firm to design the project. It is then sent out for competitive bids to multiple suppliers, and a contract is awarded to the firm chosen by the client.

- *Construction management*. The client hires a firm to be in charge of the execution of all responsibilities of the project from feasibility studies and design to construction and installation, together with supervision of the work of all the stakeholders.

- *Design-build*. This is a collaborative process where multiple stakeholders are likely to be included under one contract for both the design and construction of the facility.

- *Integrated process*. This team-oriented process puts more emphasis on the people involved in the project so that a better outcome is delivered.

Nearly all the project types discussed in this book flow through the design process of programming, schematic design, design development, contract documents, and contract administration. It is important for a designer specializing in any type of commercial design to be very familiar with all the tasks that occur in each of these phases, whether or not the designer is actually responsible for all those tasks.

Programming is of particular importance, and the information obtained at the beginning of the project must be carefully gathered. (A discussion of the design process can be found in Chapter 4.) Information about the client's space and aesthetic preferences is only the beginning. Of course, it is important to understand what codes or other standards may apply to the project. Regardless of the type of facility, the client's business goals and plans are very important in the successful functional design of the interior. Knowing where the business wants to go is as important to the designer as where it is on the day that programming information is obtained. Many large interior design firms offer assistance with strategic planning for businesses that do not already engage in this type of planning.

There can be no margin for error with the codes in a commercial project. Adherence to building, life safety, and accessibility codes is another critical part of the work of commercial interior designers. The health, life safety, and welfare of the client and the various users of the facility affect many design decisions, including space planning, architectural materials, lighting, furniture and fabric specification, and even the color palette in some situations. The user of the facility trusts that the design and specification of the facility are safe in all the ways the jurisdiction requires. Understanding and application of regulations implicit in the type of project are a necessity, not a choice.

Finally, as mentioned in the previous section, the interior designer should know something about the client's business before seeking a commercial interiors project. Understanding the business of the business is crucial to solving problems and achieving the functional and aesthetic goals of the client. No designer can solve the client's problems without understanding the problems as thoroughly as possible.

Table 1-1 lists numerous examples of specialties in commercial interior design. Please understand that this list is not all-inclusive.

Table 1-1 Common Specialties in Commercial Interior Design

Corporate and Executive Offices
Professional offices
Financial institutions
Law firms
Stockbrokerage and investment brokerage companies
Accounting firms
Real estate firms
Travel agencies
Many other types of business offices
Restoration and renovation of office spaces
Healthcare Facilities
Hospitals
Surgery centers
Psychiatric facilities
Special care facilities
Medical and dental office suites
Senior living facilities
Rehabilitation facilities
Medical labs
Veterinary clinics
Hospitality and Entertainment Facilities
Hotels, motels, and resorts
Restaurants
Recreational facilities
Health clubs and spas
Sports complexes
Golf clubs
Convention centers

Hospitality and Entertainment Facilities
Amusement parks and other parks
Theaters
Museums
Historic sites (restoration)
Retail/Merchandising Facilities
Department stores
Malls and shopping centers
Specialized retail stores
Showrooms
Galleries
Institutional Facilities
Government offices and facilities
Schools—all levels
Daycare centers
Religious facilities
Prisons
Industrial Facilities
Manufacturing areas
Training areas in industrial buildings
Research and development laboratories
Transportation Facilities/Methods
Airports
Bus and train terminals
Tour ships
Yachts
Custom airplanes, corporate vehicles
Recreational vehicles

Where the Jobs Are

Commercial interior design is very challenging and requires experience in interior design. Like any career, it is also hard work, exciting, and oftentimes involving long hours, certainly working effectively with team members, and perhaps dealing with irate clients. However, few interior designers who have worked in commercial interior design for many years would do anything else.

Whether you are a student considering entering this part of the profession or a professional considering moving from residential to commercial interior design, there are important issues to consider when working in commercial interior design. This section will cover some key concepts about working in the field.

Regardless of the project size, commercial projects require a team of designers and related professionals. Led by a project manager, the project team may include interior designers at many different skill and experience levels. The team may involve architects, lighting designers, engineers, and consultants—such as, perhaps, a commercial kitchen designer for a restaurant. Of course, the client is part of that team. There may be many levels of client team members involved in the decision-making process. Other team members are contractors and subs hired to build out the project. Thus, being able to work as part of a team and take directions is critical whether one works for a small or a large firm.

In addition to the comments in the "Working in a Small versus Working in a Large Firm" sidebar (p. 12), here are a few considerations concerning what it is like to work in different kinds of commercial design firms, starting with the small firm: Many small firms specialize in order to give better service and expertise to potential clients. They will rarely have the opportunity to work on glamorous projects like casinos, large resort hotels, flashy new restaurants, or corporate headquarters. However, the experience gained in the small firm provides the entry-level interior designer with valuable training and skills that can be taken to a larger firm.

Large firms often specialize but have enough employees to venture into multiple types of facilities. A designer may specialize or be asked to work on different types of facilities based on personal experience and interests—and office needs. You will definitely need to work well with others and willingly take orders and directions from more senior interior designers. As an entry-level team member, you may also find yourself spending time doing what may seem to be drudge work—taking care of the library, endlessly drafting small project details, and keeping files organized. This is part of the apprenticeship common in larger firms.

Another place to work in commercial interior design is an office furnishings dealership. Companies that specialize in offices and feature systems furniture are great places to begin and maintain a career in commercial interior design. The interior designers in such companies focus on large corporate and professional offices. The learning and training received here prepare many interior designers to move to an interior design firm that might specialize in hospitality, healthcare, or government facilities.

WORKING IN A SMALL VERSUS WORKING IN A LARGE FIRM

Small Firms

- Designers probably will not be involved in large plum jobs, such as a large hotel.
- The designer will need to have more experience because he or she will have greater responsibility for project completion.
- The designer must be able to manage a project and all stakeholders involved.
- Design firm owner will have more decision-making responsibility than designers.
- Working in a small firm gives entry-level and less experienced interior designers an opportunity to become involved in projects sooner.
- Designers often work directly with vendors of the FF&E (furniture, fixtures, and equipment).

Large Firms

- Entry-level designers rarely get their own clients/projects for at least two to four years.
- Experience provides opportunities for faster and greater project responsibility.
- Designers must be comfortable working on smaller segments of the job as part of a team.
- Project manager will lead the team and likely make all decisions and recommendations related to the design.
- Designers will have less direct client contact and little decision-making responsibility with clients.
- Entry-level and mid-level interior designers will assist in mundane tasks, such as drafting and product and materials research.
- Creative design decisions are made by senior designers.
- Working for a larger firm may bring prestige and more opportunity for internal mentoring.

The opportunities mentioned in this chapter only scratch the surface. There are all types of firms combined with design specialties that create many opportunities for those interested in commercial interior design. Sometimes the work is not as glamorous as the work done by colleagues designing private residences, and the publicity may not be as frequent; but there is great satisfaction in being part of the profession making an impact on how consumers of every kind and economic level keep the wheels of industry rolling along.

The following list suggests numerous other career options in interior design beyond a focus on commercial interiors.

- Sales representative for manufacturer
- Interior design manager
- Project manager
- Public relations
- Teacher
- Facility planner for corporations
- Product designer
- Specification writer
- Magazine writer
- Marketing specialist
- Museum curator
- Merchandising and exhibit designer
- Graphic designer
- Wayfinding designer
- Lighting designer
- Commercial kitchen designer
- Art consultant
- LEED-certified designer
- Codes specialist
- Textile designer
- Color consultant
- Set design
- Residential interior design specialties
- Retail sales associate

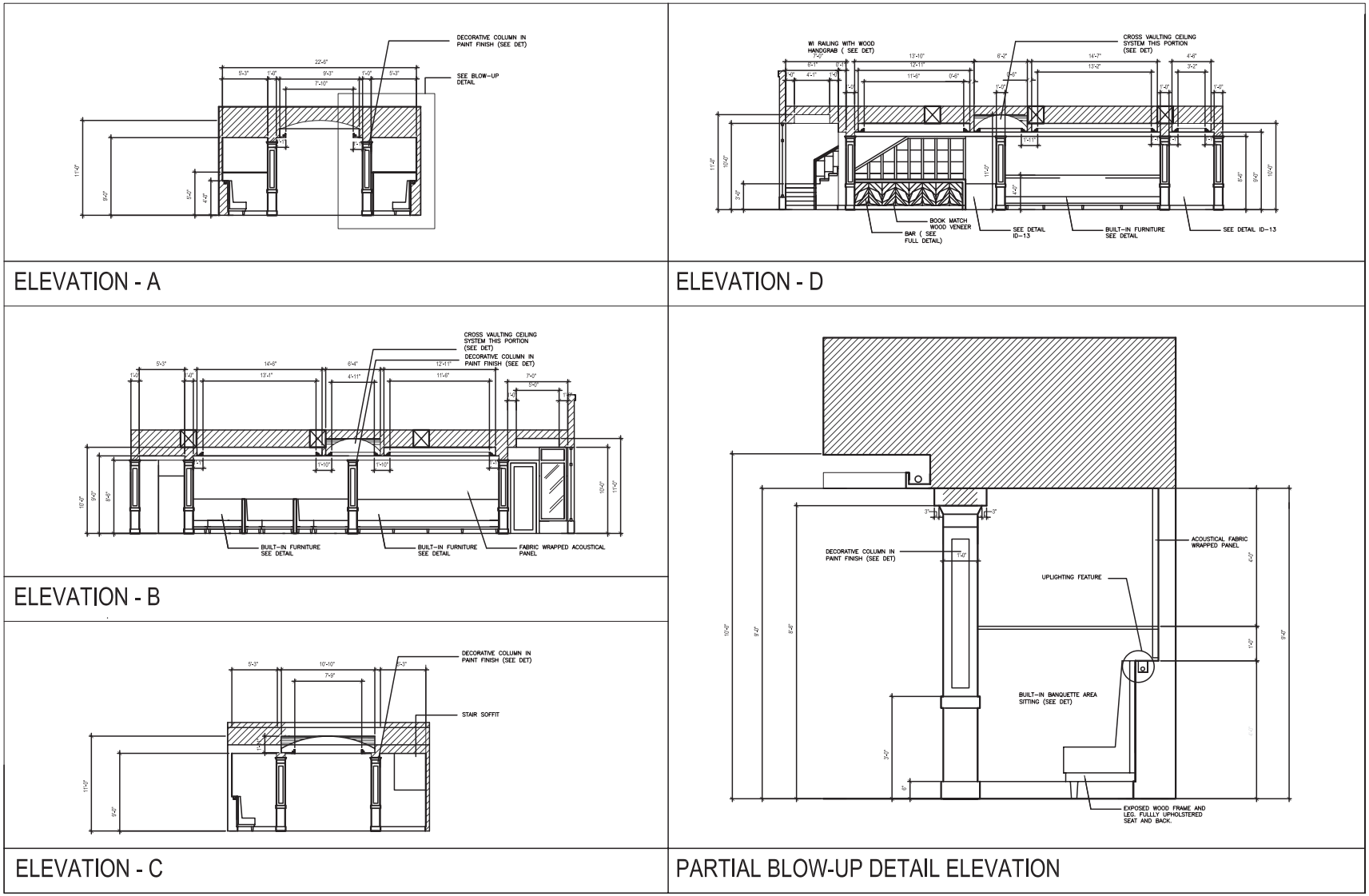


Figure 1-3 Millwork drawings are one type of design document that is commonly prepared by interior designers.
Reproduced by permission of SJVD Design.

Professionalism

All interior designers must take professionalism very seriously. The complicated nature of commercial interior design requires designers to have the education, experience, and knowledge to provide safety in design for the owners of the property as well as the users of the property. This section briefly discusses those topics that enhance the professionalism of the designer, beginning with a discussion of professional competency examinations and certifications.

PROFESSIONAL COMPETENCY

Many professions require an examination to test minimum competency for licensure, registration, or to recognize professionalism. An examination of competency should be no less a goal of the professional interior designer. Jurisdictions that have any type of interior design legislation require professional designers to take the National Council for Interior Design Qualification (NCIDQ) examination administered by the Council for Interior Design Qualification (CIDQ). Passing the NCIDQ exam is also a requirement of The American Society of Interior Designers (ASID), International Interior Design Association (IIDA), and Interior Designers of Canada (IDC) in order for members to be recognized at the highest professional level of these associations.

Passing the NCIDQ examination demonstrates to clients that the interior designer has the education, experience, knowledge, and skillset required by the profession. It is a personal achievement that interior designers should willingly pursue. Passing the NCIDQ examination provides the interior designer a certificate indicating successful completion of the examination. The NCIDQ certificate is a practice credential indicating an individual's demonstrated competence in the knowledge and skills required of today's professional interior designer. It is primarily applicable in the United States and Canada. Other countries may require a different competency examination.

Information about the exam, eligibility, and the other services that the CIDQ offers is available on their website.

There are other examinations and certifications a designer may want to pursue, according to his or her specialty and education. Interior designers may find certification programs for contractors, project managers, and other design-build trades appropriate based on their professional goals and experience. International designers will need to investigate the examinations and certifications that apply to the countries where they want to design interiors.

The groups listed in this section are the primary credential-granting organizations. Professional associations, which do not generally provide a credential but rather are organizations of like-minded professionals, are briefly described later in the chapter. Information about eligibility for any of the following credentials should be obtained from the sponsoring organization (web addresses are given at the end of the chapter).

- *Architect Registration Examination (ARE)*: This examination tests the competency of individuals who want to practice architecture in the United States and Canada. Other countries may have different competency examinations to meet their needs. A side note is that the National Council of Architectural Registration Boards (NCARB) is the

organization that establishes the standards of licensing and credentialing of architects and architectural practice and administers the ARE.

- *American Academy of Health Care Designers (AAHID)*: Designers who choose to specialize in healthcare interior design can seek certification from AAHID. These individuals have also achieved a credential from NCIDQ as part of their qualification for AAHID certification.

- *Leadership in Energy and Environmental Design (LEED)*: Designers interested in sustainable design may want to obtain an appropriate LEED certification. This program is administered by the U.S. Green Building Council (USGBC). Separate certifications are available for commercial interiors and residences. Other certifications are available for other specialties in the design-build industry.

- *Lighting Certified Professional (LC)*: The National Council on Qualifications for the Lighting Professions (NCQLP) administers and grants certification for designers specializing in lighting design, compliance, and principles.

- *Council for Interior Design Accreditation (CIDA)*: This organization is the primary provider of accreditation review and standards for interior design education in the United States and Canada.

- *Certified Aging-in-Place Specialist (CAPS)*: This is for a designer who wants to specialize in facilities for seniors. Administered through the National Association of Home Builders (NAHB), a CAPS certification is primarily sought by individuals designing residences. However, this may also be of interest to those designing assisted-living and other senior living facilities.

LICENSING AND REGISTRATION

The licensing of interior design professionals remains an important though sometimes contentious issue. Why is licensing and registration important? The professional practice of interior design has become increasingly complicated. The responsibility for what is done to a commercial or residential interior to meet standards of safety is more complex, requiring greater knowledge of the systems and products used in interiors of all kinds.

Interior designers have sought to be licensed since the 1950s. The first state to pass legislation to license or register interior design professionals was Alabama in 1982. As of 2015, more than half of the states have some form of licensing, certification, or registration legislation that defines who may practice interior design or use the title "interior designer." Other states continue to seek to regulate the work of the interior design profession. As of this writing, all of the Canadian provinces have enacted licensing laws in some form.

Before continuing, here are a few key terms that are important to understand:

- *Licensing*: This term means that a party, such as the legislature, has given permission to others, such as interior design professionals, the right to use a term or practice certain activities.

- *Building permitting privileges*: The design professional has the right to submit his or her construction drawings to a building code official to obtain a building permit for the project.

- *Title act*: Legislation that limits the use of a specific title, such as interior designer, certified interior designer, or registered interior designer, to those who meet the requirements established by the jurisdiction. Title acts do not require the designer to become licensed to practice interior design and do not prohibit nonregistered individuals from providing interior design services.

- *Practice act*: Acts that limit who may engage in or practice a profession; legislation that strictly limits who may provide interior design services in any manner as those services are defined by the jurisdiction.

Interior designers are held responsible for providing safe environments for their clients and for the users of commercial (and residential) interiors. Technology in the construction of interiors continues to evolve and become more complex. Building and life safety codes demand critical decisions concerning space planning and product specification to ensure the safety and health of occupants of commercial interiors. Sustainable design knowledge and criteria are necessary to reduce the harm to our environment and to avoid harming continuous users of commercial spaces. Security issues will continue to impact the interior design of all types of commercial facilities. These are critical issues for any interior designer.

Licensing or registration ensures consumers that the interior designers they hire for their commercial projects have the education, experience, and competence to provide interior design services. Jurisdictions that have legislation concerning the practice of interior design require intensive educational preparation related to the knowledge base and skillset required during the phases of a design project. They also require passage of a competency examination, the minimum requirements to sit for which focus on education in interior design and work experience.

ETHICS

Adherence to ethical standards dictates how an interior designer interacts with clients, vendors, contractors, and other designers. Those with whom a designer interacts expect the designer to conduct herself in an ethical manner. Of course, the designer expects others to conduct themselves in an ethical manner, too. But it doesn't always happen that way. For example, a client may come to you with a set of drawings for a gift shop obviously drawn by a designer or architect, and ask you to sell the products to the client after making some "minor changes" to the plans. Would it be ethical for you to do so? Is it ethical for you to design any type of project so that the budget for the finishing and furnishings far exceeds the original client budget?

Ethical behavior in interior design means conducting oneself in a manner that is considered right by and for those practicing the interior design profession. Ethical standards have been established by the professional associations and serve as a guide to those who choose to affiliate with an association. Ethical standards might also be, in some way, part of the qualifications for licensing/registration.

If you join a professional association, you will be expected to conduct yourself and your business in accordance with the ethical standards of that association. Conversely, the fact that an interior designer is not a member of an association does not give him or

her free rein to behave unethically. Unethical behavior and the business conduct of one designer can tarnish the reputation of everyone in the profession.

Ethical behavior is not hard, it is not overly time-consuming, and it is not inconvenient. Conducting oneself in an ethical manner is simply one more standard for judging oneself as a professional and allowing the consumer to see the value the interior designer places on his or her obligations to clients and the profession. We expect professionals in law, accountancy, medicine, and real estate, for example, to behave ethically when we deal with them as clients and patients. They, too, should expect ethical behavior from the interior designers they hire to design their offices, medical suites, hotel rooms, stores, and myriad other commercial spaces. Ethical behavior is a responsibility of all interior designers, as well as means toward guaranteeing the professional image and standing of interior design.

You can obtain copies of the codes of ethics of the professional associations by visiting the websites of ASID, IIDA, and IDC.

PROFESSIONAL GROWTH

Obtaining an education in interior design, taking the professional competency examination, and completing other requirements toward licensure or registration are all important milestones in the professional growth of a commercial interior designer. Many designers also become members of a professional association such as ASID, IIDA, or IDC. There are numerous other professional associations that may be of interest to you. Additional associations are listed in the appendix at the end of this book. Some of the other associations most affiliated with interior design include:

- *International Facility Management Association (IFMA)*: For those who design corporate office facilities.
- *Institute of Store Planners (ISP)*: An association specifically for those who design retail stores and shopping centers.
- *American Institute of Architects (AIA)*: Interior designers may be eligible to become affiliated members of this association.
- *International Federation of Interior Architects/Designers (IFI)*: A worldwide group of interior designers.
- *International Design Alliance (IDA)*: A global group of interior designers and others in the design-build industry.

Professional associations provide members with many benefits that enhance professional growth. Networking opportunities at local chapter meetings help to broaden an interior designer's contacts in the industry. Attendance at national meetings moves that networking opportunity to a national and even an international level.

Certainly, join a professional association for the newsletters, member meetings, and other benefits it offers. However, the old saying that you get back what you put in is important. Become active by volunteering for a committee. This is an excellent opportunity for the entry-level interior designer in particular to gain greater insights into group dynamics and leadership characteristics. Members also gain valuable experience and have fun while helping to organize chapter events and programs. Later

on, election to a chapter's board or office enlarges a designer's skills and knowledge through the training that is offered for board members. Chapter officers expand their network of contacts and friends through training conducted for chapter officers by national association offices. Active participation in an association is a great way to gain confidence in speaking and writing—important communication skills for any interior designer.

Successful professionals find numerous ways to continue to grow and add value to the work they produce. Another way to further professional growth is through continuing education. Education does not stop when one receives a diploma at the end of an interior design program. Professionals should seek additional information at seminars, workshops, and training programs that offer continuing education unit (CEU) credit. In fact, many jurisdictions with licensing or registration legislation require CEU credits to maintain the license or registration. Professional associations may also require continuing education for their members.

Continuing education seminars provide up-to-date information on a wide variety of topics in the profession. These seminars and workshops are short, most taking from one hour to one day. Numerous CEU options are available as webinars or by correspondence. These programs are available through online providers, professional associations, at meetings, and at trade conferences and shows.

Your expertise is likely valuable to others. Perhaps you can give seminars related to your specialty to your peers and students. Academic programs seek out professionals to speak to students, critique their work, and provide internship locations. Seminars and CEU programs are primarily offered by experienced professionals who share their expertise.

Many designers know that they can also grow professionally by being active in their communities. The knowledge and skills possessed by interior designers can add much to their local communities through participation in city/town governance by volunteering to serve on committees, such as a historic sites committee. Perhaps they can be involved in a design committee at their church or school—providing, of course, they did not originally bid on the design! Designers who specialize in sustainable design are displaying social responsibility beyond their office through lectures to citizen groups and to classes. These are only a few suggestions on how a designer can include "social responsibility activities" to his or her work in the profession.

Whether your professional growth and involvement beyond your firm means participating in an association, performing community service, attending—and giving—seminars, or being involved in any other activity, you will gain immeasurably from those endeavors. For more information about continuing education courses, visit the Interior Design Continuing Education Council (IDCEC) website.

Summary

Regardless of the specialty, working in commercial interior design is exciting. The opportunity to design highly creative interiors may not come often to everyone; however, the possibility is always on the horizon. The opportunity to help client firms become more effective businesses is also satisfying. Think of how wonderful it would feel to be involved in the design of offices for a major corporation in Manhattan or a

new pediatrics wing for a hospital. One day, maybe you will be the project manager for a new mega resort/casino or a bed and breakfast that continually wins hospitality industry awards. Of course, your design for a small accounting office or a neighborhood restaurant is also important. The opportunities in commercial interior design are endless.

This chapter provided a snapshot of what it is like to work in commercial interior design. A brief historical overview revealed the roots of this branch of the profession. The chapter then discussed the importance of understanding a client's business, which is critical to the successful interior designer in a commercial specialty. The work environments of commercial interior design and the challenges of the field were also considered.

In this edition, Chapters 2 through 4 discuss topics that shape the work of the commercial interior designer. Chapters 5 through 12 provide information on important functional and design criteria for key types of commercial interior design specialties. Each chapter will help you understand the nature of the business of the business, as well as provide a foundation for design decisions.

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INTERNET RESOURCES

American Academy of Health Care Designers (AAHID): www.AAHID.org

American Institute of Architects (AIA): www.aiaonline.org

American Society of Interior Designers (ASID): www.asid.org

Architect Registration Examination (ARE): www.ncarb.org/ARE.aspx

Certified Aging-in-Place Specialist (CAPS): www.nahb.org

Council for Interior Design Accreditation (CIDA): www.accredit-id.org

Council for Interior Design Qualification (CIDQ): www.ncidqexam.org

Interior Design Continuing Education Council (IDCEC): www.idcec.org

Interior Design Educators Council (IDEC): www.idec.org

International Design Alliance (IDA): www.icsid.org

International Facility Management Association (IFMA): www.ifma.org

International Federation of Interior Architects/Designers (IFI): www.ifiworld.org

International Interior Design Association (IIDA): www.iida.org

Institute of Store Planners (ISP): www.isp.org

Leadership in Energy and Environmental Design (LEED): www.usgbc.org

Lighting Certified Professional (LC): www.ncqlp.org

National Council for Interior Design Qualification: www.ncidqexam.org

National Council of Architectural Registration Boards (NCARB): www.ncarb.org/ARE.aspx

U.S. Green Building Council (USGBC): www.usgbc.org

CHAPTER 2

Forces That Shape Commercial Interior Design

The interior design profession is far more technical and global than it was a mere 35 years ago. Think about the fact that in the 1970s we began to use big, bulky cordless phones. In the 1980s, the industry thought recycling paper meant that people were being conscious of the environment. Receiving an email from someone outside the United States was a marvel. The World Wide Web didn't go public until about 1990. Then personal computers hit the desks of design staff, and producing specifications became a breeze. Social media sites began popping up in the early 2000s.

All of these advances had an impact on the profession, as anyone practicing in the 1970s can attest. The practice of interior design does not remain static but is dynamic in every respect, challenging all sizes of firms. Change is inevitable, as the way design is done keeps advancing from sketches on a napkin to computer modeling. I remember seeing the first wireframe 3D perspectives in the late 1970s and found the images amazing. The way graphic presentation can be done now is phenomenal in comparison. The creativity of the solutions also changes as influences from other countries stimulate the aesthetics and product possibilities.

There are many forces that continue to shape the practice of commercial interior design. Designers who want to work in this area of design practice must continually update their knowledge and skills in every respect, including awareness and familiarity of the forces mentioned here. This chapter has been added in order to provide an overview of many of the issues that impact the commercial interior design practice and profession. Each of these sections could be a book on its own, but we are limited in space in this context. Extensive resources are included in the references for further study.

This chapter offers a discussion of several key forces of which the student or professional seeking employment in commercial interior design should be aware. The chapter begins with a brief discussion of how cultural sensitivity is vital to today's practice. This is followed by some reflections on the global marketplace. A section on sustainable

design provides a broad review regarding this important force impacting the profession. The remaining sections, concerning codes, accessibility, and security, are about topics important to any type of commercial facility. The last section discusses how corporate brands can impact the design of the facility.

Cultural Sensitivity

Interior designers serve a melting pot of clients. Clients can be obtained from all over the world via the global marketplace. Clients, of course, have always come from differing cultural backgrounds. Yet in today's professional realm, it is important to be sensitive to cultural differences as designers seek clients from all over the globe.

It's not hard to understand that even though we come from different backgrounds—religious, ethnic, racial, geographic—we all want the same or similar things: places of safety, security, enjoyment, comfort, and care. In many respects, it is the task and responsibility of the commercial interior designer to seek to provide these regardless of the type of facility. Sensitivity to cultural characteristics and even incorporating them into designs may not happen in each project; but when it does, it is very important to pay attention to this element. Of course, it is vital to understand the culture and the symbolism of cultural icons, colors, and even language phrasing before doing projects for any client today.

Before the discussion continues, a few important terms related to cultural sensitivity must be defined:

- *Multicultural*: Embodying several different cultures
- *Culture*: "The customs, arts, social institutions, and achievements of a particular nation, people, or other social group"[1]
- *Cultural sensitivity*: Awareness and skills to appreciate the differences between different cultures
- *Generational differences*: Recognizing that there will be different likes, dislikes, ways of working, values, and priorities between generations

Sensitivity to culture means more than seeking to understand influences coming from someone from another country. There are, of course, cultural differences that influence design within any one country. The easiest examples for most readers to understand are those within the United States. The architecture and styles prevalent in many East Coast cities seem out of place in the Southwest, just as "California" styles of interiors will seem odd in New York City. One can search the Internet for "California culture" or "southwest culture" or any other geographic "culture" and find literally hundreds of thousands of references. Naturally, readers in other countries can relate to similar examples.

Sensitivity to cultural needs encourages the designer to plan and specify projects with more focus on the unique cultural characteristics of a client, its employees, and the client's expected target market. Designers have an obligation to put personal cultural biases and leanings aside to understand and assist the client. If they can't, they should walk away from the job.

1 *Oxford American College Dictionary*, s.v.



Figure 2-1 Gifts of the Raven gift shop. Vancouver, Canada. *Reproduced with permission of DH Designs.*

Although we are discussing the importance of understanding the cultural differences of clients, it is also important to understand that some international clients hire U.S. designers for the Western style of design they can bring to their country. Western design is highly regarded in foreign countries. That is why many large design firms have offices abroad and execute projects internationally.

Unlike painting and sculpting, interior design is not an entirely personal expression of what the designer likes and dislikes. When working with clients, we serve the client, not our own egos. Most clients come from backgrounds different from the designer's, and they expect the designer to acknowledge cultural and aesthetic differences.

Failing to learn about and understand the client's cultural preferences can lead to frustration between the client and designer. "He doesn't listen to me," says a client. "She can't grasp the design aesthetic," says the designer. Even the seemingly simple act of meeting a client for the first time can be a cultural issue. For example, does your client believe shaking hands is appropriate when meeting for the first time?

Cultural sensitivity makes the designer more effective for the client and more attractive to clients from a marketing perspective. But how and where do designers learn about these cultural differences?

We all have cultural influences from family and friends as we grow up. Then we begin to learn about broader cultural differences by taking art, architecture, and interior design history classes. Exposure to the different styles and influences of design over the millenniums often introduces students to cultural differences they have not experienced while growing up. Politics, history, religion, and economic levels are only a few of the things that can influence design. In some schools, interdisciplinary classes are available to provide a breadth of anthropologic, ethnic, and design theory in contemporary culture. In today's global marketplace, students should take cultural studies classes from allied departments.

We can also develop our cultural sensitivity through other sources. Designers should keep abreast of world events because they will have a definite impact on the profession in general and could impact a specific project. Keeping informed is certainly easy with the numerous online news apps. Learning a second language is a plus for designers. Most people take a foreign language in high school. Depending on the school, a foreign language may be required for a bachelor of arts. Whether required or not, learning another language will be beneficial to any designer in today's market. A second language naturally gives the designer the opportunity to reach a broader range of clients within their own community or geographic area, and it opens up a wider reach of clients in other countries as well.

World events and world exposure can also come from any opportunities to travel abroad. Many educational programs provide students the chance to be accompanied by faculty on trips to Europe, China and other East Asian countries, Mexico, South and Central America, Africa, and anywhere a trip seems appropriate. Such opportunities certainly may not be financially available to all, but they are very beneficial to anyone who can go.

Customers are not the only ones who are impacted by understanding different cultures. Employees must work in the environments designers create. Policies might limit what can be introduced to make the office or cubicle personal, and the designer must specify products to help achieve that end. Thus, an office can allow some personalization of the workspace while maintaining company standards of design.

Cultural differences can also cross generations. What your grandparents and parents consider good design is likely different from what the millennial generation considers good design. There is nothing new about generational differences. During the 1960s, the baby boomer generation battled with their parents over clothing choices and many other issues.

Sensitivity to cultural differences makes the individual designer more marketable, just as diversity makes a firm more marketable. Valuing other cultures through design solutions can broaden a firm's appeal to potential new clients. Understanding other cultures can also bring freshness to a designer's creative work. For example, color has significant implications in different cultures. In some cultures, white is the color of mourning, while in the United States white is a traditional color to use for a wedding. In Western cultures, green is considered lucky and can represent organic concepts. Green also represents health in China. All cultures and countries view colors differently, and the designer must become aware of these differences when working in a global industry. The Internet provides many resources on culture and color.

Cultural groups working together and designers of differing cultures working with their diverse clients lead to more effective solutions to problems and challenges. Embrace opportunities to learn about other cultures and include cultural markers in your designs. Seek to create a commercial facility that is an expression of your client's wants and needs as they envision it for their clients, employees, and users. Regardless of your personal background, as a service provider it is important for you, as the designer, to understand other cultures. Today's interior designers must appreciate the differences in their clients.

Global Marketplace

The world is "smaller" now as technology allows designers to reach out to clients in other countries—and for them to reach designers. Internet searches, social media, international publications, professional associations, and conferences provide opportunities to be "introduced" to others from other countries quite easily.

Today, we can learn about firms and/or clients in other lands primarily via the web. A few keystrokes on the computer provide the designer a literal world of information on any topic. Years ago, obtaining this same information would have taken weeks. Technological advances also enable rapid communication between the designer and clients in different parts of the world. Communication, drawings, specifications, and 3D images can be transmitted instantaneously between a designer in one country and a client in another.

Working in the global marketplace takes effort. Effort must be expended on the part of the design firm and on the part of the employees of the firm. This effort must start with a willingness to learn about other cultures. Designing a project just as it was done in the United States does not mean it will satisfy clients in another country. Cultural differences in the global marketplace will impact how clients are contacted, how ongoing communications will be conducted, what expectations are from both sides of a project, what language skills are needed, and what project management methods are used, among other issues.

Desiring work in the global marketplace means that the firm and staff from the top down must be open to new ideas. They must realize that their way may not be the only way something is done. Staff and management must be open to stimuli from other cultures. Cultural differences exist not only between countries but also between regions within countries. Preferences can be quite different between sections of a country. If you have not read the "Cultural Sensitivity" section just discussed, it is important that you do so now.



Figure 2-2 Grand Lobby, the Palm Resort, Atlantis, Dubai. *Reproduced with permission of Wilson Associates.*

A design firm could be contacted at any time to work with an offshore client. If the firm is prepared, the opportunity will work out naturally. If not, the design firm will have to decide if the venture is one in which the firm wants to engage. Thus, desiring to work in the global marketplace requires preparation for the results to be most effective and long lasting.

This section provides several suggestions on what a firm must do to prepare to work in the global marketplace. The focus of this discussion is on U.S. firms seeking to be in the global arena; however, much of this discussion can apply to a design firm in some other country.

Successfully completing a project for an offshore client in the design firm's home country can open the door to work abroad. When a successful project is completed in the design firm's home country, the client becomes comfortable with the abilities of the design firm. It likely shows that the design firm has an appreciation for the culture and working differences of the offshore client, because working with a foreign business *will* be different. Thus, the international client may become more inclined to hire the design firm to execute a project in the foreign country.

Commercial firms that develop specializations and develop strong marketing programs can also gain recognition in other countries. Through the Internet and trade publications, a design firm in one country can be exposed to potential clients in other countries.

Another important step is developing a business plan with a focus on the global area of interest. The design firm should already have a business plan, but an addendum to that plan will be a plan of action on how to advance into the global marketplace. Part of this business plan is the development of strategies needed to learn about the culture of the market the firm seeks, as well as business practices in that country or area.

Being able to communicate in another language is very important. Having a grasp of the language of the country in which the firm wants to obtain work is a significant bonus. A foreign client will expect the designer from the United States to comprehend their language—at least to some degree. Seek out employees who have backgrounds in the languages and customs of the areas of the world in which the firm wants to expand. Encourage employees who have an interest in working globally to learn other languages. The firm can provide financial incentives to staff willing to learn another language.

Cultivate joint ventures with other design firms that already have a global track record. Perhaps start out by assisting the lead firm with such tasks as drafting or basic documentation. This type of exposure provides the "learning firm" with the opportunity to see how offshore projects are done. The learning firm should offer only the services that it does very well and that are needed by the lead firm.

Other ways of finding projects can include becoming involved in local professional association chapters. A designer might hear about a project being done while socializing at a chapter meeting. Such contacts could lead to discussions with other firms for potential joint ventures. Of course, Internet searches can also provide valuable information regarding this task.

Investigate the financial investment and potential return for working with global clients. The design firm needs to have sufficient financial resources to wait out the time it will take to build global contacts. A new website may be the cheapest part of the budget to achieve global work. Yet not all contacts can be handled by emails, Skype,

or other electronic means. Trips to visit clients out of country can create a financial burden, making the potential project prohibitively expensive for the monetary return in fees. Even time zone differences can and will lead to extra expenses for telecommunications and coordination of work between an American firm and a foreign firm.

The firm's accountant will need to discuss the regulations and issues of doing business outside the United States. There will be income tax issues for revenue obtained from foreign sources. The firm will have to conduct business interactions within a foreign country on the basis of their laws, building codes, and financial terms (to name just a few issues). Working on a project in New York City is different from working on one in Atlanta, Georgia. The differences will be much more extreme when the project is located in Japan, Germany, or some other country.

For marketing, begin by creating a quality website that will introduce the firm to the world market in terms of capabilities and experiences. Part of the web design is to carefully research the existing brand of the company. Find out what current clients think of the firm and correct any shortcomings before venturing into actively seeking global work. Don't forget to check web IP logs to determine who has been looking at the firm's current website. It might also be worth investing some time in social media sites to get the word out about the firm related to global work.

It is vital for the design firm to research how an international company conducts business, the social side of business, and of course, language and customs. Make sure someone in the firm researches this information so as to understand how they do business and what is important to the client when conducting business with them. Websites may be in a language other than English, so the researcher must have bilingual abilities. Of course, when contacted by a potential international client, the design firm must research the client as it would with any client.

For international projects, keep in mind that the way work is conducted in other countries will not be the same as it is in the United States. Be sure key design staff understands the approval processes in the foreign country, as they will not follow the U.S. model. Develop understandings and partnerships with suppliers, design firms, and other project-focused experts in other countries.

Research business partners and sources in the other country. It will very likely be necessary to use products produced in the other country, and certainly installers and construction workers will be local to the job. While a major international furniture manufacturer will have sources in other countries, the smaller suppliers will not.

Getting paid is, of course, an important ingredient to working globally. Do not begin any design work without a signed agreement. Being clear about the scope of the project and defining deliverables are crucial to getting paid. The agreement should spell out the terms for billing, including retainers, payment schedules, and what happens if the client does not pay. It should also spell out what currency the bills will be paid in—for example, U.S. or the foreign country. An American firm will want to be paid in U.S. dollars, and that should be stated in the contract. Credit policies must be clear. It will be necessary to have a bank or other third-party agency review the credit rating of a foreign client. Invoice work on an appropriate schedule, such as monthly or when parts of the project are completed. This is certainly an important time to work with an attorney familiar with contract law, and one who has worked internationally is worth the cost of the advice.

Another financial concern relates to how customers actually pay in other countries. Discuss terms of payment carefully at the beginning of the project, not after the design firm has invested hundreds of hours on initial project marketing as well as any design work. Make sure the design firm understands the laws regarding payments when working with a foreign country service provider. It is important to understand the monetary differences between the United States and the foreign country. Currency values fluctuate daily, and a good financial deal one day can be quite a different story weeks later.

There are several things that the individual designer should do to prepare to work globally.

- Individuals who want to work on a global level, of course, must start with the educational background they will obtain with a design degree. A comprehensive education in interior design is needed to evaluate the needs and wants of clients and to determine the project steps necessary to complete the required work. As with all the specialties in commercial design, having additional education concerning the business of the specialty one seeks as global work is highly advisable.

- Individuals must also gain comfort in one or more languages, both in speaking and reading/writing. Although clients in other countries may be able to communicate with the designer in English, the designer seeking work should be able to communicate in the language of the country.

- Become comfortable working with people in other countries by traveling to the countries where you might like to work. Spend time not only as a tourist but as much as is reasonable researching sources, business practices, and the culture.

- The designer should be familiar with the metric measuring system. Dimensioning on plans and providing product specifications will often need to be done in metrics rather than the ordinal system used in the United States. In addition, conventions for names of building items and products can vary. Two that are relatively familiar are the British "loo" for toilet and "lift" for elevator. Of course, it is also possible to hire individuals in the other country to translate drawings and notes.

- The designer must also become familiar with the customs of foreign countries. Understanding the social customs of overseas countries is very important in order to avoid the accidental error of assuming that business is conducted the same way as in the United States. Inquire of former associates, school classmates, relatives, and others who have spent time in foreign countries. Growing Global is one of many websites that provide information valuable to businesses wanting to work in the global marketplace (web addresses are provided at the end of this chapter).

- Beyond ASID and IIDA, the designer may choose to become a member of International Federation of Interior Architects/Designers (IFI). Per their website homepage, "IFI is the only international federating body bringing together Interior Architecture/Design organizations and the expanded community in order to further the influence and positive impact of the design of interiors; to promote global social responsibility; and to raise the status of the discipline and profession worldwide." Visit their website to gain more information about this organization.

Design in the global arena will only grow in the future. Each firm must determine how they fit into this market option. Do the preparation, do it right, and experience the opportunities available. This discussion is only a start, and the reader is encouraged to explore sources listed in the references and on the Internet for more information on the global marketplace.

Sustainable Design

Sustainable design—also referred to as green and environmental design—has been a force in the design/build industry of commercial interiors since long before the U.S. Green Building Council (USGBC) was founded in 1993. Sustainable design became a prominent part of the architecture and interior design professions in the 1970s.

In 1977, a cabinet-level Department of Energy was created to deal with energy conservation and usage in the United States. The 1970s also saw the beginning of recycling efforts as a way to deal with overfilled landfills. Earth Day programs emerged in the early 1990s to bring additional attention to the need for sustainable design and energy and resource conservation in many ways.

The 1980s and 1990s saw continued research and conferences on environmental issues. The World Commission on Environment and Development established the definition of sustainable design accepted by a wide range of experts in 1987. That definition reads that sustainable design seeks to "meet the needs of the present without compromising the ability of future generations to meet their needs" (World Commission on Environment and Development 1987, 43). The work of this group provided a major boost to the growing concern for sustainable buildings and green design. The Energy Policy Act of 2005 provides sustainable standards for federal buildings.

Sustainable building and design efforts, along with education for professionals and consumers, have continued to grow through the efforts and support of the architecture and interior design professional associations. In addition, the federal government, along with business and industry, continued to encourage education and research in this area.

One of the most successful nonprofit organizations specifically related to sustainable design is the U.S. Green Building Council (USGBC). This organization brings together professionals in architecture and construction, interior designers, product manufacturers, and others interested in sustainable design in the design-build industry. According to their website, the mission of the USGBC is "to transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life." Each energy crisis rallies more individuals and companies to learn and apply sustainable concepts to projects.

Of course, sustainable design is not only an effort in the United States. It is a global concern. In Canada, the Canada Green Building Council (CAGBC) provides similar information as the USGBC. A vast amount of information that discusses sustainable efforts around the globe is available online. If you conduct an Internet search on the order of "sustainable design England"—or any other country—you will be directed to dozens, if not hundreds, of articles and items on the topic.

OVERVIEW

Sustainable design involves finding a balance between meeting users' immediate needs in constructing a building and finishing its interior while causing as little harm as possible to the environment. Sustainable design means finding methods and processes of design that consume fewer nonrenewable resources and are more energy efficient.

Many sustainable design issues relate to the design and construction of a building. The interior designer practices sustainable design by choosing to use materials and products for the interior that are also less damaging to the environment in both their manufacture and their use as finished products. For example, being sure that the veneer you choose for a desk or cabinet comes from a certifiably sustainable source is a way of utilizing green design.

The terminology to sustainable design is extensive. Several of the key terms that will be used in this discussion and in other parts of the text include:

- *Brownfield*: An abandoned or underutilized commercial or industrial property that has some environmental contamination
- *Cradle-to-cradle*: Products that can be reused or recycled, or that will decompose when sent to a landfill
- *Cradle-to-grave*: Products that have not been reused or recycled, or that will be otherwise discarded before their useful life is complete
- *Energy efficient*: Products that use less energy
- *Graywater*: Water from sinks, showers, and laundry that is collected and lightly treated for reuse for watering lawns and places where potable water is not required
- *Life cycle assessment* (LCA): Analysis of materials, products, and buildings to evaluate their environmental and health impacts over their life
- *Life cycle costing* (LCC): A method of combining the initial cost of products with the cost of their maintenance, periodic replacement, and residual value
- *Potable*: Water than can be used for drinking and cooking
- *Renewable energy*: Energy sources that are not depleted when used, such as solar energy
- *Sick building syndrome*: An illness to users of interior spaces that is caused by such things as poor indoor air quality, poor lighting, and bad acoustics
- *Volatile organic compounds* (VOCs): Toxic fumes emitted from carpeting, paints, the glues used to make the composite woods in furniture, and other common materials or products

Even with all the interest in sustainable design, the design/build industry continues to use products and methods that deplete our natural resources. Landfills continue to receive truckloads of waste construction materials and items such as carpeting and other hard interior finish materials that are out of fashion when spaces are remodeled. We continue to specify products that off-gas toxic pollutants and design with exotic woods that are not known to come from certified forests. Why? Because we have not yet convinced clients that using sustainable materials will be more advantageous to

the business in the long run. A brief discussion of the issues, under the heading "Does Going Green Cost More?" is included later in this section.

Environmental issues remain controversial in the United States and other countries and so, too, does sustainable design. Climate change has affected many aspects of our lives. Extreme rainfalls and snowstorms have forced consumers to spend more of their financial resources just to stay warm and safe, leaving little left to even think about replacing off-gassing carpet. Yet some believe that these climatic changes—along with the depletion of resources—are all part of the natural way things work and not a sign that something is "wrong" with the environment.

Specifying products that are both green and sustainable is a worthwhile goal that will not always occur. Many designers want to specify these products, but many also back off when the client objects to perceived higher costs or for some other reason. This certainly can be blamed on the designer's lack of knowledge about green products. With thoughtful space planning and careful specification of products, the designer can be incorporate sustainable design into all types of commercial projects.

Nevertheless, environmental issues including sustainable design must be considered to some degree or other by those involved in the interior design and construction industry on a local and on a global level. Let's look at a few details concerning sustainable design:

- Building construction and interior finishing use vast quantities of materials—only some of which are renewable. A great deal of construction waste accounts for 40 percent of what goes into landfills.

- The Environmental Protection Agency (EPA) reports that indoor air quality is, on average, 2 to 10 times more polluted than outside air.

- The continued use of volatile organic compounds (VOCs) in paints, carpeting, and the glues used to make construction and furniture products negatively impacts the interior environment. Some are carcinogens; all can cause irritation and allergic reactions in many people.

Increased demand on resources by the economies of emerging countries and wasteful practices make sustainability and thinking green critical issues for those in the built-environment industry and for consumers. Whether or not you personally embrace sustainable design, your clients will increasingly expect you to help them incorporate green design into their facilities. It behooves interior designers to learn sustainable design and integrate it with their professional skills in order to satisfy client demands.

Many resources on this topic are listed in the references. I would like to call the reader's attention to three important books in particular:

- In their landmark *Cradle to Cradle* (2002), which all interior designers should read, William McDonough and Michael Braungart provide context to the sustainable design concept.

- Dr. Louise Jones's *Environmentally Responsible Design* (2008) provides an in-depth review of the emergence and history of sustainable design.

- Penny Bonda and Katie Sosnowchik's *Sustainable Commercial Interiors* (2014) provides a substantial amount of information on sustainable design.

ENVIRONMENTAL STEWARDSHIP

What is environmental stewardship? According to the Environmental Protection Agency, it is "the responsibility for environmental quality shared by all those whose actions affect the environment."* It involves actions and concerns for protecting the environment through means of:

- Personal activity such as volunteering to pick up trash along the highway
- Professional endeavors by those in the design/build industry
- Businesses utilizing green design and green methods in the operations of their business
- Reducing landfill waste through recycling and improved use of goods and materials rather than disposing of anything that seems "worn"

Even if a designer does not want to embrace sustainable design completely, there are ways a designer can embrace environmental stewardship. What is specified can have a positive or negative impact on the environment. Using exotic wood products that do not come from regulated forests has a negative impact. Not finding a source to reuse/refurbish products but instead relegating them to the dump has a negative impact. Even something as simple as using coffee cups that need to be washed in the design office instead of using disposable cups has a positive impact.

Simply becoming more knowledgeable about sustainable design by attending continuing education classes or taking webinars has a positive impact. Knowledge will help the designer explain to the client the benefits of using furniture products without binders and finishes that are toxic during production and that off-gas in the facility.

The interior designer can play a greater role in environmental stewardship by:

- Becoming educated in the concepts of sustainable design
- Specifying products that do not off-gas VOCs whenever possible
- Not specifying products that are not sustainably produced
- Educating clients concerning the advantages both in health and long-term dollars in the specification of sustainable products versus nonsustainable ones
- Reusing or refurbishing products when feasible
- Operating the design business in an environmentally responsible manner

Obviously, these are only a few ways that the interior designer can play a role in environmental stewardship. Many resources are available online in the reader's community for education, involvement, and practice. Seek out an activity that meets your interest to help the world environment.

*www.epa.gov/stewardship. Accessed July 2014.

LEED CERTIFICATION AND CREDENTIALS

Certification systems are used to identify and independently rate the quality of sustainable design solutions and products used in a project. Leadership in Energy and Environmental Design (LEED) certification for buildings and LEED credentials for individuals together make up the most common sustainable design certification system in the United States. Both are offered and managed by the USGBC.

An increasing number of commercial clients realize that seeking a sustainability rating from an independent agency provides a measure of "good will" in relationship to the client's customers and employees. This good will is a measure that can enhance the firm's marketing and entice customers to purchase the goods and services provided by the business. Meeting an independent rating category can also influence employee opinion of the firm, perhaps even attracting a higher-quality employee.

The most commonly used certification systems in the United States and Canada are

- Leadership in Energy and Environmental Design (LEED). This is the primary system used in the United States and was developed by the United States Green Building Council (USGBC). It is used in many other nations.

- Leadership in Energy and Environmental Design Canada (LEED Canada) is used throughout the Canadian provinces. It was developed by the Canada Green Building Council (CAGBC).

- There are other certification systems for other countries. One is the Building Research Establishment Environmental Assessment Method (BREEAM). This is primarily utilized in United Kingdom.

If your project is in a foreign country, it is imperative that you investigate what rating system is used in that country. Using LEED for your criteria may give you an overall picture of what will be required to obtain a sustainability rating, but it might not be exactly what is needed in another country. The remainder of this section focuses on the LEED program in the United States.

The U.S. Green Building Council created the LEED certification program to validate a building owner's efforts to create a green building. It also provides certification for designers to enhance their skills and marketability in commercial interior design by evidencing their interest and knowledge in green design. Let's first look briefly at the certification concerning buildings.

LEED Certification

LEED certification is a voluntary, green rating system that helps define buildings that are designed to be healthy, profitable, and environmentally sensible. The rating certifications can be obtained for new construction, existing buildings, commercial interiors, and homes. The rating systems categories, from LEED website, are as follows:

- *BD+C Building Design and Construction*: Buildings that are new or undergoing major renovation

- *ID+C Interior Design and Construction*: Concerns the interior specification and installation of a facility

- *O+M Building Operations and Maintenance*: Buildings that are undergoing renovation that involves little construction
- *ND Neighborhood Development*: Applies to land-use design projects
- *Homes*: Applies to single-family and many multifamily/multistory residences

The types of commercial interiors discussed in this book fall under the LEED ID+C Interior Design and Construction rating category. Yes, the other categories may also apply, but for interior design, the primary certification category is ID+C.

There are four certification levels that a building owner or project leader can apply for:

- LEED Platinum
- LEED Gold
- LEED Silver
- LEED Certified

The Platinum level is the highest certification level a project might obtain. A minimum of 80 points is required to earn LEED Platinum, while a minimum of 40 points is needed to earn the LEED Certified designation, the lowest level of certification. The Platinum level garners extensive public relations and marketing benefits to a business, but it is not easy to obtain.

Numerous categories of design impact are studied to determine whether an applicant has achieved any level of certification. Points are earned related to the different evaluation sets. The evaluation criteria vary, depending on which category the building falls under and for which category certification is requested.

When a project is reviewed for LEED certification, it must meet all prerequisites and is awarded points based on five categories of achievement:

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality

Additional points can be awarded for efforts related to Innovation and Design.

Let us look at these categories as they relate to a generic commercial structure, with emphasis on the interior. Additional details on how points can be earned within these categories are available from the USGBC online.

The categories of Sustainable Sites, Water Efficiency, and Energy and Atmosphere are not areas of responsibility for most interior design firms, but a few words related to these areas are warranted. The category of Sustainable Sites looks at where the building is built. For example, points are awarded if tenants select a building located in developed areas with existing infrastructure, such as an urban area, rather than farmland or undisturbed greenfields. Points are also awarded if the building site provides priority parking for car pools or van pools or alternative fuel vehicles, or if it provides underground

parking rather than on-grade parking lots. In the category of Water Efficiency, points are awarded for highly efficient fixtures and equipment such as low-flow faucets and toilets. In the category of Energy and Atmosphere, the building owner or tenant must meet specific and stringent code requirements related to refrigerants for HVAC systems.

Interior designers will focus their attention on the category of Materials and Resources. A few examples of how the project could receive points in this category include:

- Using materials that are salvaged, refurbished, recycled, or otherwise reused—for example, using wood from a demolished building for flooring
- Using existing furniture moved from a previous location
- Diverting construction waste from landfills using strategies such as recycling
- Specifying carpets, wall finish materials, and ceiling treatments that are made from low-toxicity or nontoxic materials
- Specifying materials that are made from recycled content such as recycled plastic bottles

Additional information on product specification is provided later in this section.

Indoor Environmental Quality is another important category that the interior designer can impact. It can start with specifying low-VOC materials of any kind: paint, carpets, wall coverings, and low-toxicity upholstered goods. It is also important to specify adhesives for carpeting and other architectural materials to be low-VOC products. Planning can also impact indoor environmental quality, as full-height partitions and high divider panels can interrupt airflow. Designers who maximize occupants' access to daylight will achieve more points for the project.

The last category that can be impacted by the interior designer is Innovation and Design Process. A project obtains a point for utilizing the services of a LEED Accredited Professional. Projects are also awarded points if the project implements a new technology or strategy that is not covered in the rating system.

This is an evolving system, and changes are consistently made. In fact LEED v4, a new version of the LEED Green Building Program, was launched in November of 2013. A review of the USGBC website noted above will provide information regarding changes made after this book was published.

LEED Individual Credentials

The first credential is the LEED Green Associate. These individuals understand green building principles and practices. It is geared more for individuals who are in nontechnical areas of practice and is less suitable for interior designers who produce drawings and specifications.

There are LEED credential designations that are suited to those that design and specify projects. They match the building certification program designations. These are higher ratings, requiring greater knowledge concerning green design and sustainable building practices. It is not necessary to take the LEED Green Associate exam prior to taking the LEED AP exam. LEED AP stands for LEED Accredited Professional. The LEED credentials, as defined by the USGBC, are

- LEED AP Building Design + Construction (LEED AP BD+C)
- LEED AP Operations + Maintenance (LEED AP O+M)
- LEED AP Interior Design + Construction (LEED AP +C)
- LEED AP Neighborhood Development (LEED AP ND)
- LEED AP Homes

For commercial interior designers, the most often sought of these designations is LEED AP+C. There is an examination containing multiple-choice questions. The USGBC provides study guides, and there are many third-party study guides and tutorials as well. Once a professional has acquired the LEED credential, he or she must earn continuing education credits. Many of these courses are available online.

Interior designers who want to know more about the qualifications and process for obtaining a LEED credential should refer to the USGBC website; it offers content information, study references, and a few sample questions for each credential category.

THE TRIPLE BOTTOM LINE

Sometimes simply referred to as TBL, the "triple bottom line" is a phrase that has been utilized and discussed in the commercial interior design field for the last 20 years or so. It was coined in 1994 by John Elkington. He first clarified his idea of TBL in his book *Cannibals with Forks: The Triple Bottom Line of 21st Century Business* (1997).

Traditional business measurement defines the bottom line as the difference between revenue and expenses. Elkington and many others have refined that concept to include *triple bottom line,* which is the measurement of business based on profit, planet, and people. You might also find those three terms are interchanged. There are many who feel this concept is largely responsible for the growth of sustainable design in the business community.

Certainly, today's business world is about that traditional bottom line of profitability. As interior designers, we know that creating a functional and effective interior for our clients can improve profitability. Businesses have also come to know that their caretaking of the environment and concern for impact of the business on people—both their employees and the buyers of the business's products or services—also affect the bottom line.

It is clear to interior designers that producing designs that assist in environmental care and take into account the design's impact on the people involved in the business are parts of the designer's responsibility in the twenty-first century. The most obvious element related to the interior designer's responsibility in this regard is the specification of products. By recommending products that are considered green or sustainable over those that are not, the designer impacts not only the environment but often the health of the users of the interiors. Simply using a low-VOC paint affects both the people and place aspects of the triple bottom line.

Commercial interior designers must understand that profitability will remain the primary concern of their business clients. The designer can also influence and assist clients who want to be better regarded in the community and who want to be viewed as environmentally conscientious, going beyond recycling within the office or plant. This environmental consciousness can also attract staff who want to work in a healthy environment.

Designers can help their clients understand that providing interiors based on sustainable specifications improves employee productivity, utility savings, healthy air quality, and even long-term dollar savings. Thus, that elusive profitability bottom line can be satisfied with the addition of consideration for planet and people.

You are encouraged to search the ASID, IIDA, AIA, and IDC websites for articles directly related to the discussion of the triple bottom line and interior design practice. You are also encouraged to seek out publications by John Elkington and others listed in the references.

DOES GOING GREEN COST MORE?

Because of the continuing notion that going green will cost more, many clients object to incorporating green or sustainable design into their projects. Recent projects, however, have proven that green design and sustainable building do not have to be more expensive. While some projects have some increase in up-front costs, green buildings provide significant cost savings in the long term due to better long-range costs, increased energy and water efficiency, and improved employee performance.

Even though many green products have a higher initial cost than products that do not meet any type of green criteria, analysis of a green product versus a non-green product in terms of its costs beyond initial outlay indicates that the long-term cost is almost a wash. But how is this proven to clients?

One economic technique that can be incorporated into planning for a green or sustainable project is life cycle assessment (LCA). LCA measures overall "environmental performance of a product over its full life cycle, often referred to as 'cradle-to-grave' or 'cradle-to-cradle analysis'" (Kibert 2005, 285). In this case, materials, finished products, and buildings are analyzed to evaluate their environmental and health impacts over the life of the product. This environmental assessment begins at the time raw materials for a specific product are obtained and continue through its manufacture into a final product, its installation in a building, and its eventual disposal. For a client who is committed to having a truly green facility, LCA of the products and materials is critical.

Another economic technique that is used in relation to sustainable design is life cycle costing (LCC). One definition of LCC is provided by Mary Rose McGowan: "These costs, together with the initial purchase and installation costs, are called life-cycle costs, and the process of quantifying these costs and accurately comparing them across multiple product choices is referred to as life-cycle costing" (McGowan and Kruse 2004, 72).

Factors that impact LCC include:

- Day-to-day maintenance
- How long it is expected to be useful for its intended purpose
- How much it will cost to replace the item
- Insurance and other operational costs that might impact the product specification
- Potential disposal costs
- Whether it has any recyclable value when it is time to dispose/change the items

The client's goals in appearing to be or actually being green will impact the costs. A client whose goals involve a high degree of sustainable design specification should understandably expect higher costs. A company that wants to attain LEED Platinum should be advised of higher initial costs than a business that seeks the lowest LEED rating, which is Certified. Some would say that designers should be careful about becoming involved in a project where the client is actually looking for minimal green design or even greenwashing the project for marketing impact.

When it comes to the economic impact of a sustainable project, costs are also influenced by factors such as:

- The type of facility/business
- The interior designer's experiences and knowledge in product specification
- The point at which the interior designer is integrated into the design project
- The experience of installers/fabricators, such as carpet installers and painters
- Location and climate can also have an impact

To be compared fairly, each product must be compared on as equal a basis as possible. This is not always an easy task, but helpful tools are available. One is the *Athena Environmental Impact Estimator* from the Athena Sustainable Materials Institute. The reader should realize that other organizations also provide this type of assistance to the design/build community.

Simply saying that one chair that is somehow not considered "green" for a large suite of offices costs *x* dollars compared to a "greener" option is too simplistic. Many times this simple type of comparison pits a traditional approach to project budgeting that does not consider sustainable criteria. Additionally, this approach does not include the other factors of cost mentioned above.

To determine how much more a green project may or may not cost the client, the designer must understand the client's goals, practice good budgeting, and understand what trade-offs might be necessary. In a healthcare environment, designing a healthy green interior is perhaps (one might argue) quite a bit more critical than in designing a small professional office. Unless, of course, the owner and employees in that accounting office have environmental sensitivities!

THE INDOOR ENVIRONMENT AND THE INTERIOR DESIGNER

We all spend the vast majority of our day indoors. Whether it is in our homes, places of employment, or places we visit to purchase goods and services, we spend more time indoors than outside. Many elements in those environments impact our health. Products used for any type of interior can improve or unfortunately even harm the indoor environment.

The interior designer can improve the interior environment by careful specification of products. Pollutants from many sources are a primary way the interior environment can become hazardous to the health of occupants. Pollutants can come from off-gassing of products making up the furniture and architectural finishes. Of course, cleaning products used by the client can also add to a polluted interior environment.



Figure 2-3 Sustainable materials were used in the design of this restaurant at the Ritz Carlton, Dove Mountain.
Interior design by Studio4. Photographer: ©2009 James L. Christy.

Air quality is not an issue easily controlled by the interior designer. According to Bonda and Sosnowchik (2014, 212), it is not easy to control because there are no federal standards regarding indoor air quality. In addition, state standards, if they exist, are often different for each jurisdiction, making it difficult for the designer to know what to specify for each project.

Another environmental influencer is thermal comfort or lack thereof. For the interior designer, this is most frequently impacted by the specification of lighting fixtures and lamps. For example, extensive specification of incandescent lighting can add significant heat to the environment. And while LED lighting is very desirable from a sustainable/environmental point of view, clients often balk at LED's initial cost versus other lamp sources. Interior designers need to become knowledgeable of not only the initial cost differentials but also the facts about the environmental impact of lighting.

Interior designers can also influence thermal comfort by the specification of window treatments/coverings. Commercial buildings often include shades or blinds as building standards. Designers often dislike shades because they can somehow negatively impact the designer's vision of the interior. Yet shades and window films can reduce thermal problems in the interior. Of course, window films and shades also protect wood furniture and textiles from fading.

Another environmental factor in commercial facilities is noise pollution. In offices, noise comes from computers, copy machines, phones, and, of course, the workers themselves. Today's designs with open ceilings and collaborative workstations add to the noise problem in many offices. Sound-masking systems can be helpful in this regard. On the other hand, some food service facilities (like fast food restaurants) are designed to use noise as a factor to move customers out of the facility. Yet customers in a high-end dining room crave peace and quiet. In a healthcare facility, various noises such as hallway traffic, paging systems, medical and food service carts, and other sounds can cause extra stress for patients and families.

These noise issues are important. A noisy doctor's office can be very stressful for waiting patients; this is just one of the reasons that a door separates the waiting area in a physician's suite from the exam rooms. Office workers who need to concentrate must have their offices designed in different ways when the whole of the space is a collaborative environment.

As the interior designer's role in the specification of interior environmental items varies, the designer can best make improvements by being involved early in the design process. Careful research with the client regarding their needs and research of products that impact these issues are also important ways for the designer to make a positive impact on the interior environment.

This brief overview of environmental issues can help the reader gain an appreciation for the many ways that interior designers impact the whole of the interior environment. It certainly is not just picking out colors and fabrics.

PRODUCT SPECIFICATION PRINCIPLES

It is obvious that the selection and specification of sustainable or green products should be important parts of this discussion. As with many other aspects of a project, the earlier the interior designer is involved in the project, the better the selection process for sustainable products. The designer can provide his or her expertise concerning all manner of interior materials to coordinate design decisions with the architect as the structure is designed.

Much has been written on this topic, and much will continue to be provided by designers and manufacturers. This section is an overview of key considerations in product specification. It is not intended to be a detailed discussion.

Commercial interior designers who want to be environmentally responsible and sustainable must educate themselves in the issues surrounding sustainable product specification. There are all sorts of products that claim to be sustainable or green. Some of them are green and some are subject to interpretations of greenwashing. *Greenwashing* essentially means that the company intentionally provides disinformation about its products so that it appears that they are more environmentally responsible than they actually are. Environmentally responsible design and products "are those that cause the least environmental impact on people (building occupants, workers, and the population of communities adjacent to factories) and on the sustainability of the global environment" (Jones 2008, 289).

Several factors must be researched before product selection begins. First, as always, is the client's needs. What might be needed in a senior living facility will be different from what will be needed in an office. Another question that goes along with need is what "level" of a green facility the client really wants. Not all clients who want to use sustainable products will want to achieve LEED Platinum rating. An additional criterion for most commercial facilities will be performance of the product. Some products will need to be replaced more frequently than others. This replacement cost must be considered in the initial cost of the specification. Even the location of the project will impact specification. It may be desirable to use natural wool for upholstery or perhaps floor coverings, but in an area where moths can cause damage, the treatments on the fabric could negate the positive actualities of using wool over a synthetic.

There can be many considerations in product specification of sustainable goods. Some of the most common ones include:

- Minimal off-gassing
- Wood products obtained from sustainable sources
- Verifiable green manufacturing processes
- Whether the products meet applicable codes
- Whether products specified have good life cycle cost factors that will be effective for clients
- Supplier documentation concerning the green characteristics of a product that can be included in the specifications
- How the product will impact performance needs and possible future replacement (life cycle cost considerations)

As an overview, some key considerations in the specification of sustainable products are in order. Due to the limitations in space of this book, only a few product types will be highlighted. For more detailed information on sustainable products, research the sources provided in the chapter references.

Wood Products

- New wood products should include Forest Stewardship Council (FSC) certified documentation. Note that there are various FSC options. Visit the FSC website for detailed information.
- New wood products should come from sustainable species.
- Some projects may provide the opportunity to use reclaimed wood products for various interior details.
- Products utilizing engineered wood should be free of urea-formaldehyde.
- Finishing materials on furniture should be low- or no-VOC treatments and stains.
- When possible, use solid materials such as solid wood and stone for furniture and cabinet tops.
- Refurbishing, refinishing, and reupholstering should be considered as options to new goods.

Upholstered Goods

- Cushion foams should be made using ozone-free processes.
- Investigate how the cushion fillings, such as down, have been processed to reduce allergy issues for the client.
- Finish fabrics that are natural rather than synthetic are more environmentally friendly; however, many newer synthetics are more sustainable than previous derivations.

- Many commercial grade fabrics are treated with flame retardants. These can cause various health problems, so care must be taken in the specification of flame-retardant treated textiles. Yet, safety is more important than meeting a green demand.
- Look for recycled polyester textiles if practicable for the project.
- Obtain specifications from manufacturers to ensure green manufacturing and finishing of upholstered goods.

Wall Finishes

- Use low-VOC and water-based paints.
- Understand that some paint pigments can contain carcinogenic heavy metals.
- Wall coverings should be natural materials, such as sisal and cork. Fabrics may also be used, depending on codes.
- Avoid vinyl (PVC) coverings. Ensure that specified wall coverings do not contain any PVC or PVC coatings.
- Specify green adhesives.

Flooring

- Remember that flooring includes the subfloor construction materials related to a green specification.
- Research carpeting and other flooring underlayment for low-VOC off-gassing possibilities.
- Reclaimed wood can be an option for some projects.
- It is important to carefully research the composition of face and backing materials of carpet and rugs. In commercial interiors, carpet is often glued down rather than installed over underlayment. Use low-VOC glues.
- Investigate the possibility of recycling carpeting rather than disposing of it in a landfill.
- Linoleum is a durable material where hard-surface floors are needed versus using vinyl (PVC) materials. Note that linoleum is both a brand name and an industry term.
- Tile is very durable and low maintenance. Use low-VOC adhesives and grout. Tile can, of course, be noisy and inappropriate for some projects.

These tips and points are presented to help you begin to understand how to incorporate sustainable materials into your projects. This is just a jumping-off point, and considerable additional research needs to be done. Information can be obtained from manufacturers' representatives, online sources, and books from various authors.

Security and Safety

Customers and employees expect to be safe in commercial business environments. Stories about workplace shootings, violence against customers in stores, break-ins in

hotels, and theft of personal information are just some of the occurrences that concern the public, employees, and business owners. Of course, owners, developers, and tenants of every type of commercial facility consider safety issues since the tragic events of September 11, 2001, and subsequent attacks in schools, businesses, and stores. Clients are asking design teams to plan for better security and safety in all types of commercial facilities.

Security issues are not just those related to injury of occupants. Businesses must be concerned with shoplifting, burglary, employee pilferage, vandalism, theft of company records, and protection of company property such as intellectual property. The threats can come from many sources, and the issues vary with the type of business.

Theft is a common security issue. In a retail store, theft of merchandise is a constant concern. The bigger the store or the more expensive the items being sold, the greater the risk and the greater the concern for security. In hospitals and medical office suites, theft of controlled substances creates design challenges. The days of taking a towel or other small amenity item in a hotel are on the wane, yet not gone, and the practice must be controlled.

Users of commercial facilities want to feel safe, and it is the job of the owner to employ safety measures to provide that safe feeling. Guests at hotels want to feel safe in their rooms and while walking the grounds. Emergency egress from auditoriums, conference centers, even hospitals must be thought out during the design process of a facility.

In offices, unauthorized visitors can cause a variety of security problems. One such problem is theft of privileged customer and patient information. Many professional offices have huge amounts of personal customer information stored on computers, the theft of which can cause enormous harm for both the business and customers.

To meet his or her responsibilities related to security and safety in the commercial projects they design, the interior designer's efforts must adhere strictly to applicable building and life safety efforts. Model building codes, notably the International Building Code (IBC) in the United States and the National Building Code (NBC) in most Canadian provinces, standardize construction standards and detail design issues that directly or indirectly relate to safety and security. In addition to the building codes, the Life Safety Code, published by the National Fire Protection Association (NFPA), provides standards for fire and life safety but not for building construction. There is no model code for security planning and design. In the United States, the Department of Homeland Security can provide guidelines to building owners and businesses. However, these are not design guidelines but suggestions for policy implementation. The reader can begin searching by visiting the DHS website.

When it comes to safety issues for the protection of those whom S. C. Reznikoff (1986, 14) calls the "captive consumer"—workers and users of a commercial facility—planning and specification decisions based on strict adherence to building and life safety and fire safety codes are critical. Arrangement of exits, sizes of exit access corridors, planning for places of refuge, specifying architectural materials with low smoke propagation or flame resistance, and many other life safety issues are mandatory design fundamentals.

Interior designers must become aware of security options for their clients' facilities. "Good security involves physical as well as electronic barriers. The physical layout and construction of a space can have a profound effect on fundamental security as well as on how easy or difficult it is to plan and install monitoring and access devices" (Ballast 2002, 312). One visible form of security that we are getting used to is the security

camera. We are on camera at the ATM, when we enter the hospital or hotel lobby, in many retail stores, and at many other locations.

Yet, many businesses want a security system that protects but is not visible. Security can be transparent by providing clear sight lines to entrances from reception counters or other areas in lobbies and waiting rooms. Bullet-resistant glass in windows in some types of medical facilities and financial institutions is another way to add subtle but effective security in design. When the project is more complex, requiring an extensive security program, the interior designer will work with the architect and a security consulting firm, along with the client, to make security plans.

Security issues need to be addressed in programming, so that the interior designer knows what level of security is needed for the facility and can make any necessary adjustments in space planning and specifications. Most security plans and solutions are derived from discussions with the business owner, security experts, and vendors who supply products such as card-access entry locks and security cameras. Many projects will need solutions such as card access to hotel rooms, electronic security devices at entrances to retail stores, and buzzer access from a doctor's waiting room to the exam rooms, to mention a few. Security cameras are used to monitor not only the entrances of many buildings, but also stores, banks, schools, and many other facilities that may be considered high risk.

Lighting is a major way to increase occupants' feelings of security and safety. Appropriate lighting design eliminates dark or hazardous areas in interiors. Good lighting means that occupants feel safe because they can see where they are and where they are going—as well as who might also be in the area.

A thorough discussion of security design concepts is beyond the scope of this book. This information is provided to make the student aware that security issues can impact the interior design of many commercial facilities. Each type of commercial facility has distinctive safety and security issues. Selected chapters include brief comments concerning security. Security systems are no longer a choice. They have become, unfortunately in our free society, mandatory.

Codes

Knowledge of the codes and regulations that impact the design planning and materials specifications of all commercial facilities is a critical element for interior designers. How an interior space is planned can and will be impacted by code regulations. What materials can be used on architectural surfaces will also be impacted by codes. In some jurisdictions, the finishes and even construction of movable furniture can also be regulated.

It is not the intent of this book to provide an in-depth discussion on codes in this section. Nor is this section or other sections concerning codes in other chapters intended to replace a codes textbook or a codes class. The discussions in this book are not all-inclusive of what might be required in a jurisdiction and for a type of facility, but will provide some context to code issues in the design of commercial interiors.

The building, fire safety, and accessibility codes discussed throughout this book are based on the International Building Code (IBC), the Life Safety Code (LSC), and the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Not all jurisdictions adopt the most recently released version. It is the designer's responsibility to verify

which version of each code is required for the project where the project is to be built—not the location of the office of the designer.

Let's start with a definition of codes: "Codes are a collection of regulations, ordinances, and other statutory requirements put together by various organizations" (Harmon and Kennon 2011, 13). These documents are called model codes and are adopted in whole or modified by the local jurisdiction to meet their specific needs. Codes are also created by agencies related to the design/build industry and adopted by jurisdictions to ensure safety. The two primary code organizations are the International Code Council (ICC) and the National Fire Protection Association (NFPA). A listing of the standard codes by each of these agencies can be found in *The Codes Guidebook for Interiors* (Harmon and Kennon 2011) or other resources.

It is critical to point out that although most jurisdictions have adopted all or most of the model codes, a jurisdiction has the right to modify these codes or write their own codes. The codes discussed in this book might not apply to projects in other parts of the world, as countries can develop their own codes. It is the interior designer's responsibility to be sure that he or she is applying the correct codes to his or her project.

There are several code categories and standards.

- Building codes apply to construction standards of the building related to "structural, mechanical, electrical, plumbing, life safety (egress), fire safety (detection and suppression), natural light and air, accessibility standards, and energy conservation" (Harmon and Kennon 2011, 16). The *International Building Code* (IBC) is the most widely adopted of the model building codes.

- Fire codes are used together with building codes to regulate aspects of building construction and interior finishing, egress, and to some degree furnishings. The most widely adopted model fire code is the *Fire Code* from the NFPA.

- The *Life Safety Code* (LSC) is also called NFPA 101. This model code is concerned with design and construction standards related to egress, exiting, and safety of occupants from fire, smoke, and toxic fumes. In many jurisdictions, this model code may be used together with the IBC.

- The *International Plumbing Code* (IPC) primarily impacts engineers. However, because it also spells out requirements related to plumbing fixtures, such as might be needed in restrooms, interior designers need to have access to the IPC.

- The *International Mechanical Code* (IMC) primarily impacts engineers. The interior designer should understand that it exists and impacts ventilation, cooling, and heating.

- The *National Electrical Code* (NEC) regulates electrical service to the building and provides specifications of electrical service to interior spaces. This code will specifically direct the interior designer's planning of electrical outlets, switches, and other electrical components.

There are also other codes and regulations adopted by jurisdictions and/or implemented by the federal government. Among these are codes and/or regulations concerning energy conservation, sustainability (primarily based on USGBC LEED standards), and accessibility through the Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA). Accessibility standards are discussed later in the section.

PERMITTING PROCESS AND OFFICIALS

Commercial interior designers must be aware of the general building permitting process and officials involved. The design of the interior—especially in regards to layout, egress, and safety—will often be part of the designer's responsibilities. Of course, local laws will restrict what parts of the drawings can be prepared by the interior designer.

New construction will always require a building permit granted by the local building department. In many cases, projects that involve major interior renovations and changes in occupancy type or use are also likely to require a building permit. A *building permit* is issued based on working drawings and written specifications provided by the architect or owner of the property. As mentioned, local laws will determine if an interior designer can prepare these materials.

The interior must be planned based on the codes, regulations, and standards applicable in the location of the project, not the location of the design firm. Just because your firm is located in Los Angeles, California, does not mean that what you design based on your codes will automatically apply to a project located in Illinois—or even San Francisco for that matter. One of the first things the designer must do when contracting a new project is to clarify who has jurisdictional code authority for the project.

Let's start with *jurisdictional authority*. Again, this is a governmental department, group, or person in the jurisdiction where the project is being developed. Generally, this authority resides with a local municipality, but may also be impacted by the county, state, and even to some degree federal agencies.

This authority will review the drawings and other documents provided. He or she will determine whether the drawings meet the various codes and regulations in effect for the location and building type. The authority can then approve issuance of building permits, monitor the construction process, and issue the occupancy documents to the owners of the project.

Today, much of the process in most jurisdictions will be simplified by electronic means. Online permit applications, digital transfers of drawings and documents, and other tasks related to permitting and construction can all be handled online.

Some of the key jurisdictional building officials the designer will encounter include:

- *Code official*: His or her task is to interpret and enforce building codes in the local jurisdiction.

- *Plans examiner*: His or her task is to review drawings and other required construction documents submitted by the architect, designer, or project owner prior to the issuance of a building permit.

- *Building inspector*: This person periodically visits the project site during construction to inspect that the work is being done in accordance with the codes and documents submitted and approved (Harmon and Kennon 2008, 407–8).

Depending on the jurisdiction and the project, other officials may be involved in the review of the drawings and documents as a project seeks to obtain building permits, inspections, and occupancy permits. A fire marshal may demand to review plans for adherence to fire and egress codes. A health department official often reviews drawings for food service facilities.

The code review and approval process include such actions as:

- Designer determines which codes and regulations impact the project.
- Designer verifies which drawings the interior designer is permitted to prepare and submit. An architect may be required to prepare drawings.
- Drawings and required documents are submitted to the jurisdiction building office. Remember that the jurisdiction with authority is that where the building/project is being built, not that of the location of the interior design firm.
- If required, drawings may have to be modified and resubmitted.
- Officials issue the appropriate building permits to allow construction to begin.
- Periodic inspections of the job site are performed by building officials.
- A building official makes a final inspection. Often the movable furniture cannot be delivered until this final inspection is completed and the next step achieved.
- That next step is the issuance of a *certificate of occupancy*. This will be issued if the building has been constructed in accordance with the approved drawings and documents.

It is important for the designer to understand that the process, inspections, approvals, and processes for appeals are all necessary to protect the client, designer, and users of a property. At times, a requirement may seem to the designer to make little sense, yet it must be incorporated into the design. It is also important to meet the dates and appointments the designer has with building officials. Remember that the preparer of the documents and applications has legal responsibility.

OCCUPANCY CLASSIFICATIONS

Of course, there are many issues involved concerning meeting codes in the design of commercial interiors. It is not possible, as previously stated, to discuss them all in this book. However, one issue that impacts the overall intent related to the design of commercial interiors is occupancy classification. The classification of a building and use of spaces sets the stage for many of the regulations that will influence the design of the interior.

As the reader may already understand, commercial buildings have different code classifications. These classifications are based on occupancy or use. Some buildings will have more than one classification based on an interior space's use. For example, a hotel has sleeping spaces for guests but also commonly includes a restaurant, retail stores, recreational spaces, and banquet spaces, as well as offices and back-of-house facilities such as maintenance and laundry. These multiple uses mean different standards of design will be required for the different classifications/uses.

Basic classifications based on the IBC are provided below in the sidebar "Occupancy Classifications." The reader must understand that these comment on the most common occupancies in each classification. Other types of facilities might also be included in a specific classification. The reader should research the IBC or other references for clarification.

Understanding which classification the project falls under is critical to the design decisions that will be made. It is also critical to point out that the classifications do vary based on which code—the International Building Code (IBC), the Life Safety Code (NFPA 101), or other codes—have been adopted within the jurisdiction of the project. Because code requirements for occupancies do vary by type of code and jurisdiction, and this book provides only an overview of code information, additional lists or charts are not included. An excellent reference in this regard is Harmon and Kennon (2011). This type of information will also be available from the building department in the jurisdiction, as they must identify which codes are applicable.

One last topic is related to occupancy classifications that can impact many of the types of commercial facilities discussed. That is the issue of *mixed occupancy*. The codebooks may call these *multiple occupancies*.

In the case of a mixed occupancy, codes are applied to each use of the building for that section of the building. For example, a high-rise office building is basically classified as a business occupancy. If a restaurant is included, then that section will need to be designed based on the assembly occupancy. A hotel often includes retail stores, large ballrooms, and restaurants, so multiple code provisions will be applied to the different sections of the hotel.

Note that some situations of mixed use have as that secondary use a space that in a sense is incidental to the overall building. In such cases, the term *accessory occupancy* is applied to that small space. An example would be a large storage room (normally, an S

OCCUPANCY CLASSIFICATIONS

Assembly (A)—Facilities such as restaurants and bars, places of worship, auditoriums, and theaters

Business (B)—Most offices, banks, many medical offices not within an institutional facility; also libraries and government offices

Education (E)—Most types of educational facilities

Factory/Industrial (F)—Places that, for the most part, make products or complete products

Hazardous (H)—Places that make or store hazardous materials

Institutional (I)—Facilities such as hospitals, daycare centers, and nursing homes

Mercantile (M)—Places where the sale or display of goods occurs, such as retail stores, showrooms, and retail stores within shopping centers

Residential—(R-1) includes hotels and motels; (R-2) includes apartments and some types of hotels; (R-3) single-family homes; (R-4) group homes and some assisted-living facilities

Storage (S)—A place where merchandise or vehicles are stored or kept

Utility/Special (U)—A type of facility that does not easily fall into one of the other classifications; for example, a mobile home

International Building Code 2012, 3-2; Harmon and Kennon 2011, 55

occupancy) on a floor of a large office building. The code allows for that accessory occupancy to generally be treated the same as the rest of the building. Of course, the size of the accessory space and its actual use will have a great impact on the classification.

Each model code treats mixed occupancies differently, so the designer must research how the model codes define and apply code requirements to the different occupancies. Be aware that the size of each of the different uses will also impact what must be done in terms of elements such as partition design, egress, materials, and finishes.

Accessible Design

By now the reader is no doubt familiar with the Americans with Disabilities Act (ADA). These guidelines were established in the 1990s to make public buildings more easily accessible for individuals with disabilities.

A second set of guidelines was in effect prior to the ADA but only applied to federal buildings: The Architectural Barriers Act (ABA) is a set of regulations established by the U.S. federal government concerning accessibility and barrier-free design in federal buildings. Agencies of the U.S. government, such as the postal service and others, must meet these standards rather than the ADA.

These two sets of guidelines were combined to create the *ADA-ABA Accessibility Guidelines* in 2004. Revisions to the ADA came out in 2010. As of this writing, revised guidelines are being reviewed by various agencies, and enforcement is expected to begin—well, whenever numerous government agencies have completed their review and the new guidelines find their way into state and local codes. These guidelines have been modernized to reflect changes in technology, building codes, and users' needs. The reader should check to see which version of the ADA design guidelines apply to his or her jurisdiction.

It should be noted that there are parts of the IBC related to accessibility and the International Code Commission (ICC) ANSI A117.1 model codes that can also impact a project. The designer is responsible for verifying which codes apply to his or her project in the location of the project.

Title III of the ADA identifies the buildings and uses of commercial and public accommodations that are required to meet ADA standards. Note that specific facilities might also be required to meet the ADA guidelines other than those listed here. There are specific sections in the ADA guidelines for:

- *Restaurants and cafeterias* and other places serving food and/or beverages
- *Accessible transient lodging,* such as hotels and assisted-living facilities
- *Medical care facilities,* such as hospitals (remember that many doctor's offices are considered business occupancies)
- *Business, mercantile, and civic buildings,* including stores and offices
- *Libraries*
- *Transportation facilities*
- *Judicial, legislative, and regulatory facilities*

- *Detention and correctional facilities*
- *Recreational facilities* of many kinds, including sports facilities, auditoriums, or other places where large numbers of people gather for entertainment or recreation

Every time you, as a healthy individual, use the ramp instead of the stairs, sneak into the larger accessible toilet stall, or use the "star" to recognize the lobby button on an elevator, think of the person with a disability who cries for joy when these simple accommodations are available. Then be sure that you have checked and rechecked your floor plans and specifications to ensure complete compliance in providing accessible and simple accommodations for your commercial interiors projects.

With the aging population of the United States and all other countries, designers must remain aware of accessibility not only for the aging consumer and user of commercial spaces, but for anyone who has disability issues in using public spaces. Interior designers and others in the design-build industry should not consider the design guidelines as impediments to good and creative design. The guidelines should always be viewed as a means to ensure that everyone can enjoy using those creatively designed buildings and interiors.

The new guidelines are expected to simplify many of the compliance requirements. This simplification will help designers do a better job of making commercial public buildings more accessible. It will also help determine whether spaces are not accessible when they should be. Spaces that were very restrictive in their design or lacked easy-to-apply standards will now be simpler to design.

This book provides numerous comments in sections of the chapters concerning accessibility guidelines and other codes in public commercial interiors. References and comments are primarily based on the ADA guidelines. These guidelines were established for properties built in the United States. Other countries will have their own versions of accessibility codes and regulations.

DESIGN APPLICATIONS—RESTROOM FACILITIES

There are few commercial facilities that will not require restrooms. This section briefly discusses key concepts in the planning and design of public toilet facilities. Design application topics related to single-user and multiuser toilets have been placed here to make it easier to find this information. Other chapters will not specifically deal with restrooms other than for hotels and senior living facilities.

Whether the business is a small office, retail store, or larger business such as a restaurant, it is very likely that restroom (or toilet facilities) will be required. For many years now, at least one water closet in each restroom must be accessible. In small facilities, a unisex restroom may be allowed. Otherwise, separate restrooms will be required for men and women.

Larger businesses will be required to have multi-fixture restrooms for customers and employees. In some cases, the restroom might be available only to employees, or there may need to be separate restrooms for employees and others planned for the convenience of customers. Whether the local codes call for a unisex facility, multiple locations of these facilities, or multiple-fixture facilities, the space planning and design of toilet facilities in commercial areas creates design challenges for many design students.

The design team will determine the locations and number of fixtures required, based on code requirements, occupancy types, and the number of occupants. The building

and plumbing codes are the key references for this issue. Local building authorities may have requirements that supersede the model codes. Accessibility and building regulations in other countries may be different from those in the United States.

Some common terms relevant to restroom design include:

- *Lavatory*: A sink for washing the hands
- *Multiuser toilet*: A toilet facility in which several people occupy the overall space at one time
- *Single-user toilet*: A toilet facility in which only one person occupies the space at a time
- *Sink*: The term used for all other sinks, such as service, janitor's, and kitchen sinks
- *Urinal*: Specialty water closet typically found in a men's toilet facility
- *Water closet*: A plumbing fixture in restrooms also called a toilet

Note that depending on the project, the interior designer may plan the layouts and locations of the restrooms. In large buildings requiring multi-fixture facilities, the architect prepares these plans. Complete plumbing diagrams for commercial interiors are rarely if ever completed by the interior designer.

Restroom Accessibility—General Planning Concepts

The design of public restrooms will be guided by the ADA and/or other applicable regulations. It is rare that a commercial facility in commercially zoned property will be allowed occupancy without at least a unisex toilet that meets accessibility guidelines.

Many large facilities require multiple-fixture restrooms. Multistory buildings—regardless of use—will also require accessible restrooms on each floor depending on the actual use of space on each floor. In a multistory building, the architect almost always plans restrooms to be near a central core or in some way arranged in the same general location from floor to floor. This is a savings in plumbing. It can, however, be a fire hazard, so not all buildings will allow this configuration.

Of course, not all stalls in a multi-fixture restroom are required to be accessible. When multiple-fixture facilities are provided, the codes require that at least one stall must be accessible and at least one lavatory must be accessible. The exact number of stalls and lavatories will be based on the type of facility and occupancy load.

One type of accessible stall is as described in the section on single-user facilities and is generally at least 6′ (1829 mm) by 5′-8″ (1728 mm), if the door swings in (Figure 2-4). This stall allows someone in a wheelchair or who needs assistance to utilize the restroom space or stall. Because of the larger size of the space, it has become common to also locate the baby changing station in this stall. Grab bars and accessories such as toilet paper are to be installed according to the applicable accessibility guidelines.

Another type of accessible stall is referred to as an ambulatory accessible stall. This means the user does not need assistance in the stall. It is smaller—generally 36″ (914 mm) wide by 5′-8″ (1728 mm) long when the door swings out. It includes grab bars on both sides of the water closet with the water closet centered in the stall.

Clear floor space must be provided for accessible urinals in multi-fixture men's rooms. All these dimensions are shown in Figure 2-4 and Figure 2-5. Specific mounting heights and allocations of the spaces within the toilet facilities can be found in the ADA design guidelines and other references, such as Binggeli (2012).

Single-User Facility

A single-user facility can be represented by separate restrooms for women and men or one unisex restroom. In either case, the facility must meet accessibility guidelines. It is usually allowed only in a small building or establishment with a limited number of occupants. Space allowance is a minimum of 7′ (2134 mm) by 6′-6″ (1981 mm) when the door swings in. Single-user toilets with the door swinging out can be somewhat smaller as allowed by code. A layout similar to that shown in Figure 2-4 is generally appropriate. Some other sizes and arrangements are possible.

No partitions to separate the water closet from the lavatory are necessary in a unisex or single-user toilet facility. In a single-user restroom for men, a urinal need not be provided in addition to a water closet unless local codes require both fixtures.

Grab bars are required on one side of and behind the water closet. The installed heights of fixtures, mirror, and holders for toilet paper and hand towels are to be located in accordance with ADA guidelines.

Privacy is important in the location and planning of toilet facilities. With a single-user restroom, the door should not be in a direct line with a corridor or aisle so that someone walking in the corridor could see directly into the facility. These facilities are often planned toward the back of the overall space so that other walls shield the view directly into the restrooms.

The designer has many options in the specification of wall finishes, floor finishes, and lighting design. Of course, ease of cleaning is important in the specification of finishes. Many single-user restrooms are somewhat larger than the size mentioned above. When this happens, it is common to include a small cabinet or furniture cabinet to store paper towels and toilet paper rolls. These items should not impede upon the 5′ (1524 mm) turnaround requirement.

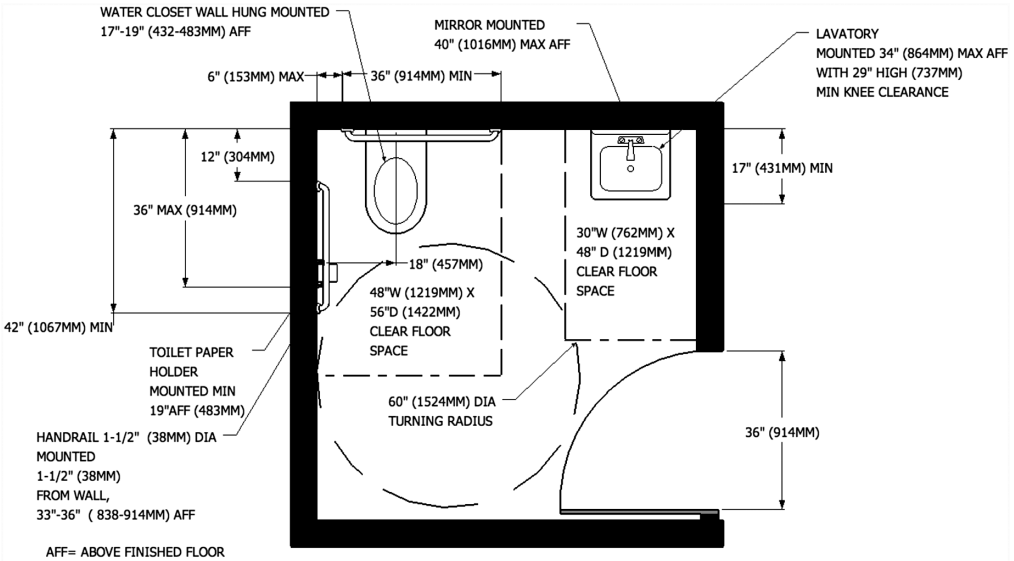


Figure 2-4 Accessible single-user unisex restroom showing plan when door swings in.
Drawing by Esther Gonzalez, ASID.

Multiuser Facility

Privacy is an important element in the location and planning of multiuser, multi-fixture toilet facilities. When a multi-fixture facility is called for, it is a common design to have a vestibule before the actual entrance to the restroom, or at least a full-height wall as a screen at the entry. In some cases, these vestibules have doors. Either of these concepts provides sufficient privacy for those who have entered the toilet facility. Figure 2-5 shows a basic floor plan for a multi-fixture facility.

The quantities of stalls, lavatories, urinals, and any other components of a large multiuser restroom are clarified in the plumbing code. Table 403.1 in the *International Plumbing Code* specifies fixture requirements based on occupancy. This same table is included in the IBC as Table 2902.1.

The number of accessible stalls and other fixtures is guided by the ADA or other accessibility regulations. In this case, one stall in each restroom must be designed based on the ADA guidelines. Any accessible stalls must also meet specifications for dimensions, grab bars, and other items as required.

In a multi-fixture restroom, the water closets must be separated by a partition of some kind. In most cases, these are prefabricated partitions, but some designers create constructed walls with doors. Custom-designed partitions can create an exciting space in an area often considered to be utilitarian. The dimensions of the interior and placement of water closets will be the same as those using partitions.

In some facilities, a small lounge is provided in the women's restroom. This is planned so that the patron walks through the lounge before entering the toilet facility. This lounge area is common in multi-fixture restrooms in department stores, hotels, and some restaurants and large office complexes. This part of the restroom is carpeted and specified with small chairs. It is not a code requirement, but more of a convenience.

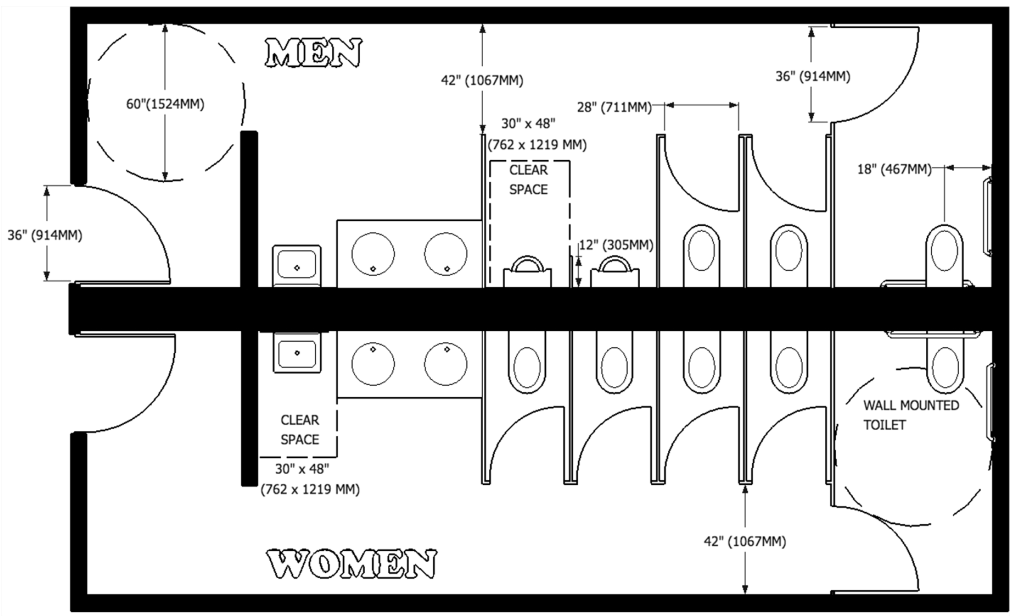


Figure 2-5 Accessible toilet facilities for multiple users. Plan example shows both the men's and women's facility.
Drawing by Esther Gonzalez, ASID.

Other Considerations

The designer will also specify architectural surfaces, fixtures, partitions, and other treatments. The materials and finishes discussed in this subsection are generic and apply to single-user and multi-fixture toilets.

Restroom facilities in public buildings must be easy to maintain and keep sanitary. Resistance to moisture and deliberate user damage are key factors in determining the architectural finishes for walls. Ceramic tile, plastic laminate, and moisture-resistant vinyl wallcoverings can be used for wall treatments. High-gloss paints are economical and easier to repair. Ceramic tiles and materials such as marble and travertine are the easiest to maintain and the hardest to damage. However, their added initial expense prevents their use in many facilities.

Floors are generally finished in high-quality sheet vinyl, linoleum, or ceramic tiles. Nonslip ceramic tile and other floor finishes that resist slipping are common. Carpeting is rarely used where the water closet and lavatories are located due to the difficulty of maintenance and potential bacterial growth.

INFLUENCE OF CORPORATE BRANDS

This brief discussion of the influence of corporate brands on the design of a project is located in this chapter because it might impact any type of commercial facility. Corporate branding might not pose as great a design challenge as sustainable design or accessibility, but it can challenge the designer in terms of what he or she can specify for the project.

Branding and brand recognition is a critical way in which companies of all sizes can market to their consumers. A brand is not just a company logo, such as the specifically shaped apple for Apple computer or the Starbucks logo. A brand involves all the elements that can help to identify a company to its consumers. It includes its logo, corporate colors, company name, and the quality of customer service expected by the buyer, to name a few items.

When the designer begins to research a project, one of the areas that must be included is the business's brand identification program. Brand identification is strongly linked to its logo and any corporate colors adopted by the company. It is quite common for the logo to be incorporated into the lobby design of many facilities. The firm may have requirements to include the major color within the logo as part of the design. Such inclusion must be done cautiously, as brands and colors associated with the company can change. A design element that is created with inlays will be costly to change if the company brand changes in the future.

Naturally, color is incorporated into the company logo, but that color or a major color from the logo can be used in other ways to identify the company. The color blue has always been associated with IBM. I recall designing a project for a real estate office that required the use of red in the design. Can you guess who that company might be?

The location of mirrors and specification of lighting are other concerns. Mirrors are generally located over the lavatories. If additional mirrors are used, they should not be placed so that someone walking past an open restroom door could see a reflection of those inside. General lighting is provided with ceiling fixtures or a combination of spotlights, accent lights on the walls by the mirrors, and ceiling fixtures.

Good lighting is needed especially in the women's restroom, because touching up makeup and fixing hair require good light. Over-mirror fixtures or sections of mirrors with lighting fixtures placed vertically between them to avoid glare on the mirrors provide appropriate lighting without adding significantly to the cost.

The design of toilet facilities can be an interesting part of the project or it can be a disappointment in the total design. Beautiful lounges and restrooms were the norm in high-rise and specialty business spaces in the early and mid-twentieth century. Unfortunately, many businesses do not allow designers to make the restrooms as interesting in design as the rest of the space. Although function is very important, aesthetic design of the toilet facility can be an interesting challenge to any interior designer.

The corporate brand influence on interiors can include other elements besides color. Graphics used for wall treatments might be standardized. A traditional type of facility, such as a bank, might want to use traditional styles of furniture. Stores or other facilities that have multiple locations may expect that all locations have similar treatments and furnishings. All these comments suggest ways that the business tries to use their corporate branding message to help with customer recognition of the product or service.

Some key questions the designer needs to ask include:

- Are there any company directives regarding the use of the company logo/brand elements in facility design?
- Are there specific finish treatments or styles that must be used?
- What is the actual design of the logo?
- What colors are used in the logo?
- Who provides the approval for design decisions related to corporate brand integration—someone from corporate headquarters or a local authority?

These types of questions are necessary to help the designer make appropriate decisions. Not all clients will be major corporations. However, even the smallest family-owned restaurant, independently owned bed and breakfast, or local retailer must compete with major competitors for brand recognition to attract customers.

Summary

Being responsible for the design of a commercial facility goes beyond having concern for the appropriate space plan and aesthetics. The owners of these facilities, as well as the employees and other users, are counting on the designer to utilize best practices that will protect those people in the facility—and create an aesthetically pleasing interior.

With this in mind, the commercial interior designer must be willing to learn state-of-the-industry practices and standards that impact the specialty spaces they are designing. This is a continual learning process about the business of the business as well as the forces that impact the design of any commercial interior. Changes in building codes, accessibility, and sustainability will influence the design of a commercial interior.

Designers must recognize that the world has become smaller. An understanding of cultural impacts and the global marketplace is critical to today's commercial interior designer. Clients from other parts of the world influence design in the United States, and American designers influence design in other parts of the world. The application and use of technology now means even a small firm in the heartland of the United States can work with clients in other parts of the world.

Designers are also increasingly being asked and are likewise interested in sustainable solutions to the design of interiors. Commercial clients see the advantages of using green materials for the health of their employees. And quite honestly, they also see using sustainable design solutions for the marketing value of sustainable design in the eyes of their clients and potential clients.

This chapter provides brief discussions concerning key forces that shape and influence commercial interior design. Each of these topics could be a separate book, and in fact, the reader will find many resources in the references. It is a beginning in hopes that the reader will gain a better understanding of the complexity of the profession before they see the exciting design side of the profession in the other chapters.

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INTERNET RESOURCES

ADA Accessibility Guidelines (ADAAG): www.access-board.gov/guidelines-and-standards

Americans with Disabilities Act (ADA): www.ada.gov

Architectural Barriers Act (ABA): www.access-board.gov

Athena Sustainable Materials Institute: www.athenasmi.org

Building Research Establishment Environmental Assessment Method (BREEAM): www.breeam.org

Canada Green Building Council (CaGBC): www.cagbc.org

Forest Stewardship Council (FSC): www.fsc.org

Green Building Alliance: www.gbapgh.org

Growing Global: www.growing-global.com

International Code Council (ICC): www.iccsafe.org

International Federation of Interior Architects/Designers (IFI): www.ifiworld.org/homepage

Leadership in Energy and Environmental Design (LEED): www.usgbc.org/leed

National Fire Protection Association (NFPA): www.nfpa.org

Oxford Dictionaries online: www.oxforddictionaries.com/us

U.S. Department of Homeland Security (DHS): www.dhs.gov

U.S. Environmental Protection Agency (EPA): www.epa.gov

U.S. Green Building Council (USGBC): www.usgbc.org

CHAPTER 3

Research and Project Process

Interior designers involve themselves in research every time they begin a project. That research effort is most often associated with determining the needs, wants, and requirements of a project—more commonly thought of as *project programming*. However, research can also take many other forms.

Research is defined as "the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions."[1] It is a way of finding needed information. It is also a way to discover solutions, and even new knowledge. As designers, we seek out—research—information that is needed to design a project, write an article, or make a report. Designers also discover information by conducting research that can result in new evidence and new conclusions. This is research more familiar to academics and designers interested in exploring for new evidentiary knowledge.

The first form of research has been a part of the tasks, skills, and responsibilities of the interior design profession for decades. The latter is something that has been important in academia as professors conduct research as part of their responsibilities. This second form of research has also become increasingly important to professionals who see research activities similar to that of the academic community as important to expanding the body of knowledge of the profession and professionalism.

Research and understanding research methodologies beyond programming are important parts of being a professional interior designer. An interior designer might not seek evidence concerning his or her design conclusions in the same way that someone investigating provable outcomes related to design decisions does. Yet they will consciously or subconsciously look for information that helps them convince the client of the decisions and specifications that are offered to the client.

This chapter looks at topics concerning the research tasks part of the design process. It also briefly discusses other topics in research methodology that interior designers are increasingly becoming involved with in the profession today.

1 *Oxford American College Dictionary,* s.v.

Problem Solving in Design

All interior design projects involve problem solving. The interior designer may feel that the client hires him or her for their creativity and aesthetic excellence. In reality, the client is hiring the interior designer to solve a problem. It might be a big problem such as creating that dynamic hotel interior, comfortable senior living facility, or functional office; or it might be a small problem such as changing a color scheme while retaining existing furniture in a small restaurant, or specifying new seating in the lobby of a small bed and breakfast.

Problem solving involves a process just as in creating design solutions. Here are generally accepted brief descriptions of that process:

1. Identify the problem as clearly as possible.
2. Ascertain possible alternatives that can solve the problem.
3. Analyze those alternatives in detail.
4. Make a decision about which alternative best solves the problem.
5. Move forward with that decision. That could mean making the decision known to the client. In other situations, it could mean doing tasks that implement the decision.
6. Evaluate the decision. That evaluation can take many forms, including questionnaires, interviews, or simply considering what resulted from the decision.

Clients begin the process by identifying a problem for which they hire a designer. Problems for clients are some sort of difficulty that they cannot resolve themselves. Like the examples above, sometimes those problems are large, other times they are small but unsolvable by the client. The interior designer uses the design process as one means to solve that problem.

Through analysis of the problem and situation, the designer works toward potential solutions to the problem. In design, the beginning of that solution process uses the process tasks of programming and schematic design. In programming, the designer gathers information. The questioning and information seeking that the designer engages in during programing helps the designer understand the problem. Sketching as part of schematic design helps the designer create alternative solutions that are presented to the client to gain approval.

These alternatives are evaluated to more precisely determine which solution is the best solution to recommend to the client. The designer rarely goes to the client with only one floor plan during the early stages of schematic design. Even if the problem is only new upholstery for the lobby, the designer will likely bring a few alternatives.

Inherent in this step is decision making. The decision-making step involves choices. The designer has first selected several fabrics for the chairs or tried some alternatives to the floor plan. As these items are contemplated, the designer realizes that only one or two fabrics are appropriate, and one plan is better than the other solutions. Thus, the designer decides which items to present to the client. When the designer comes to the decision as to how to solve the problem, in effect the problem is reasonably solved. I say "in effect" because until the client agrees with the decision, the decision is still somewhat in flux.

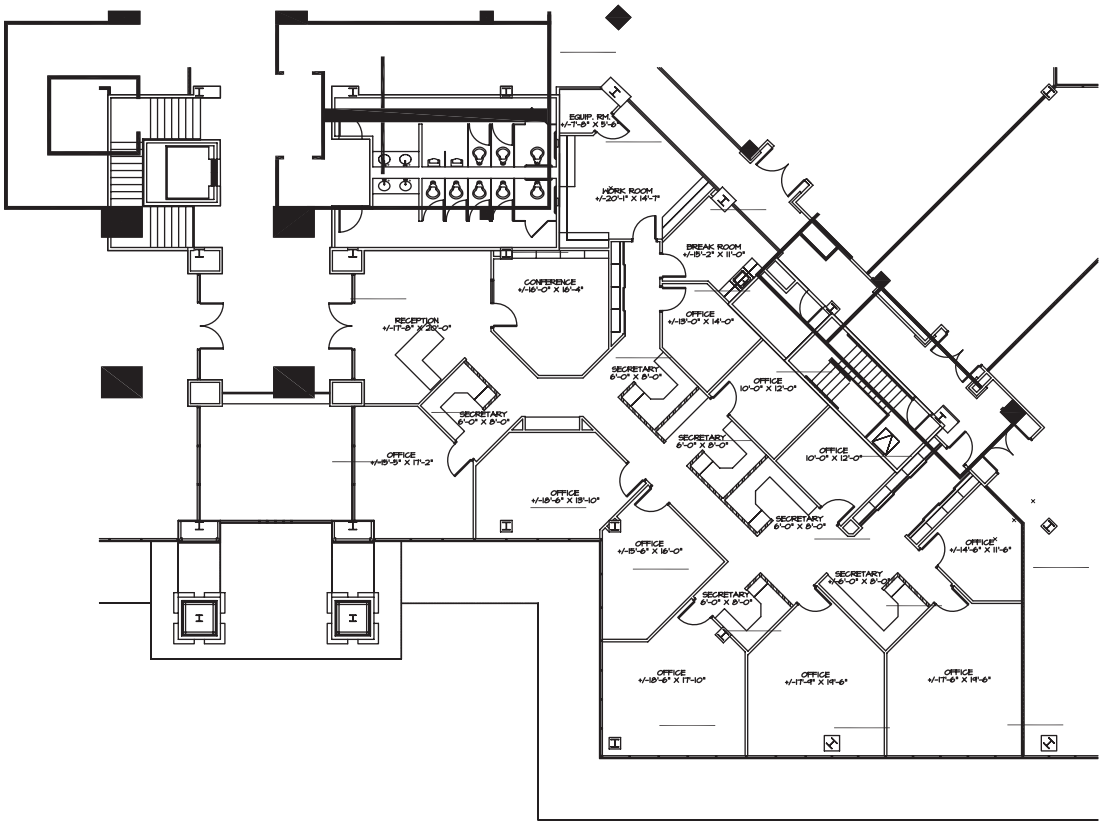


Figure 3-1 Conceptual floor plan for a law office. Plan shows proposed locations of offices prior to defining furniture layouts.
Space plan design by James G. Tigges, IIDA, ASID.

By moving forward with the decision the designer makes as to the best alternatives, he or she presents those possible solutions to the client. Armed with your choices and reasons for your decision, you meet with the client to present your solution. Having logical reasons for your choices is something that students sometimes fail to fully consider. "Because the colors match" is not going to be a reason acceptable to a client. Your decision must be based on some criteria that make sense in terms of the problem and solution.

The client will no doubt have questions about the proposed solution. That's all right, as it is their lobby, office, senior center, or whatever. The client must be satisfied that what you are suggesting is the best solution. You must always go into a presentation armed not only with drawings, samples, and other documents, but also with reasons. Your reasons are based on your experience, your research, and skills. If the client doesn't agree with you, if they argue with you or dismiss your solutions, it is perhaps because you have not researched the solution enough in light of what they wanted.

Assuming the client has agreed to your recommended solutions, the final drawings or specification documents needed to purchase goods close out the fifth step. Few situations allow the designer to forgo one more presentation of these documents with the client before actually issuing plans for permits and construction bids or ordering from suppliers. It is part of the process that combines problem solving, decision making, and the design process.

The final step of evaluating the decision is done less frequently than should be by many designers. They are often busy with another client and fail to look at what transpired during the project. Post-occupancy evaluations discussed later in this chapter can help the designer evaluate the client's satisfaction with the project. An internal evaluation of processes conducted via informal discussions with the project team will help to clarify how the project was solved. In both cases, this evaluation step is highly valuable to the design firm.

For further reading, refer to Watanabe (2009) or Piotrowski (2011). Other resources are also included in the references.

DESIGN THINKING

Design thinking sounds like another way to do design in some sort of organized fashion. Although design thinking certainly can be applied to the design of projects, it is more related to the business world than the design world.

In 2003, David Kelley coined the term "design thinking" and applied it to the business world (Tischler 2009, 4). His premise is that business leaders need to apply the way design is created to the operations of a business. Doing business "as usual" does not create innovation, does not allow new ways of doing business or increasing business. The idea was further defined and developed by Tim Brown, founder of IDEO, in many publications, including *Change by Design* (2009), an excellent resource on this topic.

Designers know that a step-by-step process helps move a project from inception to completion. A designer simply does not start the final construction drawings if the client has not approved the space plan, nor does he or she order the chairs with the custom leather upholstery until the client has approved that specification. Design thinking is a problem-solving process that involves many problem-solving techniques to develop innovative solutions.

By applying the essence of the process of design to business issues and the development of new products, greater success will potentially result. The process in this context is quite similar to those discussed above in the section on problem solving.

It is not a process that necessarily has been accepted by the business community, but it is a concept with which commercial interior designers should have a familiarity. Several resources are listed in the Bibliography and References section for further reading.

Research Methodologies in Design

A design project arguably begins with questions. The interior designer must ask the client many questions about goals, needs, wants, business operations, and on and on. Many of the answers to those questions come from the client interview or observation at the job site. A designer must often look for answers in other places and use other techniques. Many of those questions and subsequent answers can expand the designer's knowledge about his or her specialty, as well as how to approach and solve a project.

Seeking answers to questions during interviews and the programming efforts is a form of research. However, research also involves seeking new knowledge. That new knowledge may be essentially learning something one didn't know about his or her specialty from an article or book. That new knowledge could also be the result of an in-depth investigation into a problem or idea.

This section provides an overview of the research process as it impacts the interior design profession. It highlights why research beyond programming research is important to the interior design profession and briefly describes the steps in the generally accepted process of research.

THE IMPORTANCE OF RESEARCH IN DESIGN

All professions are built on a body of knowledge. Interior design is no different. What this means essentially is that practitioners and academics have, through research, determined certain critical information, facts, and conclusions that are essential to the practice of interior design. A body of knowledge should also be dynamic, growing constantly due to research activities, data collection, and publication. If you are not familiar with Guerin and Martin's *The Interior Design Profession's Body of Knowledge and Its Relationship to People's Health, Safety, and Welfare* (2010), you can view an executive summary at www.idbok.org.

In interior design, much of this profession's body of knowledge has evolved from the execution of projects and subsequent evaluations of the successes or failings of those projects. This type of research can be called *applied research*. It relates to information gathering and decision making that relates to real-life problems.

The kind of research that expands the body of knowledge is *pure research*. Its purpose is to grow the body of knowledge in ways beyond simply solving a real-life problem. It is the kind of research most often conducted by academicians rather than practitioners.

The problem is, too few projects are evaluated after completion. Interior designers are too often off to another project before they stop to ask questions such as, "Did it work?" "Did it accomplish the goals of the client?" "Is the client satisfied?"

Today, projects in commercial interior design are more complex and must reach further than aesthetics and basic needs satisfaction. Commercial projects themselves are increasingly complex, with very serious concerns for the users of spaces such as senior living facilities and hospitals, satisfying discerning hotel guests, and sustainable design implications for all types of facilities. Interior designers are also working farther afield, venturing not only into other states but also other countries.

Interior design and architecture has had and continues to have a profound impact on the environment and health of a facility's users. It is no longer deemed a "best practice" to use material from nonrenewable resources, send flooring that still has some

use to the landfill, and in general to make design decisions based purely on aesthetics without some recognition of their environmental impacts.

Some design decisions work well. Others cause more trouble than good. It is important for the designer engaged in the project as well as for the profession to learn from our mistakes—and quit making them.

For most designers, their experiences with research will be "learning by doing." However, the profession needs more than that. While academicians develop many needed research studies adding to the body of knowledge, that practical on-the-job research needs to be better managed and disseminated—at least to others in the office.

For example, by gathering information about how projects were done, better office processes can be implemented. Positive and negative consequences of design decisions help a designer become more effective. Evaluation of this type of information can improve results for the next project of a similar type.

Designers who decide to focus on a specialty can gain from organized research in an important business way as well. Developing information from projects in their specialty can result in case studies or white papers that can add to their reputation as experts. These reports can be shared with potential clients to help a client judge the designer's expertise, similar to the added reputation a designer receives from presenting information at a seminar.

To grow and strengthen the interior design profession, practicing designers must join and complement academicians in research. It is a vital part of growing as a professional and a needed part of enhancing the view of interior design in the eye of the public, legislators, and others in the design/build industry.

RESEARCH STEPS

You are familiar with the design process and that it has recognizable steps that move the designer and project from one step or phase to another. When other types of research are conducted, regardless of the purpose, it generally will also follow recognizable steps. This section provides brief discussions concerning those steps.

The steps in doing research are generally accepted to be the following:

1. Define the problem and determine objectives.
2. Determine the methodology.
3. Determine the sample.
4. Collect the data.
5. Prepare the report or results.

Let's look briefly at each of these steps.

A research study begins by *defining the problem*. In most people's mind, the term "problem" means that there is some sort of negative that is being investigated. That can naturally be true, but a research problem does not have to be a negative. If a design firm wants to begin working out of the country, that desire is the "problem."

It is important to clearly define the problem so that issues that are not relevant will not distract the person doing the research. As part of this definition, it is important to determine objectives. This part of the first step helps to focus the efforts even more than

merely stating the problem. Let us say that the problem to be researched is the desire to obtain work outside of the country. Naturally, it would be helpful to narrow this down to what country is most desirable. This clarity will help focus efforts on finding out what will be necessary to do design work in that country.

The next step is to *determine the methodology*. This means what type of research tasks must be conducted to obtain the needed information. Before providing brief discussions on methodology, it is important to point out the difference between primary and secondary research.

Primary research is the type of research that is looking for new information not previously discovered. It is obtained in interior design and business realms by using techniques such as questionnaires, interviews, surveys, and other means to uncover new data. Scientists conduct experiments as part of primary research. A survey of client satisfaction on how a design project was conducted is an example of primary research.

Secondary research is related to investigations based on previously known information or previously published information and data. It is often thought of as historical research because it often results from looking at data that already exists. Much of the research that might be conducted in interior design is likely to be secondary research. An example related to a business problem is to compare billing and time records for several similar projects to determine profitability. An example related to a design project would be to compare product pricing and performance of products specified for two similar types of projects. The literature surveys and subsequent reports that students prepare for classes are familiar examples of how secondary research is put to use.

Now let's go back to methodologies. Depending on the problem and objectives, the designer might use any of the following methods.

A *survey* is a more intensive activity and is associated with primary research. It is also more expensive to conduct and can be more time-consuming. The design firm can develop a survey in some form that they can issue to past clients, clients' employees, or a focused part of the general public. A post-occupancy evaluation (POE) is a survey given to clients at the conclusion of many office projects. In many cases, the POE is seeking to discover satisfaction with the products specified, but it can have other focuses as well. There are companies online that can help produce and conduct a survey. They can be found by querying "survey" using a search engine.

Observation is a method that can also produce primary research. Observational research records behavior in as unobtrusive manner as possible. If you have driven over a cable attached to a counter box in the road, you are being "observed" by the city, counting how many cars pass a certain point. A greeter at a big box store often has a small counter in his or her hand to count how many people enter the store. These simple counting techniques don't always give a full picture for the researcher because they can't determine why someone enters a store, only that they have. Observation techniques can also be outlined to gain other kinds of information related to behavior.

An *interview* is also a method of primary research. It is a dynamic survey in a sense because the interview can simply be a researcher asking questions of someone who will respond to the interview. Perhaps you have participated in this type

of interview at the mall. Interviews should be planned discussions in which a researcher has planned questions to ask someone and then records the responses. In many respects, the interview of the potential client during programming is this type of research.

The *historical survey* of data and *literature review methods* are very similar in many ways. In essence, the designer seeks to find information relevant to the stated problem in existing data and other sources. Internet and library research will help the designer find information on what might be required of a firm to open an office or to market within an offshore country. A review of the historical data from the firm will help the designer understand how long it takes to complete certain types of design projects. These types of activities are associated with secondary research.

A *case study* is a type of research report that is often developed in business and design. In this situation, an in-depth review of the event or project is developed to understand how the project worked or did not work. The data gathering for this type of research might include surveys, questionnaires, or interviews.

A *feasibility study* is a research technique and report used to determine the viability of the proposed project. Designers often are hired to conduct the research into the development of a feasibility study to help clients understand whether the project has merit as defined by the client. This kind of research can be part of the early planning stages of most types of commercial facilities projects. In some cases, the project would move forward only if the results of the feasibility study showed positive outcomes. This item is discussed as part of the planning and design elements sections, which make up the majority of commercial facilities treated in this book.

An *experiment* is not a research method that is likely to be conducted by an interior design firm. "An experiment controls conditions so that one or more variables can be manipulated in order to test a hypothesis" (Zikmund 1994, 44). However, it is something that might be used by academicians. A *hypothesis* is an assumption based on a limited amount of information.

Other methodologies are feasible, depending on the problem to be investigated, the goals, and the resources that can be expended. By referring to books listed in the references, the reader can review these or any other methods in greater depth.

The next step in the research process is *determining the sample* that will be used and who will be part of that sample. A *sample* is a small segment of the potential data options available to be researched. It is important to clarify who or what the sample will be, how large the sample must be to provide useful data, and how the sample subjects—assuming people are to be sampled—will be selected. A firm that has been in business for 15 years does not need to research all those years for information about comparative profitability of projects. The most relevant years might be determined to be the most recent—the sample.

The actual *data collection* process is the next step. At the very beginning of the process someone was selected or elected to conduct the research. Now that person must be given the opportunity to carry out the actual data collection. If an in-house individual conducts the research, the management of the design firm must give that individual the time and resources necessary to complete the work.

Analysis and report generation make up the final step in the research process. Data or information gathered must be analyzed to uncover patterns and elements that relate to the original problem definition. "Analysis involves using methods to summarize the data so that it is easier to report and understand by the audience for which it is intended" (Piotrowski 2011, 112).

Depending on what method is used, a database software program will provide results. Sometimes the data will show that the problem definition and results obtained do not jibe. When this is the case, additional research might be necessary.

Reports are prepared to summarize the study. These reports might be kept internally for use by management and others in the office, or they might be prepared in such a way that they can be made available on the firm's website or even published as articles in trade magazines.

Evidence-Based Design

In commercial interior design, clients often need to understand why something is recommended, not just that it is so. Many clients want hard facts and verification that the recommendations offered by the designer will have a positive impact on the facility and will be worth the dollars required to complete the interior. Designers frankly don't always have these answers. A research methodology gaining prominence to help with this issue is *evidence-based design* (EBD).

Evidence-based design is defined as "a process for the conscientious, explicit, and judicious use of current best evidence from research and practice in making critical decisions, together with an informed client, about the design of each individual and unique project" (Hamilton and Watkins 2009, 9). This research method seeks to obtain and apply valid evidence to design decisions rather than relying on opinions.

EBD, as it applies to interior design and architecture, has its roots in the design of medical facilities. This happened because much research in the design of medical facilities has always been focused on outcomes. For example, a medical facility will want to know if materials used in the patient rooms will contribute to infections. Evidence-based design can help provide the answer to that question—providing the evidence exists.

Experts in EBD report that this research and the findings it produces create a provable body of information to assist in designing interiors. Evidence is garnered when the design firm records reactions and outcomes of the design decisions on the users of the spaces and buildings. Although it has its beginnings in healthcare design, EBD has begun to be part of the design of other types of commercial facilities as well.

Most design firms do not have a large staff to do the necessary research, testing or recording, and report generation, so most of this research comes from larger architectural and design firms. Regardless, the research supplies valid data to help the design firm make planning and specification decisions and, thus, provide information to help the client approve of these design decisions.

Some designers are somewhat skeptical of what EBD means to the design process. They are afraid that EBD creates a "formula" for design , entailing rigid rules and the loss

of design aesthetics. The proponents of EBD say this is not true. What can be shown to work in one situation may impact a similar space somewhere else, but many factors can make the second solution different. Applying EBD to a project means that the design team researches the effectiveness of other projects similar to the current one. This helps show the way to effective solutions, not cookie cutter design.

It is a process, say the proponents of EBD: "The method is a process by which a designer and his or her client can find their own answers…the process of turning to the credible research and experience from completed projects may offer a path to answer such questions, but there is not likely to be an answer that comes out of a standards manual" (Hamilton and Watkins 2009, 10).

It is not practicable for this topic to be discussed in sufficient depth in the context of this textbook. Designers are encouraged to first read Hamilton and Watkins's *Evidence-Based Design for Multiple Building Types* (2009). A resource primarily focused on healthcare facilities is Cama's *Evidence-Based Healthcare Design* (2009). Additional resources to guide the reader in gaining a deeper understanding of the topic are listed in the bibliography.

BENCHMARKING

A process that has entered the realm of the business side of practice is *benchmarking*. It is a process of studying performance statistics of the design firm against performance statistics of other firms—especially those producing similar types of projects to your firm—and those considered the top of the pyramid in terms of best firms using best practices.

Part of benchmarking is the model of best practice. *Best practice* can be thought of as ways of organizing and conducting business based on the successful models of top firms. Conceptually, if a firm measures itself against the best firm in its specialty and adopts management principles, it can improve its performance.

It is not easy to find best practice or benchmarking metrics for the design industry. Interior design and architecture firms are generally privately held corporations, and statistics about those firms will not be widely available. From time to time, some metrics can be obtained from trade magazines. Occasionally, articles are available through the professional associations. Internet searches of competing design firms might include some information useful to your firm. If a firm joint-ventures with another firm for a large project, information will naturally be shared—to some degree.

Benchmarking should start with the firm's own data. Such metrics as billings, employee productivity, and the number of projects of a certain type or size designed in the past three years are easily obtained from internal documents. Although an excellent management tool, benchmarking is not an easy tool to use in the design industry. Good researching techniques can be useful, however.

Project Goals and Concept Development

The goals of the project help determine what is to be done. When it is possible to set goals early on, the project will run more smoothly and the results will be satisfying to the client. The client will provide their goals during the programming interviews. From these goals, the designer works to create solutions that meet these goals if at all possible. The designer must remember to discuss the reasons why the goals established by the client are important.

There will be aesthetic goals that impact visual choices and solutions. The designer cannot get hung up on these issues, as they may in fact be less important to the client or actually be key to the goals of the client. For example, creating an exquisite, luxurious full-service restaurant will include aesthetic goals.

Many more goals will relate to the functional goals and needs of the facility. The facility has to work for its intended purpose, and the functional goals of the design will direct the accomplishment of these goals. For example, the spacing of tables in the luxury restaurant must allow the waitstaff to move easily through the space without bumping into diners.

Some goals are going to be both aesthetic and functional. In a luxury restaurant, wait stations for holding extra glasses, silverware, and the ordering system—all functional needs—are required in the dining room. Yet the locations and the surrounding areas should be carefully considered aesthetically so as not to detract from the overall ambiance of the restaurant.

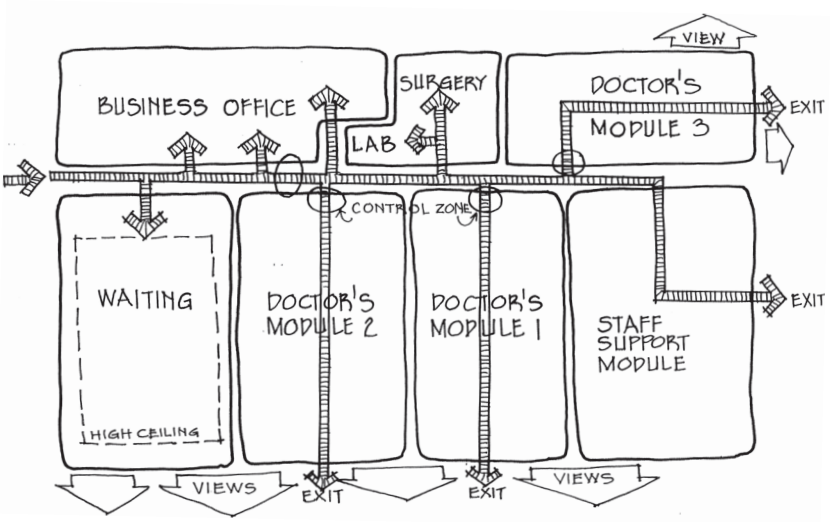
Goals can be uncovered in several ways. Careful interviewing during programming helps to uncover the client's goals. A questionnaire might be used to help uncover those goals. Observation will provide the designer with insights that lead to questions of the client. These methods will lead to both functional and aesthetic goals.

"If goals indicate what the client wants to achieve, concepts indicate how the client wants to achieve them. In other words, goals are implemented through concepts. Goals are the ends; concepts the means" (Peña and Parshall 2012, 48). *Concepts,* thus, are the actual design ideas generated through sketches, plans, and other such things as sample boards that explain what will be done.

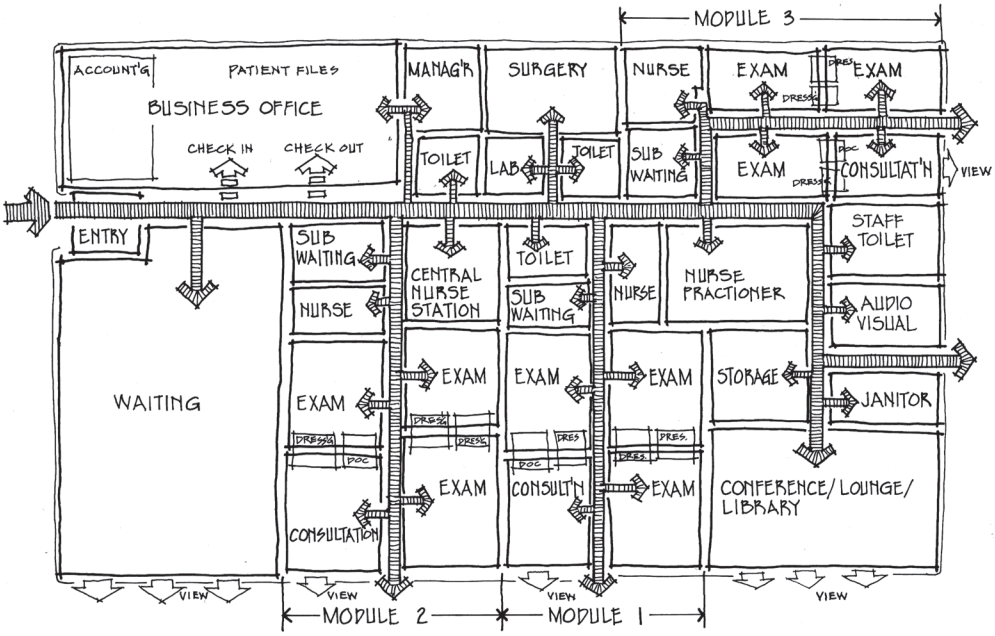
Concepts are abstract in nature. The client may want to see sketches during this early conceptual stage. Designers should be reluctant to do this because once clients see a sketch, they can't get it out of their heads—even if it turns out to be a bad idea. Figure 3-2 shows examples of schematic drawings as part of the development of the concepts.

A written concept statement is the tool that comes out of the concept discussions. Many designers prepare concept statements before any sketches are prepared. For the most part, concepts and written *concept statements* establish what is likely to occur for the design. As these are discussed with the client and clarity is obtained, the conceptual nature of design ideas becomes more concrete. Then any sketches or even preliminary selections of materials might also occur. It must be made clear to the client that these are preliminary and might change during later stages.

Once the goals and concepts have been agreed upon, the designer will move on to the remainder of the design process. Concepts and feasibility studies—a part of many early programming tasks—are discussed in later chapters in the sections on planning and design elements.



(a)



(b)

Figure 3-2 Schematic sketches are used to graphically explain design concepts. Sketch (a) shows rough spatial relationships, while (b) shows a more refined concept with circulation paths defined. *From Rosemary Kilmer and W. Otie Kilmer,* Designing Interiors, *2nd ed. (Hoboken, NJ: Wiley, 2014). Reproduced with permission of John Wiley & Sons, Inc.*

Design Process

The design process is probably familiar to most readers. It is a major research undertaking of the interior designer and, thus, deserves some discussion.

All projects are complex in their own way. Commercial design projects are generally quite complex due to the size of the project, client requirements, code restrictions, the necessity for bidding, and other issues that impact the final design. This complexity means that undertaking the project with a process in mind will help alleviate problems and disputes.

The design process has a recognized series of steps from the initial discussions through all the tasks that must be done to reach the conclusion of the project. Interior designers, as well as architects and others in the design/build industry, accept this process. The design process also applies to all projects, whether for a commercial facility or a residence. The exception might be a small specification project for a single room. Yet it can be argued that the basic design process impacts even this small project.

The basic steps in the process are defined here, followed by tasks that are common in each step. Note that each list of tasks is not all-inclusive, but details the most frequently executed activities. Of course, these phases also include meetings with the various stakeholders and can involve out-of-town travel to the job site.

Programming: Activities in this phase involve researching the client's needs, site restrictions, code regulations, environmental issues, security issues, and economic impacts, among others. These activities often culminates in written design concepts or program statements, reports, and generalized sketched graphic drawings. Additional information about this important early stage in the design process is presented in the next section.

Programming tasks include:

- Gathering project information and conducting client interviews
- Determining client project goals
- Reviewing various codes, security, and environmental issues
- Analyzing the site
- Reviewing social, psychological, and cultural factors
- Inventorying furniture and equipment
- Determining new furniture and equipment preferences
- Determining aesthetic preferences
- Obtaining base building plan or measuring site
- Reviewing the lease
- Developing the scoping statement

Schematic Design: Programming information is synthesized and then converted to preliminary floor plans, elevations, and other orthographic and sketched drawings that seek to explore and explain the design concepts. Codes, building systems, sustainability issues, security issues, mechanical systems, and movable furniture and furnishings are explored and tentatively specified and budgeted. Figure 3-2 shows examples of schematic sketches.

Schematic design tasks include:

- Interpreting programming information
- Making preliminary sketches and drawings of the space plan
- Making preliminary drawings of elevations, details, etc.
- Applying environmental, human factors, and security concerns to the project

- Applying building, life safety, and accessibility codes to the plans
- Preparing the preliminary selections of furniture, fixtures, and equipment (FF&E)
- Developing the budget
- Finalizing the scoping statement or design concept statement

Design Development: Upon the client's approval of the schematic design plans, the necessary orthographic drawings, furniture layouts, systems plans, and other finalized drawings to assure compliance with applicable codes and regulations are developed. FF&E specifications are finalized and budgets are completed. These documents apply applicable/desired sustainability criteria.

Design development tasks include:

- Finalizing the space plan
- Finalizing the furniture layouts
- Finalizing other required orthographic drawings
- Finalizing safety and environmental issues
- Confirming building systems and lighting requirements
- Finalizing FF&E selections
- Finalizing budgets

Contract Documents: With the client's approval of the design development drawings and documents, interior construction drawings and specifications for all interior non-load-bearing partitions are prepared in compliance with applicable building, life safety, and accessibility codes and regulations. Mechanical, electrical, lighting, and security systems are planned in accordance with the designer's legal capacity or are coordinated with consultants. If required by the design contract, bid documents and equipment installation drawings are prepared; coordination with potential vendor requirements is assured where special installation may be needed. FF&E specifications are also completed. Figure 1-3 shows an example of one of the types of drawings included in a set of contract documents.

Contract document tasks include:

- Preparing and finalizing construction drawings and documents.
- Preparing construction specifications.
- Preparing construction schedules as relates to interior designer's responsibility.
- Preparing other construction drawings, such as might be needed by project scope.
- Coordinating consultant drawings with construction documents
- Preparing contract and bid documents.
- Coordinating design work with consultants, clients, and vendors as needed.

Contract Administration: Depending on the jurisdiction, the interior designer can act as an agent for the client in issuing bid documents, qualifying bidders, and administering the bid process. In some locations, the interior designer may be required to hold a contractor's license to supervise installation or provide on-site supervision or coordination of work by vendors. In any case, the interior designer will consult with contractors and vendors and assure that FF&E installation is completed in accordance with plans, specifications, and requirements. Ongoing project management and administration is provided to ensure satisfactory completion of the project through client move-in and post-occupancy evaluation.

Contract administration tasks include:

- Analyzing bid and monitoring bid process
- Observing construction/installation work
- Preparing change orders
- Ordering of FF&E, if this is the designer's responsibility
- Inspecting job site for complete installation of FF&E
- Creating punch list of omissions and damages
- Evaluating post-occupancy

Additional information related to the design process is provided in Chapter 4 in the section on the project process.

Programming Elements

Programming is a critically important part of the design process. It also is a research activity most familiar to designers. Because programming is so important, additional information is needed to provide more depth to the programming phase of the project. We begin by discussing who is in charge.

In a residential project, it is easy to establish who is in charge and who the decision maker is. Well, most of the time that is true, report my residential design friends! In a commercial design project, that is not so easy to determine.

In many situations, the person who has contacted the interior designer about a potential commercial project is not a primary decision maker. In fact, that person's only role in the project may be to contact several design firms about the potential of a project. Depending on the size and scope of the project, this person may be someone in the purchasing department or the facilities management department.

The interior designer must work with this first-step person in order to obtain contact with someone who is actually in a position to make a decision about who will be hired. The section on stakeholders in Chapter 4 describes some of these people and their roles in the project.

Large commercial projects almost always start with the issuance of a request for proposal (RFP) or a request for qualification (RFQ)—or both—by the client. A *request for proposal* provides an overview of the scope and the client's goals for the project.

The client prepares and issues this to design firms interested in the project. Some clients start with a *request for qualification*, which asks for information that focuses on the design staff's experience and qualifications related to a proposed project. These documents spell out much of the information the designer needs to outline his or her strategy for obtaining the project and proceeding with it from programming to completion.

The person representing the client can change based on what phase the project is in and the size of the project. It might be nice to work with the president and chief executive officer of, say, Hyatt Hotels, Inc., to design a new hotel, but that is unlikely. Other staff members will be in charge of the project from that initial RFP release through the phases of the design project. This is another reason why it is so important for the interior designer to understand the business of the business and to recognize the chain of command.

Another big part of programming is *assessing client needs*. *Needs* are things or concepts—tangible or intangible—that someone feels they must have. A need is a requirement of some kind. "We need to have 45 workstations in this department" is a need expressed by a client for an office project. *Wants* are things that are desired, but not necessarily considered essential. "We want to use the best office chair on the market for this project," says the client. This is a need in that they must have chairs, but the actual quality and price will likely impact what is finally selected.

Assessing client needs and wants occurs through questioning and other programming techniques. Through this assessment, the difference between client needs and wants will emerge. There are certainly clients in commercial design who want a very expensive solution when they have a tight budget. Part of the designer's job is to try to resolve that dichotomy with her suggestions.

This, of course, gets into the process of negotiation where the designer provides suggestions, the client agrees or disagrees, and the designer must use his or her experience and knowledge to reach a positive conclusion that the client will accept. A very positive approach to negotiation is to have reasons to back up one's ideas. The dilettante designer's comment of, "because I'm the designer and I know what is best" is rarely going to result in a positive response from a commercial client.

Finally, good programming outcomes stem from *knowing how to ask questions.* Asking questions is a prime way to gather information. A designer asks questions of the client to find out what goals and needs the client has for the project. The designer also asks questions of other stakeholders to establish if they have goals and needs directly or indirectly related to the project. A designer also asks suppliers and contractors, "How do I get this done?" when dealing with particularly difficult concepts. These are just a few ways questions are asked not only during programming, but also throughout the project.

Questions help the designer think in depth about the project. They also help the designer think critically, looking for answers beyond the obvious. *Critical thinking* involves a willingness to look for answers to questions beyond the obvious. The first solution or answer may answer the question, but is it the best answer—the best solution?

Asking "Do you like blue?" will get an answer, but does it really tell the designer what hue, value, or intensity of blue? Thinking critically and asking additional questions will

help the designer determine whether, when the client says "yes" to liking blue, the client is thinking navy blue while the designer is thinking powder blue.

Asking questions also involves listening. Too often designers are so focused on certain information they want to get that they don't hear the answers to questions they themselves pose. Perhaps in the course of an interview for a senior living facility, the client says, "I am sure you understand that older people have vision problems. We need to be careful about what goes on the floor so that they don't get confused." The designer has to hear these issues so that they don't come back with a large flooring pattern that will not show wear but might be visually confusing.

Designers should plan their questions before going to the client regardless of the necessity of the visit. "Winging it"—going in without preparation—never results in positive outcomes. Good questions get you the answers you need. They move the information gathering efforts forward, and they are not judgmental nor do they by themselves create a negative encounter with the client. Good questions also get the designer from low-value—though important—information to high-value questions that may be the crucial information the designer needs. Finding out that the client hates blue—any shade of blue—is crucial. It might be discovered only after asking a few other questions about color preferences.

Keeping records of questions, answers, and even reactions to questions is an important task for interior designers. The records of the questions naturally relate to the project at hand. These same responses can help educate the designer concerning issues that might come to light on a future project. A form with lists of questions and spaces to write notes is one way to do this.

When developing and asking questions, consider using the time-honored technique of journalists. That is, formulate potential questions around these terms: who, what, when, where, why, and how. Along with using this tactic, consider the way in which you frame a question.

Questions can be framed to receive an open-ended response. Something like "What made you decide to open a restaurant?" is going to get an open-ended response from the client. Other questions are seeking what are called closed responses—basically, a simple yes or no or some sort of very short and specific response. "Do you like the color blue?" is likely to get a closed response.

Closed questions help you get down to the specifics of the issues you have. An open question gets the dialog going. The combination of open and closed questions will get the designer the information he or she needs to begin conceptualizing the project.

Finally, during programming, do *not* depend on your memory related to the answers. Note-taking is never a sign of weakness. Take notes of what the client says and don't use a recorder or the recording function on a phone or tablet unless you have permission from the other person. Taking notes shows the client that you respect their ideas. Watch out, though! Taking a long time to type or write notes can make the meeting longer than the client wants.

Several books related to assessing needs and asking questions are listed in the references. Checking search engines will also lead you to many additional resources.

Summary

We are all hungry for new information. In this technological age, a lot of that information is gathered from online sources. However, lots of people still like to visit bookstores and libraries to find printed materials.

Of course, interior designers need other new kinds of information. For a design project, that information relates to what the client needs, the condition or situation at the job site, and numerous other details required to successfully complete the project.

Interior designers also need new information to help them do their jobs better. This can mean researching books, articles, and Internet sources to help them better understand their specialty. They also can discover information from working on a project that can be of use to other designers and the profession as a whole.

This chapter has discussed research methodologies that can be applied to the design process. It contains short discussions of the research process that goes beyond project programming. It also includes a brief overview of the steps in the design process.

There are several books and resources in the references that the reader can review to gain more depth on any of the topics in this chapter. Chapter 4, combined with this chapter, provides a strong foundation in research and project processes in commercial interior design.

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INTERNET RESOURCES

American Society of Interior Designers (ASID): www.asid.org

InformeDesign: www.informedesign.org

Interior Design Profession's Body of Knowledge: www.idbok.org

International Interior Design Association (IIDA): www.iida.org

CHAPTER 4

Project Management

Successful interior design firms know that flourishing in today's competitive market requires more than the application of excellent creative skills. These projects also require management skills to coordinate the numerous activities executed by the project team—many of whom might not be actual employees of the design firm. The firm must also control massive amounts of design details concerning the project, and it goes without saying that the design firm must work with the various client representatives involved in the project, who will all have opinions—some with authority—regarding the designer's work along the way.

All of this coordination and management leads to a task that exists under the umbrella of project management. In design practice, *project management* is a systematic process used to coordinate and control a design project from inception to completion. Project management requires leadership, planning, coordination, and control of a diverse set of activities, people, money, and time in order to accomplish the goals of the design project.

This chapter provides an overview of the project management process as it relates to commercial interior design. It has been brought back into the text by popular request of educators. The chapter will cover key aspects of project management. A new topic in this chapter is a discussion of project delivery methods. Several books that detail project management have been included in the references for those who would like additional information on specific topics.

Also new to this edition is a section concerning adaptive use. It has been integrated into this chapter because the adaptive use of a facility can impact any type of commercial project. The text does not, however, include basic information on historic restoration.

What Is Project Management?

At its core, project management is directing all the tasks and efforts needed to coordinate a project as outlined in the contract. Project management involves activities that shadow the activities of the design process. It is a professional skill honed by the interior designer through project work and observation as part of a team structured for each project. The overriding goals of project management are completing the project on time, within or under budget, controlling the project so that it makes a profit for

the design firm, and ensuring that the completed project meets the design goals of the project and client.

Students must gain an appreciation of project management in order to better navigate their way along the process and understand that completing an interior design project is more than aesthetic problem solving. For the professional, effective project management provides the opportunity for greater profits and helps to minimize problems.

The complexity of most commercial projects requires someone to be responsible for ensuring that the tasks required of the contract are completed. Those tasks are numerous and go beyond creative activities. Documenting all meetings, maintaining project control records, and insuring that construction drawings are prepared correctly are a few project management activities. In addition, accurate determination of the scope of work, control of the budget, quality assurance of the work performed by the team, and control of the schedule are all part of project management.

There are several terms associated with the project management process that are important for the reader to understand as they read this chapter. They are

- *Project management*: Use of a systematic process to coordinate and control a design project from inception to completion
- *Project representative*: An employee of the client firm or an outside consultant who has authority to act on behalf of the client
- *Request for proposal (RFP)*: A document prepared by the client that provides an overview of the scope of the project and the client's goals for the project
- *Request for qualification* (RFQ): Asks for information that focuses on the design staff's experience and qualifications related to a proposed project



Figure 4-1 Refurbishment projects require careful attention to detail. This project involved extensive remodeling of an existing restaurant into this new design. *Reproduced by permission of SVJD Design. Photographer: Henry Cabala.*

- *Stakeholders*: Individuals who have a vested interest in the project, such as the design firm, client, architect, general contractor, and vendors
- *Scoping statement*: A written report that details what will be done and possibly the estimated fee for the project
- *Sealed drawings*: Construction drawings that must be prepared by a licensed architect or designer and have affixed to them the seal of the licensed professional responsible for the drawings

The person responsible for the project is the *project manager*, referred to as the PM by many firms. The next section looks in detail at the project manager's responsibilities.

Role and Responsibilities of the Project Manager

"The project manager is essentially the quarterback who, on a daily basis, organizes, coordinates, monitors, and is responsible for the myriad tasks required to move the job toward completion in accordance with the firm's contractual obligations" (Pressman 1997, 133).

Without the control and leadership of the project manager, a project can easily falter in missed deadlines, errors, and poor communication with the client. Thus, a project manager must be able to wear many hats in order to control the countless details and interactions of a project.

In large firms, the project manager is usually an experienced designer, with a minimum of five years of experience, who has shown capabilities of handling the many skills necessary to manage a large design project. In small firms, the project manager is commonly the principal or an experienced designer assigned to the project. The universally required qualifications of a project manager are

- Effective communication, both speaking and writing
- Excellent people-managing skills
- Leadership skills in order to manage the design teams
- Ability to effectively delegate
- Good negotiating skills
- Very good organizational skills
- Strong technical knowledge of interior design
- Thorough knowledge of the construction process
- Planning, scheduling, and budgeting skills
- Excellent design skills
- Self-motivated
- Good decision-making and problem-solving skills
- Good personal professionalism
- Sense of humor

The responsibilities of the project manager do not vary by much in a small firm versus a large firm. He or she must be comfortable and experienced in all aspects of interior design project work and know how to get things done. Many of the responsibilities of a good project manager include:

- Determine scope of services and project process
- Determine, manage, and motivate project team members
- Prepare, review, and control schedule
- Prepare, review, and control budgets
- Conduct successful meetings and prepare reports
- Interact with the client or the client's representative
- Interact with technical consultants and other stakeholders
- Act as agent between the design firm and client
- Make decisions when needed to keep the project on track
- Prepare billing reports and possibly prepare invoices
- Control project quality standards and adherence to codes
- Resolve conflicts
- Lead the project team to ensure that work is done according to specified standards on time and on budget

Project managers will also have other job responsibilities in addition to managing a specific project. For example, many project managers are responsible for billing reports and possibly preparation of invoices for the design department, are involved in marketing activities to obtain new jobs, prepare proposals and presentations, and negotiate fees for other projects. Naturally, we assume that some firms would add other responsibilities to this list.

A project manager must be assigned to a particular project under consideration by a firm as soon as the firm determines that it will seek out the project. This early involvement is necessary for the PM to determine the design team, schedule, project definition, and how the scope of work is to be executed. Let's look more closely at a few key responsibilities.

Determining the right team is important to delivering a successful project. Leading the team and overseeing work by the design team is a significant responsibility. The manager must control the work of the project team to ensure a satisfactory level of quality in the production of design drawings, construction documents, and specifications. Designers have different skills and abilities, and the project manager, in conjunction with the design director or principal, should select team members who are best suited for the project, not simply those who are available. The project manager must be familiar with the working methods of each team member so that he or she will have an easier time motivating the team members and controlling their work output.

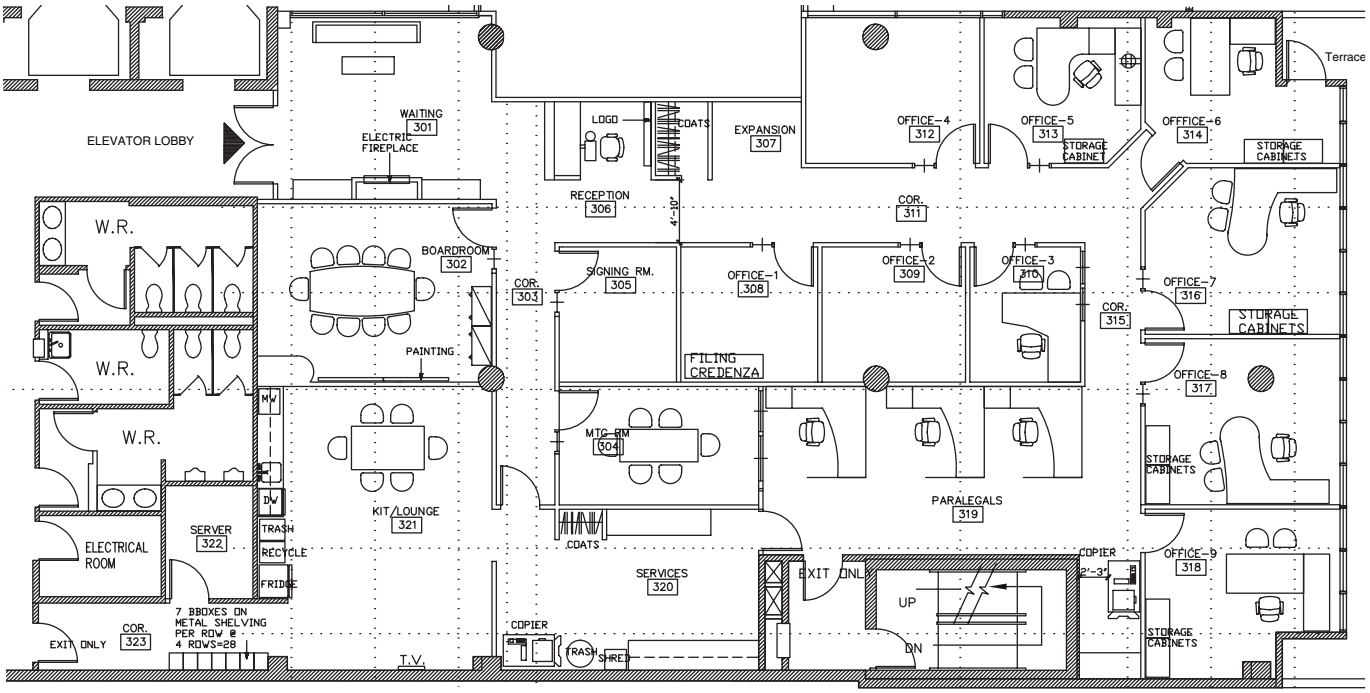


Figure 4-2 Sample floor plan for a professional office, showing partitions and furniture. *Reproduced with permission: Charlene Conrad, IDNS, IDC. Owner, principal designer, Conrad Interior Design. Halifax, Nova Scotia.*

Scheduling is another important responsibility. A key interest for clients is that the project be kept on schedule. Delays add to the overall cost of the construction, interior work, and furniture installation. The project manager, working with the design team and other stakeholders, will be responsible for determining when each phase of the design project is to be completed. Coordination with the client's representative and general contractor is needed for actual build-out of the interior. Although interior designers would like to think so, the work that they do is not always the controlling factor in the completion of a commercial project. Design work must be done on time and in proper sequence, and it is the project manager's responsibility to ensure that the design team is accomplishing this work.

Financial management is also a part of a project manager's responsibilities. A fee estimate must be prepared concerning the design firm's direct and overhead costs, as well as sufficient fees to earn an expected profit. Depending, of course, on the role and responsibility of the interior design firm and information requested in an RFP, budgeting may also be necessary for certain construction, product, and installation costs. The project manager and the principal must control the budget to ensure that the project design, specification, and actual work invested in the project remain within the budget constraints of the client and those projected for the actual project work.

Excellent communication is another responsibility of the PM. A project manager must be talented at communicating with the design team, other designers that might be involved, clients, and numerous other stakeholders. It is not unusual for the PM to meet with the client's project manager or project representative and additional other project managers representing other interested parties. These other stakeholders include the project architect, general contractor, vendors, subcontractors, and specialty consultants. Diplomacy is a highly important skill in these communications. The project manager needs to know how to negotiate and collaborate with any of these stakeholders not

directly under his or her authority. Good communication and negotiation techniques are necessary to alleviate problems and concerns between parties.

The responsibilities of the project manager also include quality control. Project managers must be sure that the quality of the work produced by team members meets the standards established by the firm. Quality control goes beyond ensuring that the "look" of the drawings and documents meets standards. Design documents must also indicate that the project has been designed to meet code requirements, standards of construction quality necessary for the project, the budget, and generally accepted practice. In a time when litigation seems commonplace, it behooves the project manager to insist on and check for quality standards.

Executing a commercial interior design project is much more than creative problem solving. In the opinion of many experienced designers, the creative side is the easy part. Project management is the harder part and the part that truly determines whether or not the firm makes any money on the project. To many clients, an interior design firm's reputation in successful project management is as important as the firm's creative design skills. The most successful design firms join the two skills together smoothly.

Working Relationships with Stakeholders and Team Members

A commercial interior design project requires the coordination and teamwork of many individuals. This coordination starts with the client and the design team from the firm responsible for the project. In a small firm, the project designer is also the project manager. Even so, the designer/project manager must coordinate with numerous vendors, contractors, and perhaps an architect, leasing agent, and individuals from the city where the project is being built, as well as the owner of the property or business. It is quite simple to understand that in a large project the number of people with whom the project manager must work will be quite large.

The ability of the project manager to work with many stakeholders in an effective manner is very important. Negotiation, communication, and plain people skills are, thus, vital project management skills and responsibilities. Let us start by discussing managing the design team.

MANAGING THE DESIGN TEAM

In a small firm, the project designer is also frequently the project manager. It is always possible that a small interior design firm might use a consultant to project manage, but most designers want the control that project management provides. This designer/project manager will be responsible for the design of the project, as well as ensuring that all the work required of contractors, vendors, and other involved stakeholders is done correctly. Managing *contract labor*—which would be anyone working on part of the project who is not an employee but has been hired by the interior design firm for specific tasks—is another challenge. They may have their own ways of accomplishing tasks and must work with the project manager.

In a larger firm and for large projects, the project manager will have working relationships with many others within the firm. The principal—or owner—of the firm is

often directly involved in the project. Principals are involved because clients like to have the owners involved and even be the key designer of the client's project. That is not always possible, however. Principals also like to remain actively involved in design. In the largest firms, however, the principals play a smaller role, turning over most of the responsibility and activity to the project manager and design team. In these larger firms, principals are more likely to review proposal documents, participate in the planning and negotiating of the contracts, attend the final marketing presentations to the client, and want to be kept informed of the progress of all work in the firm.

The design team must be selected based on who has the experience and skills to be effective members of the team for a specific project. Someone who has the time to do the project may not be the best person because of a lack of experience. However, those with the experience can become overcommitted and have a more difficult time performing at a high level on each project. In addition, the project manager must determine who should gain experience by working on the project in a minor role, while not overcommitting more experienced designers. Project managers and principals must weigh the options and make team selections based on what is best for the project and the firm as a whole.

Consultants needed by the interior design firm for specific specialized areas of the design are another group of design team members. An interior design firm may have to hire several consultants to complete the design of a commercial interior design project. For example, a consultant is often needed to complete the design of a restaurant's kitchen. The interior designer may not feel qualified to totally carry out the lighting design of a retail store. In each of these examples, the consultant is not an employee of the design firm. However, their work must be carefully coordinated with the interior design work and supervised by the project manager. Remember that each of these consultants may play a role as project manager themselves related to their part of the project. This is especially true if the consultant is hired by the client rather than by the interior design firm.

When the interior design firm is not part of an architectural firm, the project architect is another stakeholder with whom the interior's project manager must work. In commercial projects, the design firm often will be hired for a project as a subconsultant or as a party to a joint venture with the architect. In other cases, the client will hire the architectural firm and the interior designer on separate contracts, yet still expect them to work together to complete the project.

In other situations, an interior design firm may want to hire an architectural firm to assist with the project. If the architectural firm must prepare the construction drawings, the drawings must be prepared under the architectural firm's name and license. *Sealed drawings* are construction drawings prepared by a licensed designer. These drawings have the seal of the licensed designer or firm affixed to them and cannot be prepared by an unlicensed firm. A seal from a licensed firm cannot be affixed to drawings prepared by another firm.

Other stakeholders who may be part of the design and construction of the project include:

- A *construction manager* (CM) may be hired by the client to oversee the construction process. The construction manager will work with the interior's project manager and the general contractor throughout the course of the construction process.

- A *general contractor* (GC) is the firm that has overall responsibility to actually build the project and is primarily responsible for structural work. The GC is usually represented by a lead individual, who could also be called a project manager and who is supported

by a field superintendent. The general contractor determines which companies he or she will use for bidding on and executing a particular project.

- The *subcontractors* (often called "subs") are the companies or individuals who are doing the actual work on the job site, such as the framers, masons, electricians, plumbers, painters, and so on. The subs work for the general contractor, although they are not actually employees of the general contractor.

- *Vendors* who supply the FF&E for the project are another type of tradespeople the design project manager will have to manage. The general contractor does not usually supervise vendors for FF&E.

Communication is once again an important key related to the effective working relationship of the interior design firm project manager with all the other stakeholders. Regular meetings with consultants are needed to clarify responsibilities and progress issues. Written documentation via transmittals, emails, and updated schedules are important to clarify questions to and from consultants. Outside consultants must understand client and design firm goals so that the work they are asked to perform meets the standards of the interior design firm and is successfully coordinated with the whole of the project.

CLIENT RELATIONSHIPS

The working relationship with the client is the most vital because satisfying the client is the key to a successful project. Of course, the other working relationships with contractors, vendors, and design team members make the project come together and are all very important for project completion. Clients are looking for designers who understand the client's business first, understand the wishes of the client second, and take care of the designer's interests last. The project manager must do his or her best to make sure the project is completed to the satisfaction of the client and that it meets the client's goals. It is not an easy job, as many an interior designer promoted to project manager will report.

Working with clients over many years makes many designers feel that they are ready and fully prepared to deal with clients as a project manager. However, not all client interactions are good as interior designers work their way up through the ranks. Some designers are just not "people people," who instinctively know how to work effectively with clients. Working successfully with clients requires skills that most students do not learn because they are not taught in school.

It is important for emerging designers to ask their supervisors to include them in meetings to observe and take notes. (This is a great way to learn how to deal with clients and other stakeholders.) They also need to ask to go out to the job site where the "new" designer can listen and ask questions after leaving the client. This type of on-the-job training is vital to develop as a designer, and firms can effectively use it to develop their staff.

Clients have many expectations of the design firm and project manager hired to execute a project. First among these is communication. To begin with, the client wants to know how things will be done. This is communicated during the initial meeting and later in the written proposal and at a proposal presentation. Clients who have worked with different interior designers in the past should understand that firms work differently, and the client will want to understand how your firm goes about completing a

project. Clients who have rarely worked with designers will need to be educated on the whole process of design as conducted by the design firm.

Clients want to know that their questions will be answered promptly. They want to be kept informed about the progress of the project because they may potentially need to report to a boss or others about the project. When the detailed work plan and schedule have been completed, it is, therefore, important for the project manager to review these items with the client and, furthermore, keep him or her informed throughout the project. The client has a business to organize or keep running while he or she is trying to prepare for move-in. Thus, the client will worry about the construction and installation schedule as much as the interior design firm.

It goes without saying that clients want to be understood and respected. They seek interior design firms that will listen to their questions and try to achieve the client's goals. The interior designer must always understand that the client comes first—it is his store, office, or bed and breakfast. It is her medical suite, accounting office, or assisted-living facility. The interior designer's ego needs to be blended with the needs of the client, respecting ideas and being receptive to the client's concerns.

Clients who have not worked with an interior designer before, or who have had a bad encounter, will require careful communication and strategies to keep them comfortable with the design process and the way the firm works. Those that have worked with an interior designer before perhaps have not always had ideal relationships or outcomes. Clients who have had a bad experience are going to be weary of working with the next interior designer. They are also going to be more demanding and have higher expectations. If they weren't satisfied before, they will expect the next firm to make up for the errors of the previous firm.

Part of that communication interaction involves knowing who to call for questions. This goes both ways. The client should understand that the project manager is the person to call or who will be calling the client. The project manager also needs to know who to contact for information from the client's end. These contact people are often referred to as a *single source of contact*. Athough it seems confusing, the concept of a single source of contact applies to both the design firm (project manager) and the client.

It works best if the client is contacting only one person at the design firm when they have questions. This will help reduce errors, misunderstandings, and inaccuracies. It sometimes happens that more than one individual might be in contact with the client. If this will be the case, the client needs know the roles of these other individuals at the beginning of the project, or it should be clarified carefully at each communication.

Ideally, clients should be directed by the project manager not to communicate directly with the trade workers on the job site. The designer/project manager must make it clear to clients that they really have no say in what is going on at a project during construction. Project managers and construction managers must make clear that the flow of information on the job site is only through the construction/project manager to working trades. If the client has a question about some work being done on the job site, then that question should be directed to the project manager or the construction manager, who will then check on the inquiry and take care of the issue.

Besides the single source of contact at the client's office, another individual may be hired by the client to oversee the project on the company's behalf. Especially on large projects, clients often appoint someone from a third-party management group to be the contact for the client. This person is often called a *client representative*. All the interior

designer's questions would then go through that client representative. He or she may have the authority to make decisions for the client as well as express positive and negative comments about the progress that the design firm is making on the project. In smaller projects, that single client source is likely the owner of the facility. A client who likes to micromanage all aspects of his or her business will require far more of the project manager's time because he or she must make more frequent phone calls and site visits, and send more memos to that type of client.

Clients expect that designers have the technical competence to satisfactorily complete the project. There are likely to be many codes and regulations that affect the design of the project. Many projects include technical issues that may go beyond the expertise of the average interior designer. When this is the case, the design firm may want to enter into a joint venture with another firm in order to provide the necessary competencies required for the project.

Communication skills are important at all levels as a designer pursues moving from one level to another. Naturally, they are important in working with clients of all levels. Students may want to take an elective speech class or a class that teaches selling skills. Professionals often benefit from a networking group such as Toastmasters, where you will have to make presentations. Becoming involved in your interior design professional association will also give you the opportunity to meet people and build relationships. All of these kinds of activities will help the reader—whether student or professional—to become more confident in their people skills. In addition to the tips below on working with executive-level clients, there are other books in the references that specifically talk about how to work with this level of executive.

TIPS FOR WORKING WITH EXECUTIVE-LEVEL CLIENTS

- Their time is critical. Don't waste their time with a lot of small talk or unnecessary information or sales pitches.
- Be clear and brief, and stick to the point.
- Executives like to work with experts.
- Anticipate their questions and have the answers.
- If you don't know, say so and get back to them immediately.
- Never forget to fulfill a promise.
- Don't promise what you cannot deliver and always strive to deliver more than you promise.
- Listen very carefully so that you don't waste their time.
- They are demanding and, thus, expect perfection from those with whom they work.

Project Delivery Methods

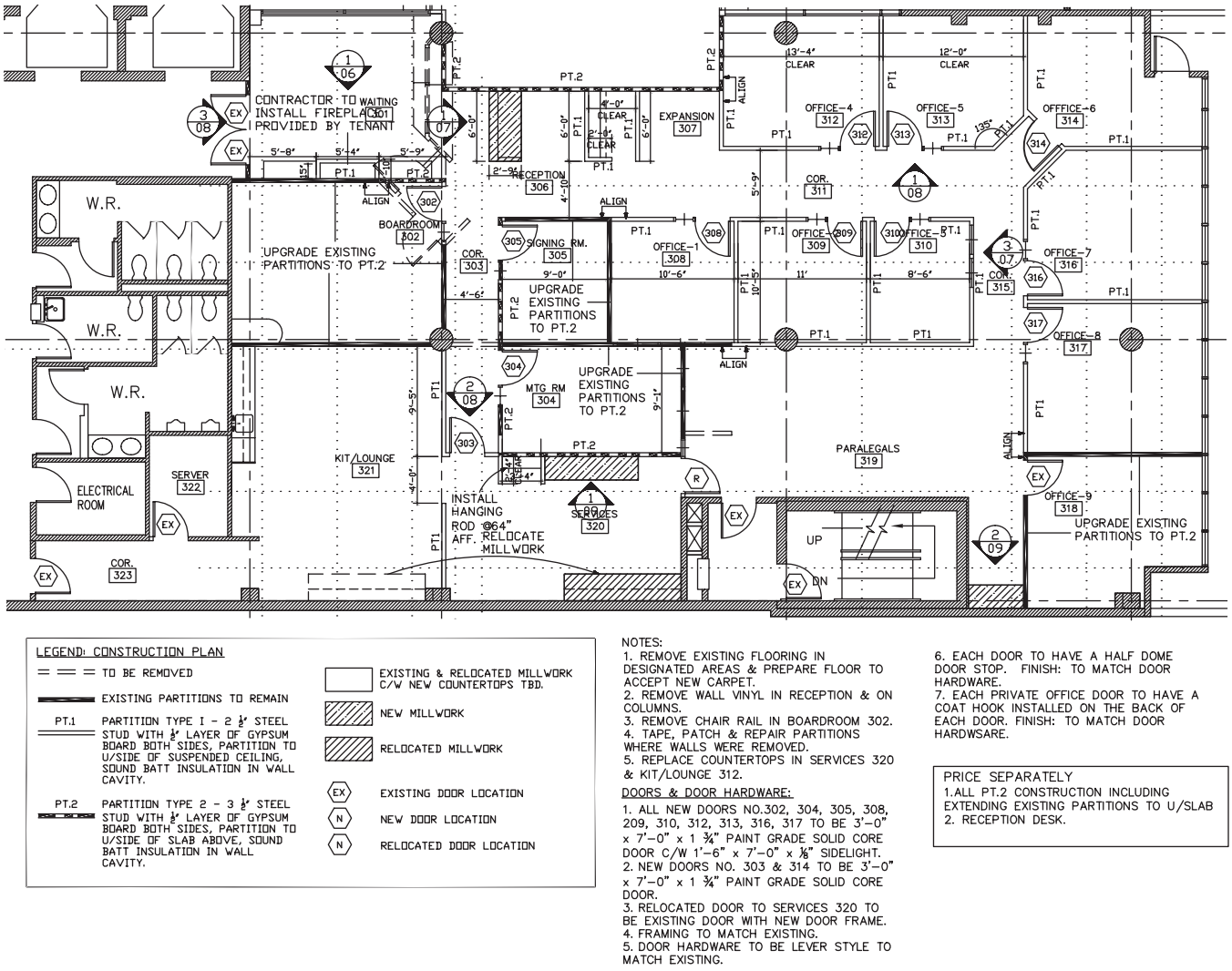
The building process for any commercial project is complex. In some cases, it can take several years for the design of the facility to become realized. Then it may take many more years for it to be constructed and the furnishings installed so that the client may take possession and occupy the facility. Of course, many projects do not take years to complete if the occupancy is in an already-constructed building.

The client will hire the design team or the design team leader, which is often an architectural firm. Depending on the wishes of the client and the architect, additional team members will be gathered to execute the plans and specifications and then see the project to completion. Those other team members will be the stakeholders discussed in the previous section.

The architect and client will then determine how to get the project done. The project delivery system is "the method selected to allocate roles, responsibilities, risks, and rewards among the parties accomplishing the design, preparation of construction documents, construction, and management of a construction project" (Demkin 2008, 1000). There are actually several choices as to how to proceed with the project: design-bid-build, construction management, design-build, and integrated process. They are discussed briefly in this section to provide background information for the reader.

As an aid in understanding building construction, several terms are included that relate to construction. These terms might apply to any of the types of facilities discussed in this book.

- *Base building*: The shell of the building, including building core structures such as elevators and restrooms.
- *Bearing walls*: Walls that support the loads of floors and/or ceilings from above.
- *Curtain wall*: An exterior wall that supports no weight except its own and is attached to structural members of the building.
- *Dead load*: The permanent structural elements of the building.
- *Demountable wall*: An interior partition that is built at a factory and held in place by tension.
- *Demising wall*: Any partition used to separate one tenant space from another. Each tenant is responsible for one-half of the thickness of all demising walls.
- *Floor slab*: Commonly reinforced concrete made as an on-site poured floor or of precast units. Floor slabs can be made in other ways and of other materials as well.
- *Live load*: The weight of people, furniture, and equipment added to the building.
- *Metal studs*: Preformed steel units used in place of wood studs in commercial buildings. Other structural units that mirror many wood structural pieces can also be made of steel.
- *On grade*: Structural flooring placed directly in contact with the ground.
- *Plenum*: The space between acoustical tiles and the floor above in a commercial building. Mechanical systems such as lighting, electrical, and plumbing systems can be located in the plenum.



LEGEND: CONSTRUCTION PLAN

- TO BE REMOVED
- EXISTING PARTITIONS TO REMAIN
- PT.1 — PARTITION TYPE 1 – 2 ½" STEEL STUD WITH ½" LAYER OF GYPSUM BOARD BOTH SIDES, PARTITION TO U/SIDE OF SUSPENDED CEILING, SOUND BATT INSULATION IN WALL CAVITY.
- PT.2 — PARTITION TYPE 2 – 3 ½" STEEL STUD WITH ½" LAYER OF GYPSUM BOARD BOTH SIDES, PARTITION TO U/SIDE OF SLAB ABOVE, SOUND BATT INSULATION IN WALL CAVITY.
- EXISTING & RELOCATED MILLWORK C/W NEW COUNTERTOPS TBD.
- NEW MILLWORK
- RELOCATED MILLWORK
- EX — EXISTING DOOR LOCATION
- N — NEW DOOR LOCATION
- N — RELOCATED DOOR LOCATION

NOTES:
1. REMOVE EXISTING FLOORING IN DESIGNATED AREAS & PREPARE FLOOR TO ACCEPT NEW CARPET.
2. REMOVE WALL VINYL IN RECEPTION & ON COLUMNS.
3. REMOVE CHAIR RAIL IN BOARDROOM 302.
4. TAPE, PATCH & REPAIR PARTITIONS WHERE WALLS WERE REMOVED.
5. REPLACE COUNTERTOPS IN SERVICES 320 & KIT/LOUNGE 312.

DOORS & DOOR HARDWARE:
1. ALL NEW DOORS NO.302, 304, 305, 308, 209, 310, 312, 313, 316, 317 TO BE 3'–0" x 7'–0" x 1 ¾" PAINT GRADE SOLID CORE DOOR C/W 1'–6" x 7'–0" x ⅛" SIDELIGHT.
2. NEW DOORS NO. 303 & 314 TO BE 3'–0" x 7'–0" x 1 ¾" PAINT GRADE SOLID CORE DOOR.
3. RELOCATED DOOR TO SERVICES 320 TO BE EXISTING DOOR WITH NEW DOOR FRAME.
4. FRAMING TO MATCH EXISTING.
5. DOOR HARDWARE TO BE LEVER STYLE TO MATCH EXISTING.
6. EACH DOOR TO HAVE A HALF DOME DOOR STOP. FINISH: TO MATCH DOOR HARDWARE.
7. EACH PRIVATE OFFICE DOOR TO HAVE A COAT HOOK INSTALLED ON THE BACK OF EACH DOOR. FINISH: TO MATCH DOOR HARDWSARE.

PRICE SEPARATELY
1.ALL PT.2 CONSTRUCTION INCLUDING EXTENDING EXISTING PARTITIONS TO U/SLAB
2. RECEPTION DESK.

Figure 4-3 Demolition and construction plan for the project shown in Figure 4-2. *Reproduced with permission: Charlene Conrad, IDNS, IDC. Owner, principal designer, Conrad Interior Design. Halifax, Nova Scotia.*

■ *Stick built*: A slang term for construction of partitions and other parts of a building constructed on-site.

■ *Suspended acoustical ceiling*: Acoustical tiles are suspended on T-shaped runners. These runners are attached by wires to the above floor deck. Light fixtures can be placed within the grid resting on or attached to the T-runner.

DESIGN-BID-BUILD: TRADITIONAL

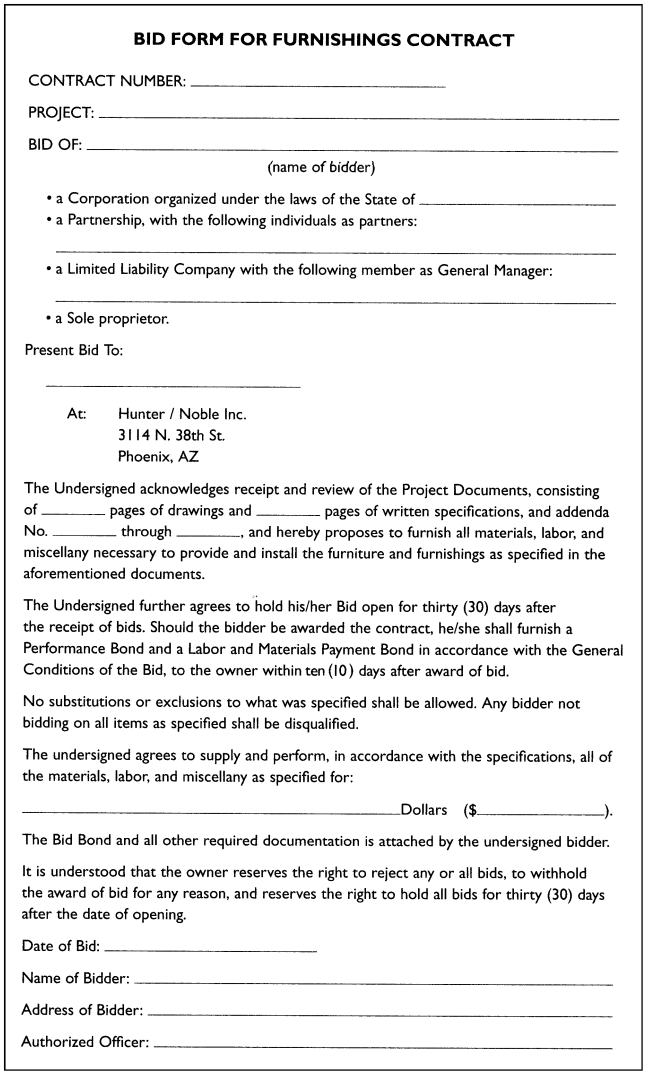
The traditional process of delivering a project is *design-bid-build*. It follows three distinct segments of construction. As the terms in the methodology suggest, a client will first hire an architect or interior designer to design the project building and/or interior.

This stage includes all the phases of the design process discussed in Chapter 3, as well as later in this chapter. Programming is detailed and extensive to ensure that the requirements and needs of the client are uncovered and integrated into the project. The other phases are accomplished based on this programming information as the plans

and specifications are created. This is all very standard to what students are familiar with, whether one is referring to a residential or commercial project.

The next step is bidding. After the design has been completed and approved by the client, the designer goes about obtaining bids for the construction and/or products needed for the client's project. *Competitive bidding* is the process of obtaining more than one bid or price from suppliers, contractors, and vendors in order to complete the project as designed. This is very common for commercial projects and is required for projects involving government agencies, utilities, and many businesses when the expected cost of the project exceeds some dollar amount set by the business. Figure 4-4 is an example of a *bid form*, one of the documents used in competitive bidding.

The interior designer's responsibility during the bid stage could include development of the bid documents, management of the bid, and assisting the client in determining the winners of the bid. If the reader is unfamiliar with the bid process, a review of my book *Professional Practice for Interior Designers,* 5th edition, and other books in the references is advised.



BID FORM FOR FURNISHINGS CONTRACT

CONTRACT NUMBER: _____

PROJECT: _____

BID OF: _____

(name of bidder)

- a Corporation organized under the laws of the State of _____
- a Partnership, with the following individuals as partners:

_____

- a Limited Liability Company with the following member as General Manager:

_____

- a Sole proprietor.

Present Bid To:

_____

At: Hunter / Noble Inc.
3114 N. 38th St.
Phoenix, AZ

The Undersigned acknowledges receipt and review of the Project Documents, consisting of _____ pages of drawings and _____ pages of written specifications, and addenda No. _____ through _____, and hereby proposes to furnish all materials, labor, and miscellany necessary to provide and install the furniture and furnishings as specified in the aforementioned documents.

The Undersigned further agrees to hold his/her Bid open for thirty (30) days after the receipt of bids. Should the bidder be awarded the contract, he/she shall furnish a Performance Bond and a Labor and Materials Payment Bond in accordance with the General Conditions of the Bid, to the owner within ten (10) days after award of bid.

No substitutions or exclusions to what was specified shall be allowed. Any bidder not bidding on all items as specified shall be disqualified.

The undersigned agrees to supply and perform, in accordance with the specifications, all of the materials, labor, and miscellany as specified for:

_____Dollars ($_____).

The Bid Bond and all other required documentation is attached by the undersigned bidder.

It is understood that the owner reserves the right to reject any or all bids, to withhold the award of bid for any reason, and reserves the right to hold all bids for thirty (30) days after the date of opening.

Date of Bid: _____

Name of Bidder: _____

Address of Bidder: _____

Authorized Officer: _____

Figure 4-4 Sample bid form. The vendor uses this type of form to provide his "price" for the part of the project that this bid entails. *Reproduced by permission: John Wiley & Sons. From Piotrowski 2013, 277.*

The third part of the design-bid-build project delivery process is the actual construction of the project. This would include the installation of the interior furnishings. The interior designer's responsibility during this stage might be the installation supervision of the movable furniture products and perhaps some items such as cabinetry. This supervision will depend upon local laws related to the necessity of the interior designer having a contractor's license.

The design-bid-build delivery process is slow in comparison to methods that have become popular in more recent years. It is still used for smaller projects, as it is familiar to the entrepreneur and small businesses.

CONSTRUCTION MANAGEMENT

In this delivery method, the client hires a separate individual or company to be the construction manager (CM). *Construction management* is similar to project management, although different responsibilities are often assigned to the two. This person—for simplicity—is not in the same role as the project manager. It is similar to but often more advisory than the role of the project manager. Although it is similar in many respects to project management, some clients are simply more comfortable with a buffer between the client and the project manager looking out for the client's interests.

Construction managers can provide financial estimation and guidance prior to the beginning of the project and then can administer the schedule and budget during construction. Many of these specialists can help the client develop the design team, as can the project manager. A big difference between the two is that the CM often is unfamiliar with the functional operations of a client's business that create design and specification decisions. The PM will have the expertise in design and specification needed for those decisions.

One disadvantage for the client of this delivery method is that it does add another layer of costs to the project. Fees must be paid to the CM for work that perhaps the project manager could perform, causing unnecessary duplication.

DESIGN-BUILD

The *design-build* process embraces collaborative design. In this project delivery method, all the project stakeholders are included in the design of the project at the beginning. Thus, there is a single source of expertise for design and construction coordination of the project.

In traditional project delivery methods, it is common for some of the project stakeholders, such as the interior designer, to be outside the initial design planning. Using the concept of design-build, the owners, architect, interior designer, and other consultants needed for a project work together from the initial concept through to the completion of their responsibilities.

In design-build, a single negotiated contract is given to a single company for both the design and construction of the building. The contracted company provides all the needed services for the project and accepts responsibility for all the required services. They also will hire any subconsultants needed for the project, such as a kitchen designer for a commercial kitchen in a restaurant. The primary company can be a multifaceted company that can provide all the expertise from design through construction and installation. It can also be a joint venture firm—a temporary firm created from the collaborating firms—organized to provide the needed services.

The traditional project process requires more time because there is more back and forth as ideas that are generated by one stakeholder are negotiated to be changed by others. Working as one unit in the design-build process, the undertaking comes together faster and with fewer complications. Design-build means greater integration of services right from the beginning, as well as greater potential savings for the client since construction costs and design can be more tightly controlled as the design is developed.

From a business standpoint for the design firm, design-build is riskier because the design-build firm must assume liability and responsibilities that would otherwise be passed on to separate companies. For the client, it eliminates the competitive bidding process for procuring construction and furnishings costs. In some cases, this can be a problem when more than one bid is required for contracting and purchasing, as might be true of projects for government agencies.

Although the risks of design-build are greater from a business standpoint, the potential revenue benefits are also greater. Clients tend to like the idea of having only one company responsible because it makes communication easier.

The Design-Build Institute of America (DBIA), founded in 1993, is an association for those in the design and construction industry that embrace the design-build process of project delivery.

INTEGRATED DESIGN PROCESS

By seeking to develop a team that can produce a better outcome, the *integrated design process* puts more emphasis on the people involved in the project. It also puts more emphasis on the technology that can create dynamic two-dimensional and three-dimensional models of the project. This design process is most notably featured in a whole building or otherwise very large project.

For very large projects, it is not unusual for multiple design firms to work together to create the integrated project. This collaboration can lead to a better functional design for the client while saving time and money in the long run. "Every year more firms are adopting integrated practice, finding it can improve the quality and efficiency of the building process and result in both a better building and more satisfied client" (Elvin 2007, 3).

Since more than one firm may be involved in the integrated project, it is vital to the lead firm—as well as all the others—to have clearly defined roles, responsibilities, financial responsibilities, and risk issues spelled out at the beginning. A business model of integrated design is similar to the joint venture discussed in many design practice books. Firms invited to participate in an integrated-design-process project must be capable of working in the different drawing, documentation, and modeling platforms used for the design and construction process.

The growth of the use of technology in the design/build industry for the creation of documents continues to be an important best practice for all design firms—regardless of the size of the project. It is especially important in integrated design to allow for the easy transmission of documents around the globe.

It should be noted that integrated delivery is a design process that has also received much attention in the sustainable design/construction arena. Tied with technology, integrated delivery has grown with the emergence of building information modeling (BIM), discussed in the next section.

The integrated design process begins with the information developed by and obtained from the client. He sets the direction of the project with the needs and wants clarified in his assessments of the upcoming project. In many cases, the client provides this information to design through the RFP. The design team that wins the project will likely need additional information as part of programming.

The project continues through the design process of design development, schematic design, construction documents, and construction through the coordination of all the parties to the project. The project team leader or project manager works to ensure that all parties work together, each providing the agreed-to work and documents to result in a successful building that meets the expectations of the client.

Building Information Modeling (BIM)

When the project involves a large commercial building or an extensive interior program, a process that continues to gain acceptance by architectural and design firms is building information modeling, or BIM. According to the literature, there is no single definition of BIM. A good working conceptual definition comes from George Elvin, "BIM combines graphical project data such as 2D and 3D drawings and nongraphical information including specifications, cost data, scope data, and schedules" (Elvin 2007, 133).

BIM does involve the use of specialized software integrated with other software a design firm already uses. Because many computer software companies offer a version of BIM to coordinate with their 2D programs, no single program will be endorsed here.

BIM is 3D design and modeling, giving designers and other stakeholders a more comprehensive idea of what the project will look like. It is also an information management system in that it can integrate project information and specifications into reports and other documents generated from the drawings more easily, in most situations, than traditional 2D drawings and documents.

Firms consider applying BIM to project work due to cost and time savings. Improved productivity by the design team members is another feature of using BIM, as well as enhanced control of information about the project.

BIM is also an additional tool for management of the project team members. It helps create better communication and collaboration, as well as team building and leadership. An excellent source of information about BIM can be found in Deutsch (2011). Of course, other books are available, and more information can be found on the Internet.

Project Process

A design project ideally flows smoothly by following a process that contains logical steps from the inception of programming through to the conclusion of installation. Those steps, with emphasis on programming, were outlined in Chapter 3.

In this section, we discuss tasks of project management that need some details to add clarity to the project management process, not the design project process. Let us begin by defining several terms concerning the project process:

- *Bar chart*: A graphic display of a project schedule showing a list of tasks in sequence and an estimated duration of each task
- *Critical Path Method (CPM)*: A scheduling method that identifies and graphically displays tasks using symbols and lines or other means to connect the items that must be accomplished in a certain order before the next set of tasks can be started
- *Deliverables*: Tangible design products such as construction drawings, specifications, and other contract documents or project documents
- *Milestone Chart*: A simple way to show project process by listing tasks on the left side and having other columns that indicate target dates
- *Proposal*: A document prepared by design firms outlining what and how work will be done, who will do it, and other information the client has requested or the design firm wants to provide
- *Short list*: A small list of design firms that will be asked to make presentations following the receipt of proposals in response to an RFP
- *Work plan*: A document that includes all the tasks or scope of work to take a project from inception to completion and defines what is needed, including clarification of deliverables, schedule, resources, and budget

PROPOSALS

By virtue of their size and complexity, a large majority of projects do not start when the client has contacted a single design firm and then comes to agreement with that firm for the design. These larger projects begin when the client has decided to seek information and design ideas from multiple design firms. These projects often begin with a request for proposal (RFP) developed by the client.

A client's request for proposal is a document that provides an overview of the scope and the client's goals for the project. By using an RFP, the client obtains information about several if not dozens of firms interested in the project without having to interview all of the firms. Some clients start with a request for qualification (RFQ). A request for qualifications asks for information that focuses on the design staff's experience and qualification related to a proposed project. The RFQ is another way to prequalify potential design firms without a selection committee needing to read extensive proposals to the complete RFP.

The use of RFQs and RFPs is in a sense a form of bidding for the project without necessarily getting involved immediately with negotiating fees. These kinds of proposals are used as a marketing tool for interior design and architecture firms. The *proposal* outlines what will be done, how it will be done, who will do it, and other information the client has requested or the design firm wants to provide. A proposal does not generally hold the same kind of legal weight as a contract because it generally does not include the fees for the work. Depending on what the client wants, the proposal may stand alone to be followed by a contract, or it may require a contract that specifies fees and charges for the project.

Proposals can be quite lengthy, and they cost a firm a great deal of time and funds to prepare. Design firms must carefully consider each RFP to determine whether it is even

in the firm's best interest to respond. Many sections must be custom written in order to respond to the information requested. Other sections are rather standard, and firms can utilize a certain amount of boilerplate. *Boilerplate* refers to standardized text that needs little modification. An example would be the résumés of team members.

The design firm must supply at minimum the information requested in the RFP. Deviating from the outline or not answering specific questions could mean the firm does not get an interview, let alone the project. This is done so that the *selection committee*—a group of client representatives who will decide which firm gets the contract for the project—can more easily compare firms. The typical outline for an RFP follows:

- *Cover letter*: The first impression.
- *Executive summary*: Provides the highlights of the total proposal.
- *Table of contents*: Should be organized in the way the RFP was presented.
- *Problem analysis*: The firm's opportunity to explain its interpretation of the client's need.
- *Scope of services*: Detailed outline of the tasks the design firm believes are needed.
- *Project approach*: Explains how the firm would go about the project.
- *Staffing*: Explains who will be involved in the project and what they will be doing. Brief resumes may be required.
- *Project schedule*: Graphic format is very useful to the client.
- *Budget*: How the firm will control the project budget.
- *Fees*: How you will charge and how much you will charge is often requested at this time
- *Qualifications*: Defines the firm's credentials and ability to do the project.
- *References or client list*: What projects has the firm done in the past related to this particular type of project.
- *Miscellaneous*: Other information the firm may want to provide that was not specifically requested in the RFP.

A selection committee may spend only a few minutes looking at each proposal. They will be checking certain elements, such as that the firm has provided the required information and that what is provided indicates the design firm understands the client's needs and goals. If a proposal meets this first review, then the committee will spend more time carefully analyzing the proposal.

After the committee reviews all the proposals, they will narrow the group down to a small list of firms that will be asked to prepare a presentation to the selection committee. This list is often referred to as a *short list*. Generally, three to five firms are on the short list. These firms prepare a presentation in which they provide additional information about how they intend to do the project and other information about the firm that they hope will help convince the selection committee. If fees were not part of the RFP requirements, the design firm will provide a fees statement as a proposal or a contract.

Presentations also provide the client with the opportunity to meet the project manager, principal, and some of the design team who will work on the project. After all the presentations are completed, the client will determine which firm seems most appropriate to meet their needs and will enter into any final negotiation on the contract.

The content and preparation of design contracts is well covered in other texts and is not included in this book. A few recommendations are those by Berger (1994), Piotrowski (2013), Jenks (1995), and Demkin (2008). Interior designers may also want to investigate the standardized contracts available from ASID, IIDA or AIA, or they can draft contracts of their own authorship. The reader may want to review these materials or others referenced at the end of this chapter for more information.

WORK PLAN

A critical part of project management is the development of a detailed work plan. The *work plan* defines all the tasks or scope of work that is needed and includes clarification of deliverables, the schedule, the resources needed, and the budget to take the project from inception to completion. *Deliverables* are tangible design products such as construction drawings, specifications, and other contract documents or project documents. A work plan is initially created as part of the proposal response to an RFP. It is further detailed once the design firm is awarded the contract for the project.

The foundation for the work plan is the scope of services in the design contract required to complete the project. Firms can more easily define tasks through the steps of the design project process. Those steps outlined in Chapter 3 are defined briefly:

- *Programming*: The information-gathering phase
- *Schematic design*: Preliminary design and specifications preparation
- *Design development*: Finalization of drawings, specifications, and budgets
- *Contract documents*: Preparation of finalized construction drawings and documents, as welll as bid documents
- *Contract administration*: Bid analysis, actual construction work, and installation of movable furniture items

This outline is used because it mirrors what is recognized by the majority of design firms as well as the performance domains (or phases) tested by the National Council for Interior Design Qualification (NCIDQ) examination.

The scope of services should be detailed enough to limit the work of the design firm to what is needed without leaving the firm open to doing additional work without proper compensation. The issue of additional work or extra services should be properly presented in the design proposal or design contract when the contract is negotiated.

The work plan will then guide the project manager or lead designer to the selection of design staff that will be assigned to the project. What must be done must be matched with who can best accomplish the tasks. Clearly defined roles and responsibilities are necessary and must be discussed up front to ensure that the project keeps moving along toward on-time completion.

A work plan also helps define the deliverables. Such things as concept statements, preliminary space plans, furniture/equipment plans, sample boards of materials, completed

contract documents, and bid documents are examples of deliverables. The project manager will also determine who will be responsible for preparing each of the deliverables.

A very critical part of the work plan is the development of the estimated schedule for the project. This is particularly important for large projects, but administering a project schedule is important for any size project. The project manager, along with team members, will estimate the work schedule. Of course, the schedule will also need to be coordinated with the client and others, such as the architect, general contractors, and perhaps some vendors.

The work plan will contain budgets linked to design fees. The project manager and others from the design firm will establish a budget for the design project. All the previous information is used to establish the budget. It is then the project manager's responsibility to monitor the project work budget and ensure that the work is being accomplished within the budget. The design team contributes to the control of the budget through their time recording reports. Budgeting is discussed later in this chapter.

When the firm successfully obtains the contract for the project, the project manager will refine the work plan. It is important that the design team be involved so that those who must execute the work plan have input into it in order for them to "buy into" what must be done. Having the team members take part in developing the work plan also means that work efforts will not be duplicated during the life of the project.

SCHEDULING

It is quite common for a design office to be working on multiple projects at any one time. Designers can also be working on different phases of multiple projects. Scheduling what will be done, when it needs to be completed, and who is working on each task is an important part of the project management process. Taking on one more project when the staff is already working beyond full-time means the firm must consider hiring additional staff so that schedules can be met. An estimated schedule of the work is almost always a requirement of an RFP.

Each staff member is responsible for managing his or her time to complete required tasks. A few time management tips have been included in a sidebar at the end of this section.

Scheduling begins by breaking down the project into manageable parts. Tentative schedules are initiated when the work plan is developed and are finalized as the project is begun. The required and agreed-to scope of services begins that process by dividing the project into the steps in the project process.

The list of tasks is the key to the schedule and completion of the project. However, a list of tasks is not enough for the project manager to develop an accurate schedule. These additional considerations are needed to prepare a workable and accurate schedule:

- Identify tasks in sequence and define what must be done before the next task can be started.
- Identify deliverables.
- Determine due dates for all tasks.
- Determine who will be responsible for each task.

All but the smallest interior design and architectural firms utilize some sort of computerized scheduling software. Project management software is a specific application program that helps members of the interiors, architecture, and construction industries track the tasks and possibly the costs of completing projects. This type of software attempts to provide easier planning, scheduling, tracking, and analysis of projects.

Depending on the actual program, the software will also provide the manager with reports that help track time, money, and employee productivity. Although the author does not recommend any specific software product, Project by Microsoft is used by a large number of design firms and corporate clients. Other software products are available from other manufacturers. Whatever software the design firm chooses to use should allow, at minimum, for different formats of schedules once the tasks and durations have been entered; allow data summaries in terms of time and dollars; allow integration with word processing and database software the firm uses; and provide what-if analysis, cost analysis, and good graphing capabilities.

One feature of project management software that many firms like is the ability of the program to produce *what-if analysis* (also called impact analysis) reports. A what-if analysis looks at the basic schedule, for example, and creates an analysis of what happens to the schedule *if* a certain new element, such as a three-week delay in the electrical work, occurs. This type of analysis can be applied to each task so that the firm is better prepared with contingencies for any known or typical problem areas.

The simplest method for graphically displaying the project schedule is to use a *milestone chart.* In this approach, tasks are listed on the left with at least three additional columns of information. Another column can be added to indicate who is responsible for each task. Although this technique can be used for commercial projects, today most design firms do not use it as their main scheduling technique for such projects. A sample milestone chart is shown in Table 4-1 so that the reader can understand this very simple scheduling method.

Bar charts or *Gantt charts* offer another means of graphically displaying the schedule. Their use has become quite common in interior design and architecture practice because they are included in popular project management software. This scheduling

Table 4-1 Sample Milestone Chart

Activity	Start Date	Target Completion Date	Actual Completion Date
Programming	8/4	8/8	8/7
Schematic drawings	8/8	8/22	8/22
Finalize floor plans	8/25	9/5	9/8
Finalize specifications	8/25	9/5	9/5
Complete construction documents	9/4	9/24	
Construction	9/24	11/3	
Finishes installation	9/22	11/10	
Furniture installation	11/11	11/14	
Client move-in	11/15	11/20	

method was developed by Henry Gantt in the early 1900s (Lewis 1995a, 50). It consists of a list of tasks, the sequence of the tasks, and the estimated duration of each task in days, weeks, or months from start to finish for each task. (See Figure 4-5.)

As the task is completed, a bar can be added showing the progress toward completion of each task. Bar charts can be further differentiated by who is responsible for each task or parts of the tasks through symbols or color coding.

This scheduling graphic is not effective for complex projects. It does not readily show interrelationships of tasks, and it is not easy to see the status of the project when tasks actually have an early or late start. For these reasons and others, firms involved in complex projects may turn to the next common scheduling method, the Critical Path Method.

The *Critical Path Method* (CPM) of scheduling is used for very complex projects. The Critical Path Method was developed in the 1950s to help better control construction projects. It is similar to another method, called Program Evaluation and Review Technique (PERT), developed by the Navy, also in the 1950s (Lewis 1995a, 51). The difference is that PERT uses three time estimates, while CPM uses only one. CPM schedules are not concerned with the day-to-day details unless someone has specifically set up a daily schedule. It is more common for the CPM schedule to be set on a weekly or monthly schedule, depending on the size and overall duration of the project. CPM is more commonly used in interior design, architecture, and construction than PERT.

The critical tasks control the project. If a task is not completed on time, other tasks cannot be completed, or maybe even started, on time, so the project falls behind schedule. In other words, each task must be completed in order. For example, assuming one task cannot start until the preceding one is complete, the electrical plan cannot be started until the wall locations are finalized. Figure 4-6 shows a sample section example of a critical path schedule. The CPM diagram itself is based on blocks that identify the tasks along with lines or arrows that show the paths. As can be seen from the figure, the lines show the direction of the work and which sequence of tasks must be performed before the next task or set of tasks can be performed.

CPM scheduling is very detailed and depends upon that detail to provide the graphic and written reports that make it useful. That detail also means it is time-consuming to create and maintain, but CPM is very useful for large, complex projects.

Project scheduling is not just for professionals. Students should learn time management, and the simple listing of tasks required for time management can be very helpful

Project Tasks	8/4	8/11	8/18	8/25	9/1	9/8	9/15	9/22	9/29	10/6	10/13
Programming											
Schematic Drawings											
Finalize Floor Plan Development											
Finalize Product Specifications						9/12					
Finalize Construction Documents								9/20			
Construction									10/2		
Install Finishes											
Install Furniture											
Move In											

Figure 4-5 Sample bar or Gantt chart. *Drawing by Esther Gonzalez, ASID.*

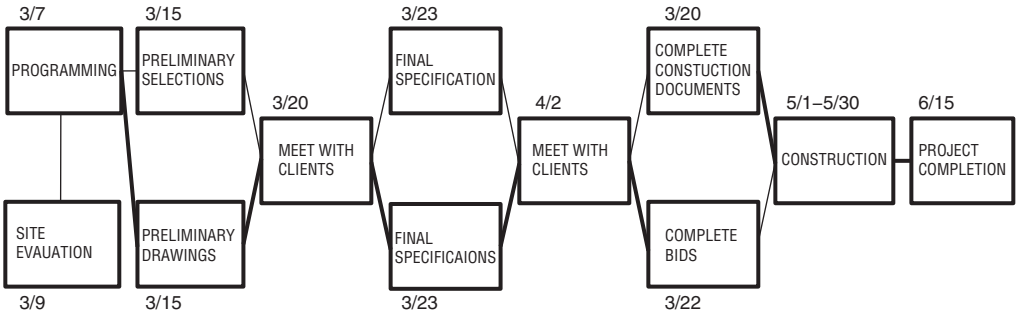


Figure 4-6 Sample CPM diagram. *Drawing by Esther Gonzalez, ASID.*

while in school. Keeping accurate time records of studio projects is a lesson that will be needed on the job. In school, it will help the student better manage time while working on class assignments. Expensive project management software is not needed for this important skill development.

FAST-TRACK

Fast-track is a term often thought of as a scheduling method rather than a delivery system. It can be applied to any project delivery system. It can have risks in very large and complex projects, since the faster construction process could outrun proper design decision making.

The essence of fast-track is that construction activities are taking place as certain design processes are still being fully realized. As the term implies, fast-track is a faster way to complete a project than the traditional design-bid-build method. In a simple example, the layout drawings and specifications for furnishings are completed for a hospital while the hospital is under construction.

There are inherent risks in this method. Changes to the project can be more costly. For example, if spaces are framed and drywalled and then the client wants to make a change, the costs of tearing out the completed work in order to make the change will be significantly more than the costs of delay that might be caused by completing the design before construction is begun.

For a fast-track project to succeed, programming and early planning decisions have to be precise and documented. There also has to be understanding on the part of the client, designer, and contractors that there is more risk and that greater costs may be involved when changes are made after work has begun.

Just some of the risks involved in this method include:

- "Some construction will be undertaken with incomplete designs and documents."
- "Uncertainty about construction costs will be greater and last longer."
- "Design assumptions and decisions will need to be revisited more often."
- "Use of complex architectural design features and unique materials may be limited due to the overlapping sequencing of work activities" (Demkin 2008, 742).

Demkin (2008) provides additional insights into the advantages and disadvantages of the fast-track project delivery method.

TIME MANAGEMENT TIPS

A part of project management that touches every member of the team is the necessity to manage time. Although the project manager sets the schedule for what must be done, the effectiveness of the team members in working on those assigned tasks determines whether that schedule will be met. Here are a few tips for increasing time management and project management effectiveness:

- Create your to-do list in the evening so you can start your day accomplishing the first task.
- Break down large tasks into smaller tasks.
- Determine how long you can spend on each task each day.
- Prioritize your tasks, spending the most time on the most important tasks first.
- At some point, it is okay to say "no" to taking on more work!
- Always have your smartphone, calendar, tablet, or a note pad with you so that you don't double-schedule and so you can take the notes you need for documentation.

BUDGET

The interior designer may be involved in the development of two or more budgets for each project. One will be the budget that establishes the design fee to do the work. This budget is created from the time estimates that will be required for each member of the design team to create the design and documents. Dollar amounts are, of course, applied to these time estimates to arrive at an overall project budget.

Other factors may impact this design budget, such as the cost of producing deliverable documents, travel expenses, other reimbursable expenses, consultant fees, costs for permits, and the direct operational expenses to do the work. These direct expenses, or expenses necessary to doing the design work, can be billed to the client or absorbed as overhead expense by the firm. They must be calculated into the project fee, or they will reduce profitability.

A firm that has a good database of historical data on past projects will find it easier to budget project expenses. The project manager can compare the estimates for a new project against similar past projects and then adjust the estimates. My book *Professional Practice for Interior Designers,* 5th edition, has a good description of fee calculation and expenses.

Salary will be the largest expense factor related to the fees for the project. Calculations for each team member, including the project manager and any secretarial support personnel, will be needed. Remember that salary is not the only factor to consider in determining personnel expense. Benefits like paid vacations, group health insurance, and unemployment compensation contributions are only a few examples of the extra expenses related to employees.

Most commercial interior design projects will require one or more consultants to assist in the completion of the design work and contract documents. The project manager needs to work out how these consultants will interact with the client and other stakeholders, and how the consultants' fees will be billed back to the client. These expenses will impact the final fee estimate provided by the project manager to be included in the proposal and contract.

Project fee amounts can also be affected by the following:

- Other firms bidding on the project. Competition may cause a design firm to lower its project fee.
- The prestige of doing the project. If the firm really wants the project, the firm may submit a low estimate in order to help the firm's chances of getting the work.
- The length of time the project will take to complete. Future costs of doing the project, such as salaries, will likely increase, as will expenses. These future costs must be considered at the beginning of the project negotiation.

The second budget for the interior designer will be for the furniture, fixtures, and equipment costs, more commonly referred to as the FF&E budget. In many cases, the client will request a budget for FF&E from the design firm. In some cases, the client will have a budget in mind and will expect the designer to specify the project based on this budget.

Commercial clients who have previously developed properties are familiar with the costs of furnishing their particular kinds of spaces and will insist that the designer work within their budget. New entrepreneurs, such as a small retail store or a bed and breakfast facility, are likely to be less informed on the amount of money required to design, construct, and finish the interiors of their spaces. In this case, the interior designer will be very helpful in determining the budget.

Value engineering is very important in large commercial design projects and will be part of the budgeting process. As it applies to interior design, *value engineering* means considering both the initial capital costs of the design or product specified and the life cycle costs of maintaining and replacing that concept or item. The idea is to come up with a design or an item that is not judged on initial cost alone, but on its value over the useful life of the project or product as well. "Value engineering gets closer to cost control because it looks at ways to reduce costs on specific items or activities. It focuses only on specific items in the design, procurement, or construction area" (Ritz 1994, 243).

There are many different ways in which FF&E budgets can be determined. References at the end of this chapter provide detailed explanations of these methods. However, one relatively simple and accurate method is to once again look to a historical database the firm has maintained. This data helps the project manager produce budget ranges on the space design and specification of FF&E. For example, historical data from previous projects offer a range of prices for items such as a dining room chair in a restaurant project. Of course, the PM must also include applicable sales tax, freight, delivery, and installation charges in a FF&E budget.

Construction and budgets for structural work are primarily the responsibility of the architect. The interiors project manager may be involved to some degree, but that will be determined by the various stipulations of the contracts with the client. Of course, the interior designer must understand construction costs concerning certain aspects of

the project, as they might affect the interiors specifications. For example, if the interior designer is planning to utilize stone on the walls, the construction budget will change because the walls will have to be built in a different manner than if they were painted.

Sources for information used to estimate FF&E and construction costs include references such as *Means Interior Cost Data* and *Means Interior Estimating*. When these references are not available, the inexperienced budgeter must resort to reviewing catalogs and obtaining information from manufacturer's representatives or suppliers.

DOCUMENTATION

Maintaining documentation on the project in an orderly manner is vital to protect the design firm and the client. It also improves communication flow from the project manager and design firm to the client and other project stakeholders.

Documentation helps to prevent extra work, avoid errors, and limit disagreements concerning what was to be done. There will be paper and electronic documentation concerning the initial discussions with clients, such as notes and interviews during programming and copies of the RFP and design contract. It is good practice to maintain copies of all design drawings from the earliest sketches to sign-off on final drawings. There will also be numerous other kinds of documents that will be developed during the course of the project. Key items that should be retained are shown here.

Correspondence Documents

- RFP from client
- Design contract
- General correspondence to and from client
- Archived emails to and from client and other stakeholders
- Meeting notes

Project Documents

- Schedules
- Correspondence to and from vendors prior to ordering
- Client interview forms or notes
- Budget worksheets
- Job site notes and sketches
- Permit applications

Design Documents

- All preliminary sketches and drawings
- Samples
- Client sign-offs on product specifications and drawings

- Final drawings and documents
- Complete set of construction and furniture installation drawings

Internal Documents

- Time sheets
- Billing records
- Expense records
- Acknowledgments and invoices

Keeping all stakeholders and team members informed of the general progress of the project, as well as each stakeholder's part of the process, is critical to maintain a positive project experience. The team members must be kept informed as to changes in the project's scope and deliverables. The project manager must be kept informed about progress on design documents, and the client requires knowledge of the progress of the job. These are only a few of the types of communication that occur during a project. These communications can easily be documented with forms and email. Should any disputes arise, these documents will be very important to validate the design firm's position in the dispute.

Everyone from the newest design assistant to the CEO of a business is used to using email and electronic correspondence methods. However, sometimes hard copies are required regardless of the backup policies at the firm. The firm needs to set a policy on what kinds of email should be hard-copied because not all email needs to be printed. However, a good rule of thumb would be to create a hard copy of any email that contains information that relates to potential liability in any way.

Project status reports and the documentation to create them are also important. Time records, updated schedules, budget reports, and billing information are the kinds of information that can be used to produce status reports. One report that the project manager and firm management will want to look at is a *variance analysis* report—generally a numeric report that shows the estimated numbers compared to the actual numbers—that can be used to look at the projected schedule and actual schedule and budgeting. This type of reporting will help the PM and managers understand project status for future project estimating, and keep them informed concerning the current project.

Time records are needed to invoice design fees. Some clients expect to receive copies of time records with invoices for design time. Historic invoices and time records can be used to develop budgets for new work, as well as internal status reports. Although the project manager wants the design work to be done creatively and accurately, it is also important to produce work profitably. The project manager must keep on top of the time invested in the design project by the team members to make sure that they are keeping accurate time records and that they are working productively. For many firms, "time is money," and productive work by team members is a key way the firm remains profitable when completing any design project.

The project manager will keep all the desirable documents in job books or file folders. Other stakeholders will maintain their own files. Each member of the design

team should also keep his or her own records. As it might be easy for the reader to imagine, volumes of documentation could be generated for large projects. However, all of it is necessary to protect the team and firm from problems, even possible litigation.

One project management task that design students can easily apply to their school project work is dating all documents. It is important to have a dated record of each item in the job book so that a reasonable sequence of events can be determined. Students should begin dating every sketch, drawing, and note for their design projects so as to learn the important habit of dating materials.

POST-OCCUPANCY EVALUATION

Many interior design firms find it hard to provide or even sell a post-occupancy evaluation as one of their services. *Post-occupancy evaluations* (POEs) are reviews of the completed project obtained sometime after move-in. The POE is a valuable tool for the client and the designer. It may be a very formal program, intensely evaluating each space in the project, or an informal walk-through and discussion with the owners to determine satisfaction and ensure resolution of problems.

The focus of the post-occupancy evaluation is an analysis of planning and specification of the interior, as well as the functioning of the building. User satisfaction is also an integral part of the evaluation. A POE is not the same as the walk-through conducted at the very end of the installation of FF&E.

From the client's point of view, the POE provides professional handling of any problems they may have encountered with the building and its interior design since move-in. For example, the POE may find that an insufficient amount of file cabinets were specified for a certain category of job descriptions, or that a fixture designed for a retail store does not function for its intended purpose. The POE can also find and fix simple issues, such as reordering a broken chair.

It is important for the design firm to recommend a POE because by doing so the firm will create good will with the client, nipping problems in the bud earlier rather than later. It is a cost to the client because the design firm does not do POEs for free, but it does provide valuable information for the client. It also provides data to fine-tune the project and help resolve any continuing problems. Client satisfaction in the work is paramount to the firm so that a positive ongoing relationship with the client can be maintained. A post-occupancy evaluation helps that occur.

The design firm can also learn valuable information that can help with the next similar project—as well as earn revenue from this added service. A post-occupancy evaluation provides feedback to the interior design firm on the successes and problems encountered in the project. In fact, to some degree a good post-occupancy evaluation will aid the design firm in creating all future work better.

A post-occupancy evaluation can be conducted in different ways. One is by using a survey form. Data about the project is collected by the use of surveys completed by the users and managers. Another way to collect the data is for the interior designer to walk around the facility observing and recording problems such as damaged walls or broken furniture. This can include informal interviews of employees to obtain feedback on satisfaction with the functionality and appearance of the facility. With digital cameras and smartphone cameras, some designers walk through the space and photograph conditions and activities. This must be done only with permission of the client.

In many cases, post-occupancy evaluations are not conducted because they take time and can cost hundreds, even thousands, of dollars. Clients are often unwilling to pay for this extra service because they are too busy with their business to care about this important feedback. Unfortunately, designers can also lose interest in a project after it is completed. Going back and finding the glaring problems or issues that came up at move-in or shortly thereafter is not always enjoyable for some design firms.

For the design firm, a post-project review is just as important as the post-occupancy evaluation for the client. A *post-project review* allows the project manager and design team to analyze the performance of the design team in the project. Perhaps shortcuts in the execution of drawings, for example, developed during a particular project, should be incorporated into the firm's standard procedures. Maybe a certain product did not perform as expected in a certain application and should be more carefully considered in the future. A review of this kind helps everyone involved be more productive and perhaps even more creative on the next project.

Adaptive Use

Adaptive use—some also use the term "adaptive reuse"—is the process of redesigning and converting a building to a use other than that for which it was originally developed. An old post-office building converted to a restaurant is an example. Such a conversion may require design changes to the exterior, although that is not always the case. If the building has historical significance, exterior changes are most likely not allowed. The interior must often be redesigned, however, to meet current building, life safety, and accessibility codes.

A building can have many lives and live for a long time. Some buildings have survived for centuries, serving many useful purposes. These older buildings may be retained for historical purposes and kept—within legal and safety parameters—as they were in those earlier times. In other cases, an older building might be retained for many years because it is too expensive to tear it down. The owner may simply board it up, waiting for an opportunity to use the building again.

Then there are those buildings that may have new life in their old shells. A simple and frequent example are older homes that are later included in a commercially zoned area and become offices or stores. Perhaps an old factory becomes loft apartments, office buildings, or even educational facilities.

It is important for designers to understand basic concepts of adaptive use. Not all projects will be within a brand-new building. In fact, according to numerous sources, the vast majority of projects in commercial design will involve the renovation or reuse of existing buildings and spaces.

To many, demolishing an older building—especially if it has some historical significance—is intolerable. Preservation of historic buildings has broad interest in the United States and has always been of strong interest in other countries. People enjoy visiting places where they can touch the past or reminisce about an event that occurred in a certain building.

Retaining an older structure can be more expensive than demolishing and reconstructing a building. One reason this can be true is due to asbestos and lead paint

abatement that must be done in some older buildings. The struggle between preserving old structures and constructing new buildings has caused many public debates. A compromise is adapting—when practicable—the older building to a new use.

This section is an overview and to some degree a brief discussion of the processes of adaptive use. It is not a review of the processes of historical preservation or restoration. Historic preservation is a high-profile activity requiring additional education and experience beyond the scope of most interior design programs. Readers interested in historical renovation or restoration you are encouraged to review Murtagh (2006) as a starting point. That excellent book will lead you to other references on the topic.

OVERVIEW OF ADAPTIVE USE

A project involving adaptive use can encompass any type of commercial design facility. For example, a house becoming a bed and breakfast; an apartment building becoming an office building; a retail store converted to a school; and even a gas station remodeled into a small office space.

For building owners, developers, and investors, an adaptive use project is popular because they may be able to reduce construction costs. However, this might not be true due to age and previous use of the building. Yet it is a popular alternative to totally new construction. This section will provide basic information concerning the processes of developing an adaptive use project.

Adaptive use has strong ties to sustainable design concepts. The effort to retain an existing building and convert it into a new use has sustainable implications. Thus, some terms that are important to this topic are also related to sustainable design:

- *Adaptive use*: The process of redesigning and converting a building to a use other than that for which it was originally designed.

- *Brownfields*: Industrial or commercial buildings/sites that have been abandoned or underutilized due to some sort of environmental contamination.

- *Greyfields*: Obsolete retail and commercial sites that are located in cities, suburbs, and small towns and are now commonly targeted for sustainable uses.

- *Nonconforming use*: A building or use of a building that is not in keeping with the area's zoning regulations or other structures in the area.

- *Rehabilitation*: Returning a building or interior to use as it was or for a new use through alteration or refurbishment while retaining some measures of its original historical appearance.

- *Remodeling*: A process of changing the appearance of a building or interior for a new or current use.

- *Renovation*: Altering an existing building using contemporary materials to extend its useful life and function. Renovations are rarely of a historic nature.

- *Restoration*: Carefully returning a structure that has historic significance to its original appearance and integrity and thereby bringing the structure back to a former condition.

Almost any type of facility can fall into the category of adaptive use. These projects can be found in a downtown, other urban areas, the suburbs, and even rural areas. A few examples include a railroad depot converted into a visitor information center in Flagstaff, Arizona; a shopping center converted into a kindergarten in Ohio; big box stores turned into small community college facilities; and, of course, historic homes such as Mount Vernon in Virginia converted into a museum.

If the project involves a building of historical significance or is simply in a historic district, the design team and client will need to work with jurisdictional offices or other agencies concerning any restrictions due to the historical impact. This may be the case whether or not the building is to retain much of its historical structural and design integrity.

As a side note, many cities have historical preservation committees manned by volunteers to help city government make determinations related to historic structures. The National Trust for Historic Preservation (chartered by Congress in 1949) is a private nonprofit group whose purpose is to help communities and owners with information about preservation and adaptive use. You can learn more about the National Trust and how it can assist designers with adaptive use and historic restoration projects by visiting their website.

Adaptive use projects also have stakeholders beyond the owners and primary design team. The city planning department, city building department, appraisers, and attorneys might get involved. City building officials will have responsibilities similar to those described in Chapter 2 on code officials. The reader should refer to this information for clarification of these stakeholders.

Each adaptive use project presents its own challenges. The interior designer needs to understand that more coordination with individuals beyond the owner and project architect will have an impact on design decisions. A project that involves historic restoration or other preservation requirements will have many more restrictions on what can be done and will require greater stakeholder and team interaction. The interior designer may find him- or herself doing much more research on numerous topics before entering many design details into a CAD plan.

Adaptively using old buildings also offers the advantage of tax benefits for the owners and the opportunity to develop property in a more sustainable manner. The Urban Land Institute was one of the organizations that presented the adaptive use concept as a method for changing the use of buildings that were no longer used for their original purposes. The Institute has many articles relevant to historic preservation and adaptive use on its website. The Secretary of the Interior's *Standards for Rehabilitation and Illustrated Guidelines for Rehabilitating Historic Buildings* is an invaluable aid when an old building is being evaluated for adaptive use. This information can be viewed at www.nps.gov/tps/standards/rehabilitation.

The building site is also very important, as many older buildings are located on prime downtown lots. If the project will be eligible for tax increment financing (TIF), additional research and documentation will be necessary.

There are numerous issues that the building owner and other stakeholders will want to consider when determining the feasibility of an adaptive use project. A few of those key issues include:

- The condition of the existing building and infrastructure

- Significance of the building to the community and neighborhood
- Regulations, codes, and laws that can impact feasibility
- Zoning laws that may impact the new use
- Cost analysis regarding retaining the old structure and subsequent construction costs
- Tax incentives to the owners
- Difficulties involved in any demolition and reconstruction (Murtagh 2006, 100–101)

METHODS AND APPLICATIONS

An adaptive use project is similar to most projects with added emphasis on research at the beginning, leading up to a comprehensive feasibility study. Part of that feasibility study will include determining whether the new use is actually needed in the neighborhood or area. Depending on the new use and many factors concerning the building itself, the developer possibly could apply for some historic rehabilitation tax credits, depending on the history and significance of the building.

This feasibility study will require additional research time before planning and design begin. Regardless of the extent of the renovation or restoration, documentation of the existing conditions is the first order of business. If the building is deemed to have historical significance, public meetings and applications for preservation of a building with the local building department and a local historic sites committee (if one exists) will be part of this process.



Figure 4-7 Alaskan Neurology Center sleep lab. A major renovation of a bookstore into this medical facility is an outstanding example of adaptive use.
Design by ECI/Hyer, Inc. Anchorage, Alaska. Photographer: ©KenGrahamPhotography.com, Anchorage, AK.

Photographs of the existing condition, floor plans, and other construction drawings of the original building—if they can be obtained—in its "as is" condition are parts of that research. Once the project has begun, it is critical to document the building at all stages of the construction using photos and videos. Accurate records are needed to ensure the existing situation is coordinated and maintained as required. Developing a set of as-built drawings of the site can easily do this. As-built drawings and records show the existing building, not what may be on record or used for a building permit. Records of all transactions, discussions, and photographs of the project should be recorded constantly. Of course, careful project record keeping is needed for any kind of project.

The original floor plans are invaluable sources of information at the beginning of a feasibility study. Although on-site measurements and drawings can always be used to create plans, working from original drawings will make the project run a bit more smoothly. The first place to look for drawings will be with the current building owner and the previous owners if possible. Drawings are likely to be available from the city building department, as they keep those on file. State archives are likely to have a variety of documents and photos available for review for historic buildings. These materials will have to be made into reproducible plans and other graphics for use in the project.

There are some terms related to construction and permitting that are important to this section. They are

- *Design review*: The process of ascertaining whether modifications to the historic structures or settings meet standards of appropriateness established by a review board.
- *Conditional Use Permit (CUP)*: A special permit is given to the property owner by the municipality so that a building use can be allowed in a zoned area that normally does not allow that zoned use.
- *Extended use*: Any process that increases the useful life of an old building. An extended use of a building might also be considered an adaptive use of the property.

Other terms concerning permitting and construction are covered in Chapter 2 and earlier in this chapter.

PROJECT STRATEGIES IN ADAPTIVE USE

Determining the feasibility of the project is a key step in the process. It is critical to know if the building itself is worth saving. Perhaps a zoning variance for the new use cannot be obtained. If so, the project may not be feasible. If the building itself is substandard, requiring major structural modifications, then the project may not be a good candidate for adaptive use. Remember that a change in use or change in occupancy will require careful review of the building codes related to the new use of the structure and interior. This change in use can impact electrical, mechanical, general interior partitions, and other construction components.

Adaptive use can retrofit the building to fit the current needs of the owner or developer, but considerable research and planning are necessary for a successful outcome. A particularly important issue in the early research concerns abatement of asbestos, mold, and lead paint. Older buildings are very likely to have been constructed using asbestos materials. Older buildings are also likely to have had lead paint used on the exterior and



Figure 4-8 Alaskan Neurology Center MRI suite; an adaptive use project.
Design by ECI/Hyer, Inc. Anchorage, Alaska. Photographer: ©KenGrahamPhotography.com, Anchorage, AK.

interior. In both of those cases, specialized firms will need to be consulted concerning the proper removal of these items. Older buildings will also be susceptible to mold. Again, a specialized consultant needs to be hired to remove the mold.

The feasibility study will determine the state of the mechanical systems and lighting. Code compliance is of particular importance. Most adaptive use facilities will require compliance with most current codes. Allowances are made for historic buildings and some types of adaptive reuse, but careful research is necessary to determine if and how the building must be brought up to code. Fire exits, stairs, sprinkler systems, and elevators are only some of the issues that might be factors in an adaptive use project. Remember that there are separate codes for renovations and restoration. Accessibility requirements must also be met.

The next design step is to prepare an as-built set of drawings. As-built drawings should be produced either from site measurements or from original plans, as discussed above. This will help the stakeholders understand what is being done to the structure and interior. In addition, the architect and design team will prepare other needed surveys and applications as needed by the project.

The actual project will flow after all the research is completed and permits have been obtained. That is to say, the plans and documents will flow from the design team to the client for approvals as each step in the design process is advanced. Unlike new construction, however, additional reviews may be required by the local jurisdiction beyond those for new construction.

In comparison to a new-construction-type project, there will be many more meetings with the client, jurisdictional authorities, perhaps fund-raising groups, or others to explain details of the project. This means that the design project manager must do a comprehensive evaluation of time estimates for each part of the project and responsible designers.

SUSTAINABLE DESIGN ISSUES IN ADAPTIVE USE

Sustainability issues are especially important in an adaptive use or renovation project because an older building will have many structural and finishing treatments that are not green or healthful. Applying sustainable design to this type of project will result in a facility that is more healthful to its users, more energy efficient, and in other ways will provide a project that will have less negative environmental impact.

Many clients who are involved in an adaptive use project are interested in pursuing LEED certification. Interior designers should become familiar with the information in Chapter 2 regarding the U.S. Green Building Council (USGBC) and LEED certification, and review the information on the USGBC website.

Older buildings can sometimes cause users to get sick in some way. Older buildings, in particular, harbor materials and older design methodologies that create many kinds of illnesses in users. A green building takes advantage of concepts that counteract these deficiencies and in turn reduces illnesses that lead to more sick leave and higher operating costs.

Many adaptive use projects may influence the designer and owner to retain existing materials, such as brick walls and wood paneling. This certainly helps relative to sustainable design, but it can also result in the need for lead abatement due to the likelihood that lead paint was originally used. When replacement is necessary, the following strategies should be incorporated:

- Use similar building components that have been salvaged from other historical or older structures.
- Use materials with nontoxic content and finishes that do not off-gas VOCs.
- Use recycled and/or recyclable-content materials when feasible.
- Use materials from renewable resources, such as wood.
- Use materials that were locally produced, to lower the impact of its transportation.

Certainly, this is a very brief look at the sustainable design issues related to adaptive use projects. The issues relevant to sustainable design and potential LEED certification will impact an adaptive use project. One reference is the International Green Construction Code (IGCC), which has information on compliance issues for existing buildings. This is available through the International Code Council.

Summary

Project management is a detailed set of activities to control and manage the individuals who work directly on the project as well as the tasks that must be accomplished. The project team includes the interior design firm along with many consultants who may be needed for the design as well. It also includes other critical stakeholders, such as the client who must be kept informed and involved.

Projects are now delivered in different ways than the traditional design-bid-build method. Project owners want buildings and interiors finished more quickly, leading to new methods of project management. These new methods require greater experience

and knowledge about construction and coordination. At the same time, the design team is responsible for meeting issues such as sustainable design, changing codes, security, and regulations that affect projects in new ways.

Because a large part of the PM's responsibilities is to work with individuals from outside the actual control of the interior design firm, project management requires good people skills. Maintaining control of the project can mean the difference between a successful project with a happy client and a disaster. Successful projects, of course, bring on other potential projects. Disasters turn clients away from the design firm, leaving the firm vulnerable to poor public relations and even litigation.

Project management requires confidence in one's knowledge and abilities, along with the willingness to seek help when necessary. Even the most experienced project manager can't know everything about everything. In the context of this textbook, only key issues can be presented to provide an overview of this important responsibility and part of successfully completing a commercial interior design project. Numerous references are noted below to provide the reader with additional details and insights into the project management process in interior design.

A section on adaptive use has been incorporated into this chapter. When a building with an original use has lost that purpose and is converted to a different use, many different challenges await the design team. The brief discussion of adaptive use in this chapter is provided to raise awareness, not to be an in-depth discussion.

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INTERNET RESOURCES

Association for Project Managers: www.constructioneducation.com

Construction Management Association of America: www.cmaanet.org

Design-Build Institute of America (DBIA): www.dbia.org

International Code Council (ICC): www.iccsafe.org

National Park Service: www.nps.gov

National Trust for Historic Preservation: www.preservationnation.org

Urban Land Institute: www.uli.org

U.S. Green Building Council (USGBC): www.usgbc.org

CHAPTER 5

The Office

Almost all interior design firms design office facilities of one kind or other. Name the facility, and at least one space somewhere in that business is considered an office. A few examples include: office space for the manager of a retail store; doctor's office space for consultations with patients; and office space for the owner/manager of a bed and breakfast. Then, of course, there are the office facilities that we most often think of as "offices," such as the business offices of major corporations, advertising agencies, accounting firms, and law offices, to name a few.

The goal of office work is to accomplish specific tasks by individuals and groups that help achieve the overall goals of the business. However, all office work is not the same. The work of an administrative assistant to a corporate executive is very different from the office work of the manager of a store. So that the design supports the functional needs of the jobs within the specific business activity, it is, therefore, important that the designer understand the business of the business before beginning to lay out and design an office.

Business leaders cope with many challenges. Organizational changes can come quickly, and a business leader and his employees must be prepared to meet the changes that constantly affect the economy and the business's markets. Sometimes these challenges impact the business in the middle of a design project. Interior designers working in the office design specialty must be cognizant of these challenges and keep them in mind as they design an office facility. Understanding the organizational workings of an office, job names, and equipment requirements are all part of the interior designer's responsibility to effectively design any kind or size of office facility.

This chapter explains the functional distinctions of office work. Understanding these distinctions in job responsibilities is important for space planning and product specification decisions.

Sections of the chapter provide a brief historical overview; information that will help explain office organizational structure and job needs; and a discussion of the types of offices that make up an office-focused business. A new section concerning office design supporting knowledge workers has been added. Other brief discussions on corporate culture, image, status, and facility management are also included. Planning and design concepts, as well as design applications related to traditional and open office facilities, are presented in the next chapter.

There are several terms associated with office planning that will appear in this chapter and the next. The reader should become familiar with:

- *Case goods*: Furniture made of "cases," such as desks, bookcases, file cabinets, and credenzas.
- *Closed office plan*: Planning of offices around the private office—with full-height walls—for use by one individual. Sometimes this is referred to as conventional office planning.
- *Collaborative work groups*: Groups or teams of employees working on a project. They might not be from the same department and can be brought together because of what they can contribute to the effort.
- *General use furniture*: Standard office furniture such as desks, credenzas, and file cabinets.
- *Modified open plan*: A plan combining open office workstations and a number of private, closed offices.
- *Office landscape*: Translation of *Bürlandschaft*, a planning method using plants and desks rather than wall partitions or freestanding panels (Pile 1978, 9).
- *Open plan*: Planning methodology using movable wall panels and/or furniture items to divide the office footprint and create the work areas.
- *Stick furniture*: A slang term for wood furniture.
- *Systems furniture*: Furniture composed of freestanding panels and components.
- *Workstation*: The space that represents the office of an open plan project.

Historical Overview

Because of the overall importance of offices in all types of commercial facilities, the historical overview of offices is somewhat lengthy. It includes an overview of how the planning of offices has changed and how the products used for offices have developed.

Offices have always existed. In ancient times, an office might have been the space two people occupied as they shook hands on a deal for, say, a carpenter to make a table for a neighbor. As economies and industries grew, offices became more formalized. Specialized office work developed as the professions and new forms of business evolved. Historically, the first major change in the growth of specialized office functions and offices occurred during the Industrial Revolution. The change from an agricultural to an industrial economy required additional office functions as new businesses were created and more specialized tasks were developed. This in turn led to the need for offices and office furniture and equipment. Before this, the office was likely one room with the manager and clerks in the same space.

During the second half of the nineteenth century, the closed plan was the predominant way of arranging office spaces. This involved a private space for the boss or owner, with clerks and secretaries occupying nonprivate spaces. Even though this is from an

earlier time, recall the private office of Ebenezer Scrooge and his clerk, Bob Cratchit, in the front office at a tall desk lit by a single candle in Charles Dickens's *A Christmas Carol*. Larger businesses would place the clerks in a large open space called a bullpen. The offices of the owners and managers were always larger and often more decorative than the sparse desk, chair, and lamp on the workers' desks.

The twentieth century saw real growth in offices resulting from a growing list of business functional specialties and office equipment. Women in the workforce also had an impact, as business owners and architects realized that female workers had a different view of their environment. The emergence of commercial interior design as a specialty also started in the early twentieth century, although few thought of it as such.

As industries absorbed production workers, the offices of companies increased in size. Closed plans in offices continued into the early twentieth century until designers such as Frank Lloyd Wright, with the Larkin Administration Building (1904), started to open up office space plans. Specialized pieces of furniture and office equipment, such as the typewriter, Dictaphone, and telephone, all impacted the design of offices in the early twentieth century.

Significant changes in the office environment occurred during and right after World War II. Many office workers were needed to support the war effort. Social scientists started researching organizational structures and employee productivity that led to impacts in the office environment. As technology advanced, the equipment used to perform office work changed.

Office interior design—and commercial interior design itself—saw significant changes after World War II. Unlike previous office architecture, where more than one company was located in a building, corporate headquarters were created for a single tenant. This gave the building owner much more control over the architecture, interior space planning, interior finishes, and furniture specification. As corporations' strength and business grew, they added branch headquarters offices in large cities.

The growth in the numbers of office workers due to the postwar economy challenged architects and designers to develop concepts for planning these large office groups. Some historians point to the open spaces planned for offices such as the Johnson Wax Building in Racine, Wisconsin (1936), designed by Frank Lloyd Wright, as the precursor of the open plan for offices. Others credit a German consulting group with the development of this groundbreaking change in office planning. The *Quickborner Team für Planung und Organisation*, headed by Eberhard and Wolfgang Schnelle, wanted to find a way to improve performance and productivity in the office. With the help of a planning expert, they developed the concept of an open landscape by laying out the "offices" to increase communication between workers. The Quickborner Team in the 1950s coined the term *Bürolandschaft*. This German term translates as "office landscape." In this context, *office landscape* is a planning method using plants and desks rather than wall partitions or freestanding panels to define areas (Pile 1978, 18).

The original open landscape concept did away with all private offices and placed both managers and staff members in an open plan. The rather irregular arrangement of the furniture was based on work relationships between individuals and work groups and founded on very sound principles. The office workers who worked together or in close relationships were grouped together to improve productivity. In 1967, the first project utilizing the open landscape in the United States was a department within the

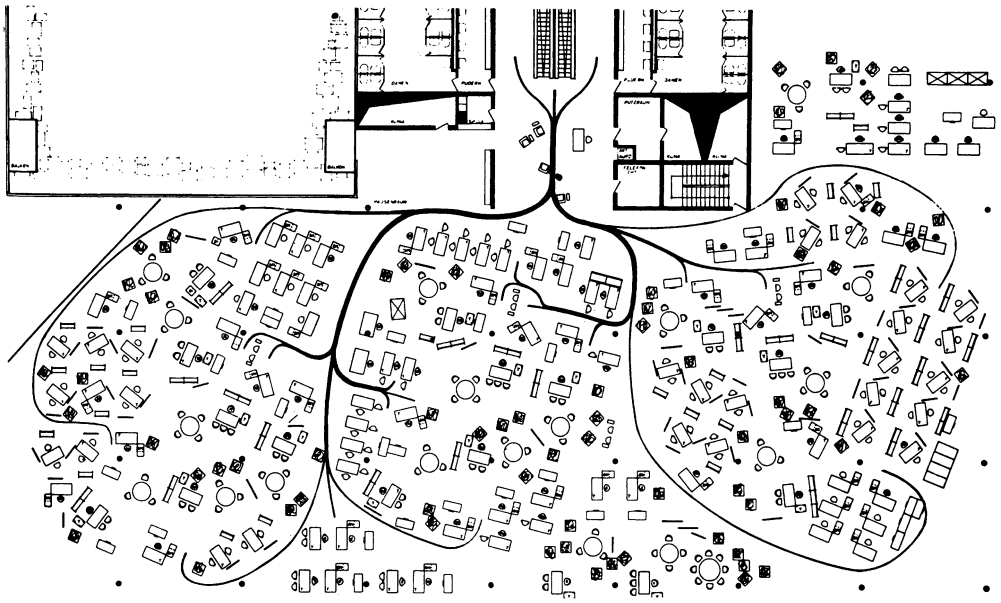

A typical landscape or open plan.

Figure 5-1 Quickborner office landscape project depicting the layout of the "offices" to increase communication between workers.

DuPont Corporation in Delaware. Although designers and business owners had used the open landscape concept for some time, this was the first time in modern office design that the whole facility utilized an open landscape.

As open landscape developed, designers changed the concept and open landscape planning began to be called *open plan*. This planning methodology used movable panels to divide the office footprint and create the work areas. Later the development of furniture specifically for this type of planning affected how businesses were managed, because it placed greater emphasis on work groups or teams rather than on the individual workers. Office design in the 1960s and 1970s actually became more humanistic, with greater concern for the ability of the individual worker to have some freedom in the design and specification of his or her work area.

New furniture products helped change the way the office environment was designed. In the 1960s, Robert Probst, a designer working for Herman Miller, Inc., designed a furniture product called Action Office (Figure 5-2). Action Office was originally designed to fit into the conventional private office, but since its introduction coincided with acceptance of the open landscape, it began to be used in open landscape/open plan projects. It was redesigned in 1968, incorporating vertical divider panels and the hanging components with which we are familiar today. The panels and vertical stacking components of Action Office helped create privacy while still maintaining essential openness. As open office planning caught on, other furniture manufacturers created products that could be used for this planning concept.

Furniture and equipment for the office environment continued to change during the later years of the twentieth century and continues to evolve today. Ergonomically designed seating was introduced in the late 1970s. New office products have given the office a more open look, deemphasizing cubicles and harkening back to the early days of open plan. Teaming concepts in the office also spurred the redesign of office planning to be more open, using shorter-height panels and more open desks



Figure 5-2 Action Office workstation from the 1960s with the use of panels and individualized components.
Photograph courtesy of Herman Miller, Inc., Zeeland, MI.

for collaboration. Better fixtures for general and task lighting decrease worker fatigue and save energy. Tech changes in office equipment have led to different approaches to office plans. Laptop computers and cell phones allow for mobile offices; telecommuting permits workers and clients to be on different continents and still conduct business "one-on-one." These technological changes in client and worker communication have impacted the layout of offices. Enhanced environmental planning has also become important in today's offices.

It has been suggested by some that a work concept referred to as *coworking* will have a major impact on office planning. As discussed later in this chapter, coworking (or coworkers) recognizes that many individuals are no longer working in an office per se. They are often entrepreneurs rather than employees. They may join with others in locations such as coffee shops, bookstores, the company lunchroom, and open conference spaces in the office. This could be a wave of the future, impacting office designers.

Products and design philosophy will continue to evolve as technology, the way office work is done, and the furniture and furnishings available in the marketplace continue to advance. An excellent place to learn about the changes in office products is at the NeoCon trade show in Chicago, Illinois, in June of each year. New products, seminars, and other activities provide a one-stop place for office designers to learn what is new in their specialty.

Issues Impacting Office Design

It is no longer easy to discuss the design of offices as a purely "traditional" versus "open office" decision. Our world changes faster than information can be made available to designers—even with the Internet. Articles on the Internet exhorting the latest trends are not always dated, so that the designer searching for the latest information does not always know if what they are reading is the latest.

But there are some trends that are identifiable and should be mentioned briefly in this chapter. Issues of sustainable design, cultural impacts, and globalization have already been discussed in Chapter 2 and need not be repeated. In this section, a brief discussion of just a few key issues that can and will impact the design of office facilities is provided. This section will briefly discuss five topics: multigenerational offices, collaboration in the office, the potential demise of the cubicle, coworking space, and technology integration.

MULTIGENERATIONAL OFFICES

One of the management challenges of today's office is the reality of numerous generations working together. The challenge here is that each has different ways of working, and neither may understand how the others work. To a baby boomer, watching a younger colleague with their feet up on the desk scrolling a tablet or—even worse—seeming to stare at nothing while doing nothing, means the younger colleague is not working. To a Gen X or Gen Y individual, the "workaholic" attitude of arriving at 8:00 a.m. and staying till 6:00 p.m. or later practiced by a baby boomer or someone from the silent generation is very strange.

The following sidebar provides brief descriptions of the different generations that might be in an office today. Note that there is no consistency in the designation of the years of each generation, and there are also differences in the way the generation is defined. Thus, more than one source is cited.

Interior designers must understand the personality characteristics of the different generations. First, they will be working within the design office with people from these diverse generations. Second, their clients could easily be from a generation other than that of the designer.

These different generations, with their different ways of working, may seek different office or workstation configurations that cannot be standardized. For example, a Gen X

GENERATIONS IN THE WORKFORCE

The G.I. Generation: This is essentially the oldest group. The G.I. generation is the group born before 1924. Few of this generation are still in the workforce today, but they may be the owners and CEOs of some businesses.

The Silent Generation: People born between 1925 and 1945. Some sociologists and others also call them the Greatest Generation. They are hardworking and loyal to the employer and employees with whom they work. They are also less tech-savvy than other generations and are more likely to write a memo than send an email.

The Baby Boomer Generation: Those born between 1946 and 1964. They are now upper management and in power in many kinds of businesses. They can also be loyal, but, having lived through the tumultuous years of the 1960s, many are also cynical. Most are tech savvy, although they are also fine working in the "paper and pencil" world.

Generation X: Those born between 1965 and 1980. This generation is in middle management roles, supervising many different groups of employees. While ambitious,

or Gen Y individual may like the very open workstation arrangements that have become popular again. A baby boomer worker is likely to want to retain a closed office or at least more privacy. The designer needs to consider these differences when selecting products that can be modified to suit different work styles, while allowing for the frankly economic benefits of standardization of products.

COLLABORATIVE OFFICE SPACES

Interior designers are used to the idea of working with teams to accomplish design projects. In the business world, collaboration is not exactly new, but it has certainly been embraced by more companies in the last 20 to 30 years. For many companies, this collaborative work process has meant an acceptance of and even a demand for flexible workspaces rather than static offices or cubicles.

Collaborative groups can be organized to solve problems when individuals from different departments are brought together or even when groups meet within the same department. They must share their expertise and knowledge to problem solve. For many of these collaborative projects, maintaining their basic workspace may not be practical, requiring them to travel to and from wherever the group meets. A possible solution is to use mobile files and other easily movable storage units and furniture items so that the employees can move themselves from their "normal" workspace to the space designated for the temporary group.

Conference spaces or gathering spaces are inserted into the space plan now, so that these groups can more easily meet without having to wait for a conference room to be reserved. A conference space needs lots of tackable surfaces and marker surfaces so ideas can be displayed and discussed.

Of course, these collaborative spaces can be a noise issue. The designer needs to carefully consider acoustical controls and plan where collaborative areas are located so that the group does not distract nearby workers.

they also appreciate family life and prefer to set their own hours and work via telecommuting. Some may resist teamwork projects, preferring to do it themselves, but they are also at an age when they will need to be led as well as lead teams themselves.

Millennial or Generation Y: Those born between 1981 and 1995. These are primarily entry-level employees. Very tech-savvy, they look for challenges and personal growth, and seem to handle multitasking better than other generations. They also embrace working on their own but need a certain amount of supervision or at least direction to keep them on track.

Generation Z: Many of those born after 1995 are too young to be in the primary workforce at this time.

Weinstein 2014; Wasserman 2014; Thornhill and Martin 2007, 4.

According to a report by Allsteel (Johnson and Hargis 2014), collaborative work areas are likely to contain these kinds of spaces:

- Commons areas that include the cafeteria
- Project rooms that can be dedicated spaces for long-term projects
- Pods/bullpens that will be the clusters of individual workstations
- Individual workstations
- Informal meeting areas

Collaboration also requires provisioning of more wireless communication within the workplace and from outside. Because employees in a collaborative group may not always be in close proximity, they need to have excellent wireless communication with their colleagues. Hotspots need to be incorporated into office designs, as well as plenty of places where employees can charge tech batteries.

In addition to providing workstations, groupings, and the technological interfaces this kind of work requires, management must embrace the concept of collaboration. In many businesses, the leaders and supervisors are of the older generations, who are more used to working on projects in private offices or cubicles. Now they must change gears to allow independence—with certain controls—of these work groups. Communication is the key, with expectations outlined and accepted, and reporting issues need to be worked out to satisfy managers as well as the group members.

CUBICLE FREE?

In conjunction with the increasing emphasis on collaboration in office work, the cubicle—so popular in the 1970s and many years after—has lost its emphasis in office planning. Workstations are more open with the use of shorter-height panels only for



Figure 5-3 Collaborative work areas in a corporate office facility. *Interior design by Studio4. Photographer: Paul Krucko.*

the necessity of providing shelves and possibly panel-hung file cabinets. The panels provide some division of space, but not enough to create a little cubicle. Figure 5-3 and Figure 6-3 show some ways this can be accomplished.

In many respects. this "cubicle-free" approach brings back the original planning concepts of *Bürolandschaft,* or open landscape, as introduced in the 1950s. This more open type of planning allows for easier collaborative work groupings than cubicles. This type of plan also provides opportunities for common areas where employees can meet casually or for small meetings.

It is not unusual for office projects, however, to retain some cubicle spaces or even offices with full-height walls. Many managers want to retain their privacy. Some conference spaces still need to have higher panels for private conversations, and project "war rooms" will require higher-height panels in order to tack up documents or use marker boards.

The end of the cubicle may not be completely in sight right now, but use of the cubicle will likely continue to decrease due to the issues described in the collaboration discussion. Its use will also likely decrease as more and more employees are given the option of and encouragement to work off-site through virtual work efforts.

The workstation may not always take on the open look offered by the 1950s version of open landscape, but the closed-in cubicle is on its way out—until management philosophy changes again!

COWORKING SPACE

A trend related to the end of the cubicle and reduction of office space needs is the concept of coworking spaces. This term appears in *Cubed*, a book by Nikil Saval, published in 2014, but the concept has been around for at least 15 years.

The concept of coworking spaces is like the executive office facilities that grew in the early 2000s. The idea is that an entrepreneur shares office space with others. This is not to say that two different company entrepreneurs share the space literal space (although

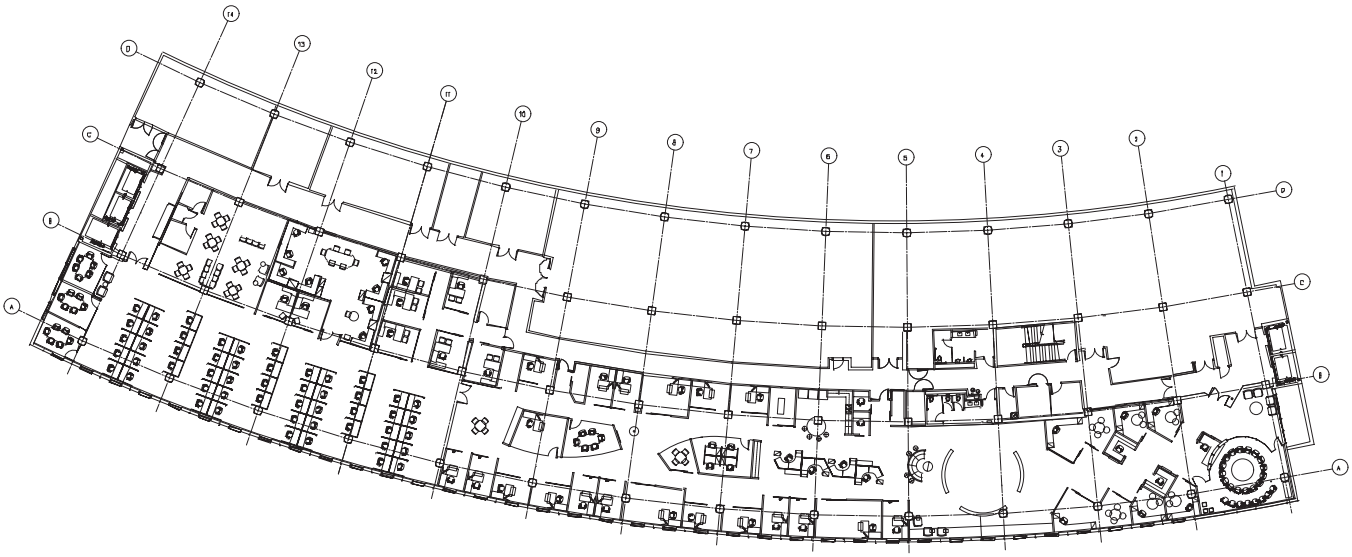


Figure 5-4 Floor plan indicates closed office stations, as well as collaborative spaces.
Drawing courtesy of and design by Phoenix Design One.

that can happen), but that they share a receptionist, a conference room, a copy machine, break room, and other spaces provided in the building.

This type of shared space allows the one-person business to have a business address and "face" for clients. When different types of businesses are in the same building, they can interact and share ideas without the pressures of being employees. Coworking can also be organized by a business, and those individuals can brainstorm even more solutions to their business and client issues. There are interior designers who develop a coworking space with two or more designers; each has a private office, but they share spaces for the library and a conference room.

This type of office arrangement will likely grow as companies allow more employees to work from home and entrepreneurs continue to create new business concepts.

TECHNOLOGY INTEGRATION

The use of technology in a design office, as in any office, is not a matter of maybe; it is a matter of must do. The use of computers helps workers perform all sorts of tasks and is critical to even a small kiosk seller at the mall, let alone a large office. The development of technology options has given office workers tablet computers, smartphones, digital cameras, the Internet, Wi-Fi, and numerous software and hardware choices to conduct business.

Technology has changed how office spaces are planned and the products that are used. From the client's point of view, less office space may actually be needed. When many employees work remotely rather than "at the office" everyday, they are less in need of a desk, chairs, and other furniture. For many companies, case goods desks and credenzas have been changed to open office or systems products. With dozens of choices of open office or systems products that can easily be changed by employees, the configuration of the office floor plan also changes. File cabinets used to hold paper have been replaced by discs, USB flash drives, and other devices used to store documents without resorting to printing and filing.

Virtual business operations with virtual documents will continue to impact the operations of businesses as well. Skype and GoToMeeting, to name just a couple of the options for virtual meetings and work, allow designers to be in one city while discussing projects in other locations. Why go to the office when an employee can meet with his or her boss via Skype, iChat, or other similar programs?

Yet technology integration puts other pressures on the designer planning an office space. When the client wants to use a case goods style of standardized desk and credenza, how will the computer be accommodated so that the client has effective ergonomic use of the computer? Clients moving into older buildings will face the challenges of upgrading electrical systems in order to satisfy computer needs and perhaps integrating open-office panels for workstations. Lighting must be carefully planned. Most leased office spaces are provided with overhead fixtures as building standard lighting. This often leads to too much light in work areas and negates the desired use of daylight. The topics in this section only touch on the challenges to the interior designer. Resources are provided in the references for the reader to investigate these topics in more depth. Of course, the Internet can also be searched for additional information.

An Overview of Office Operations

The design of office environments keeps changing as office operations change. In a few short years, the recession of the late 2000s resulted in challenges some office managers and business owners had not seen before. Telecommuting, globalization of the marketplace, generational changes, and the impact of social media on office operations are just a few of the challenges that continue to change the office.

Now information is often the king of the office, and knowledge workers are sought after. *Knowledge workers* are those whose main job is the utilization or development of information. (See the sidebar below.) The ability to create, work with, and transfer information is critical. The ability to use technology is not an option for any level of worker in the twenty-first century. Even the smallest businesses can have a global reach due to technology. Teams and the ability of the office environment to meet their needs are very important to this change in the organizational structure. Scarcer human resources in some industries and professions means that twenty-first-century workers have more say about their work environment. On the other hand, scarcity also means businesses have moved to finding employees offshore because many job functions can be done via the Internet.

For many office-based businesses, the traditional chain of command barely exists any longer, and the need of a business to provide a desk or workstation for every employee is less important today than it was even 20 years ago. Technology now allows work that was traditionally done in an office to be accomplished remotely. Laptop computers, tablets, cell phones, and wireless communication make large office buildings to house all employees a thing of the past. In some ways, this eases the pressure on the business to provide all the space and furniture for employees in a single location. Still, decisions about space, office equipment, and aesthetics continue to impact the work of the commercial designer creating any kind of office environment.

Today, a business enterprise must be flexible and must have the ability to alter itself with the flow of change created both within and from outside forces. Flexibility in office design and product specification can help a business as it reorganizes its purpose, goals, and strategic plan.

Although many workers have the opportunity to work at home or on the road, others by necessity or choice still choose to come to the office. Much of the reason for this is the camaraderie and the chance to socialize with one's peers. For many, the purpose of socializing is to bounce ideas off each other as problems are worked out.

Owners, managers, and supervisors perform the work necessary to plan, manage, and control the activities required to maintain the business. Each job within a department or division has specific responsibilities that enhance the likelihood of the business achieving its goals. The interior designer must understand each of these different job functions, since they may require variations in office spaces and the furniture provided to execute job responsibilities.

Although the traditional office organizational structure seems out of date, it retains relevance in the minds of managers. Thus, it is important that it be briefly discussed as the background to discussing less traditional office structures. There

THE KNOWLEDGE WORKER

In an age of technology, knowledge is the key resource for individuals and businesses. Knowing how to get things done, where to find that key bit of information, and how to problem solve and find solutions or new ideas are the types of activities that involve knowledge workers. A knowledge worker, then, is someone whose main job is the utilization or development of information.

The term "knowledge worker" was coined by Peter Drucker (1966, 7). There is some disagreement as to when he actually coined the term; however, the concept of the knowledge worker has remained in the business realm as businesses and individuals continue to ponder, problem solve, and research information needed by businesses.

Businesses today are filled with knowledge workers. One might think that they are the "techies" who can do anything with a computer. Or are they the people who come up with great ideas, but don't necessarily know how to implement those great ideas? Maybe they are the employees who have been at the office the longest and know how to do everything. A knowledge worker today is all of these and much more.

Employees who investigate and conduct research, whether primary or secondary, and then prepare reports for management are also knowledge workers. Employees who know a lot about their job and use knowledge as the source of their work are considered knowledge workers. They often are the ones who invent new products, solve difficult problems, and come up with new ideas. Then there are those who say anyone who is very skilled in his or her job is using knowledge and is, thus, a knowledge worker.

Many consider knowledge workers as those who have extensive education, even advanced education, and many years of experience in their field. An attorney with success in the courtroom is a knowledge worker—so too are doctors, software designers, teachers, and others who think and utilize their knowledge to do a job. Yet in business, a knowledge worker is not simply someone who has become knowledgeable about a particular field and applies that knowledge.

These individuals are often considered innovative thinkers. They thrive on the exchange of information as well as the creation of information. They add to the company in the knowledge "products" they create as intellectual property, This intellectual property has value. It might be a simple product in the sense of developing

are a few terms that remain important as we discuss traditional versus unstructured office organization:

- *Chain of command*: In business, the formal reporting structure of employees from one level to another. Commonly found in more traditionally organized companies. Can be graphically expressed by an organizational chart.

a new way to solve an ongoing problem or creating something that can be manufactured or sold to others.

In an office, they may work independently, but they also work in groups that may work for a few days or weeks to accomplish a task. Depending on the company and its goals, the knowledge worker groups may not work together very often, changing groups as the tasks change. They are also more comfortable with less structure and have more autonomy in how they go about their jobs. Bosses might misconstrue whether or not a person is working. Thinking does not always look like "work" in a traditional sense.

So what kind of work environment, from the interior designer's point of view, is necessary to help these workers? There are several examples in Chapter 6 that help illustrate some of these solutions. Here are some tips:

- Provide workstations that allow for individualism.
- Provide an environment that is conducive to collaboration.
- Specify furniture that is easily changeable so that groups can get together.
- Make it easy for technology to be added to the basics provided to other employees.
- In the group area, provide temporary offices for those who work away from the main office.
- Be sure these offices still have the aesthetic that is provided for other workers.
- Try to use sustainable design in these spaces, as these workers tend to be environmentally conscious.

A key to developing effective office spaces for knowledge workers is the interview during programming. In general, the workers' input will likely be more on point concerning what they need to do their jobs than input gained from upper-level managers. This, of course, means that the designer will need to try to honor their requests while maintaining or at least coordinating the layout and design specification of this area with the remainder of the office. This is not always an easy task, but since designers are also knowledge workers, it is one that they will achieve!

- *Delayering*: A reduction in management and supervisory layers, resulting in enlargement of the responsibilities of the individual worker and work teams.
- *Empowerment*: Allowing employees to make certain decisions themselves rather than going through many layers of management and perhaps waiting for days for decisions to be made.

TRADITIONAL OFFICE ORGANIZATIONAL STRUCTURE

It is interesting to note that synonyms for "traditional" in Microsoft Word focus on "out of date," "outmoded," and "old fashioned." Yet many businesses retain the traditional organization that many in the millennial generation definitely think are out of touch and out of date.

Yet all offices must have some organizational structure because without a certain amount of structure, very little work of the company will actually get done. In this age of change, a brief review of traditional structure and organization is helpful. Job titles described in this section will likely exist to some degree or another at the businesses with which designers pursue projects. These structures are explained by the chain of command with the owner or top manager (or other title to be described below) at the top and other employees arrayed below. Who each person reports to, what level of responsibility they have, and the other people or groups that they interact with are defined by the chain of command, as well as an organizational chart (Figure 5-5).

For a small and entrepreneurial organization like an accounting office, the structure is rather obvious to the staff and should easily be obvious to an interior designer. The owner of the practice is at the top of the chain. The top of that chain of command also signals who the likely decision maker is concerning who has final say regarding the design decisions suggested by the interior designer.

The type of business organizational structure described in this section might be called a bureaucratic structure or even top-down management. That is because the rules come from the top; the decisions are made from the top and filter down to the lower levels of the organization. Companies structured in this way will be the types of client who will be less open to change and less willing to accept ideas in planning and design that differ from the way they have always worked. For example, a highly structured top-down organization will be less likely to be interested in sustainable design solutions.

Some form of structure is very important to a large business as all employees must be moving in the same direction or the business will not achieve any type of success. Structure helps define responsibilities so that each department meets its goals, which in turn meet the goals of the enterprise as a whole. When the business has a formal reporting authority, it is said to have centralized control whereby the boss makes the decisions with or without input from the employees. Once again, that structure is explained by the chain of command and organizational chart.

Yet the formal chart is often merely that—a formal description of organizational structure. It is not surprising to find that the day-to-day work relationships that keep the enterprise going do not strictly adhere to this chart. Interior designers find out

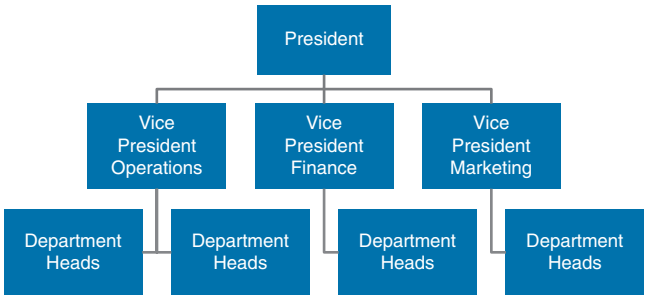


Figure 5-5 A sample corporate organizational chart.

about these informal channels of communication by using common programming methods, such as one-on-one interviews and on-site inspections. Formal and informal reporting structures are also acknowledged by the use of employee questionnaires completed during programming.

Although the traditional hierarchical descriptions and terms are changing, they remain the backbone of organizational structure. These job titles and brief job descriptions will help you recognize organizational structure and begin your understanding of how you will develop space allocations and floor planning for an office project. Not all business enterprise clients will use these titles; however, they are the most frequent designations for management chain of command and are based on a large corporation rather than a small business.

- *Chief executive officer* (CEO): The highest-ranking individual in the business. In smaller companies, he or she may have the title president or principal rather than CEO.

- *Vice presidents*: The second highest layer of management. Vice presidents work primarily with the CEO and are responsible for specific departments or divisions of the business. This job title is less likely to exist in small businesses.

- *Department managers*: Individuals who supervise a group of employees responsible for a specific area of the business, such as the accounting department.

- *Supervisors*: Generally below the department managers. They supervise individuals who perform specific functions, such as the bookkeeper in an accounting department.

- *Manager*: An individual whose responsibilities are to plan, control, organize, provide leadership, and make decisions.

- *Line manager*: An individual who is responsible for activities that directly relate to revenue production of the company.

- *Staff manager*: An individual who provides support, advice, and expertise to line managers. Managers of the personnel office and the accounting department are examples.

- *Other employee titles*: There can be dozens of titles for employees doing the work in a firm—for example, project manager, senior designer, designer, and technician in an interior design firm.

Technology has had a dramatic impact on the office hierarchy. Although upper management may find them basically rooted to the office, lower-level employees comfortably do their jobs remotely via teleconferencing, email, and so on. The organizational structure is important in planning groupings of office spaces whether using conventional wall partitions to divide that space or panel systems to create work areas.

Changes in organizational structure make the programming phase of the project critically important. The interior designer must understand what each department does, how departments relate to each other, what individuals within the department do, and how these individuals relate to each other. These factors will impact the space planning and adjacency planning of an office facility of any size.

These brief descriptions are offered to help the reader further clarify office structural organization as a means to understanding office operations. Keep in mind that these

same areas or divisions exist in many smaller businesses, though not as formally as those described here. The design application discussions in the next chapter will follow a similar format. Our sample business is broken down into the following departments: Executive, Corporate/Legal, Finance, Operations (or Manufacturing), Marketing, and Administration.

- *The Executive Department*: Includes the CEO or president, along with the executive staff. In a large corporation a chief financial officer (CFO) is part of the executive department. The CEO, along with departmental vice presidents, determines overall policies and implements the policies of the board of directors. The Executive Department is responsible for financial planning and overall general administration. The board of directors consists of individuals elected by the shareholders of a corporation and are legally responsible for setting corporate policy, delegating operational power, and many other responsibilities. They are not employees per se.

- *The Corporate or Legal Department*: Consists of the many departments related to the overall operation of the whole corporation. Departments with responsibility for legal, tax, and insurance issues, as well as purchasing, are commonly included in the Corporate Department.

- *The Finance Department*: Responsible for financial planning, analysis, accounting, and the preparation of financial reports. All of the other financial aspects of the company, such as processing of receivables and payables, payroll, and other matters dealing with finances, are also the Finance Department's responsibilities.

- *The Operations Department*: Responsible for producing the goods or services of the company. Operations include such things as design and engineering of new products, materials management, purchasing, quality control of production, and distribution of goods to buyers. They are also related to the manufacturing of the corporation's



Figure 5-6 Traditional executive offices are large and include more seating areas. In this case, the executive uses a standing-height desk for paperwork.
Interior Design by Juliana Catlin, FASID, Catlin Design.

products. In a service-oriented company this department is responsible for the production of services, such as construction drawings by an architectural firm.

- *The Marketing Department*: Responsible for the marketing, advertising, and sales of its total product line. The marketing department determines how best to convey information about products or services to the consumer.

- *The Administration Department*: Includes those departments that are responsible for providing services to the other departments. The Personnel Department is one example.

Each of the above departmental or divisional areas has slightly different space requirements and furniture needs based on job function and type of business. The interior designer must learn about these different needs from questionnaires, visual inspection, one-on-one interviews, and other types of information research during programming.

Businesses other than large office-based corporations also have spaces and functional requirements similar to those described above. It is all rather relative, in a way. For a doctor's suite, one could describe the spaces that the doctors themselves use as the executive division. The office manager of a doctor's suite performs many jobs of the corporate division. The area where patients check in and pay for services, as well as the spaces occupied by office workers responsible for providing these services, can be thought of as the finance division. The patient exam rooms, perhaps a small surgery, laboratory, and other medical-specific spaces are the operations divisions of a medical suite. Marketing is not generally an issue with physicians, but that function would be part of the doctor's or office manager's responsibilities. One could argue that all areas except the medical treatment areas are similar to the administration division.

THE NEW OFFICE ORGANIZATIONAL STRUCTURE

From time to time or in response to other forces, businesses, from the largest corporations to the smallest firms, have redefined how work is accomplished. In many ways, these changes also bring about changes to the work environment and the potential for project execution for interior designers.

Do not assume that job titles and divisional groupings like those described in the section on traditional office organization do not exist in organizations today. In many situations, they still remain. The working relationships, however, are less formal due to the greater *empowerment*—that is, employees are given more leeway to make certain decisions themselves—in order to get work done. This reduced formality has a tremendous impact on the way offices are planned and the equipment provided for each layer of workers in the organization.

Other forces have also affected the office environment in the twenty-first century. Advances in technology, globalization of the marketplace, and continued reengineering of business organizations are just a few of the many changes associated with the challenge of business today. Let's start with technology.

Technology continues to change how business is conducted, which affects how a business is organized. Technology allows many kinds of work to be done faster, more accurately, and from almost any location. Do you ever wonder how many of those individuals at the local coffee shop glued to their laptops and tablets are actually on

company time and not entrepreneurs? Destructured companies allow employees to work from home or work—yes, even from a coffee shop—as long as the work is still accomplished. Telecommuting takes workers to the customer, solving problems, taking orders, and generally satisfying the customer faster.

Technology also changes the in-office environment because work groups can easily move from location to location to collaborate on projects as the need arises. Flexible workspaces must be designed to accommodate the needs of teams that might work on a project for a few days to over a year. When the project is done, the space could be reconfigured for a new team and a new project. The designer must place more emphasis on understanding the corporate organization and culture as well as the company's furniture needs.

Technology also continues to change the furniture and equipment used in the office. Today's workspaces may not be as random as in the original office landscape concept, but they are certainly more open than the cubicles in the Dilbert cartoons made famous by Scott Adams in the 1990s. The office of this century places more emphasis on creating an enabling environment for workers in order to retain the best employees. A few terms associated with the office environment using systems furniture are included here. Others will appear in the next chapter.

- *Alternative officing*: A term that describes the many different impacts on the design of office space and the workplace.

- *Satellite offices*: Work centers established away from the main office but convenient to the territory of the outside workers. These are generally not branch offices with complete full-time staff and assigned workstations.



Figure 5-7 The Redwood Trust's office workstations are designed to provide a team system of collaboration.
Huntsman Architectural Group. Photography © David Wakely.

- *Virtual office*: Theoretically, everything the individual needs for work can be carried in a briefcase or car—cell phone, modem, portable laptop computer, fax, and printer. Thus, the virtual office can be anywhere.

Globalization of the marketplace has had far-reaching effects on all businesses. Any entrepreneur working from a home office has the opportunity to engage in business with a client anywhere in the world. Corporations are naturally global in their business. A design firm working with multinational clients must be prepared to design while incorporating and respecting cultural differences in their clients' businesses.

While we continually read about how designers must embrace other cultures, they must also realize that their clients might actually want designs and products that are more familiar to those in the United States. Technology allows them to see what is here, and many want that same or certainly a similar appearance. That is not to say that American designers and products are so influential that we are overtaking the cultural designs of other countries. It is rather an indication of the far-reaching effects of technology in communication and marketing.

The design firm must be sure it can interact with the technology used by clients in other countries. One of those issues is the speed with which international interactions will occur. Will someone in the U.S. office need to monitor emails 24/7? Perhaps, but they must at least be prepared to respond within 24 hours from overseas contacts.

Many companies have reengineered their organizations to better interact with a changing economy. According to Hammer and Champy, reengineering is "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvement in critical, contemporary measures of performance, such as cost, quality, service, and speed" (1993, 32). The economic recession and slow regrowth also forced many businesses from about 2008 on to reengineer and even downsize their businesses. Downsizing results in a reduction in the number of employees within a company to make operations cost-effective and more responsive to customers' demands. Downsizing has not only cost many their jobs, but it has also emptied office buildings in all cities across the country.

Reengineering efforts impact the formal reporting structure of many businesses. Downsizing also creates changes in organizational structure. For many companies, the formal pyramidal structure shown in Figure 5-5 has been changed to a flatter structure, with more interdisciplinary work groups functioning as teams. This change in structure—also called "delayering"—means that the management and supervisory layers are different, even fewer, resulting in enlargement of the responsibilities of the individual worker and work teams.

A company with a nontraditional work structure and environment makes an individual or team responsible for all parts of the project from beginning to end. This team approach helps a company develop new products faster and hit the market with the new products ahead of its competitors. Thus, teams today are flexible, changing size and personnel depending on the scope of the problem facing the team.

Office workers today are doing their jobs in ways that rarely exist in the traditional office environment. Certainly, some employees retain the need for a private office, while others work very effectively in open-landscape workstations. The reengineering of corporations and work strategies has created new ways for employees to work, requiring

changes in the office environment. Technology and mobility have also moved many office workers out of the main office's four walls and into the outside world or into their homes.

For the student and the design professional who must creatively solve the design problems of the new office environment, it is vital to understand this new work structure. Indeed, students will find themselves working in design firms that embrace many of these concepts. This section briefly discusses how the structure of work has changed and will continue to change.

CORPORATE CULTURE

An important part of office planning is the ability of the interior designer to understand the corporate culture of the organization and how this affects the office environment. By *corporate culture*, we mean policies, employee behavior, company values, image of the company, and assumptions about the world of work. For many companies, the corporate culture is explained through its mission statement. Since some business experts think the mission statement has become something to hang on the wall and ignore, the business culture has become much more.

For the interior designer, the culture of the company has a definite impact on the success of any office design project. It becomes particularly important when the company is making a change in the interior design of the facility. Redesign of the offices from a hierarchical closed plan to some version of an open plan may be necessary to create a cultural change that will make the company more competitive. If a company has been traditionally organized, with a strong desire to move to an open plan, the designer is bound to experience resistance. This will especially be true with leaders who will be asked to change from private offices to nonprivate workstations. This resistance can be mitigated if the company informs and involves the employees in the decisions and direction of the changes to come.

The interior design and planning of office areas and product specification can enhance or harm the culture of the office. A strong corporate culture keeps everyone working for jointly held beliefs and goals. When interior design, planning, and product specification are handled correctly, the right employees are in the right locations and have the right office furniture to do their jobs. Their best efforts improve customer satisfaction and the company's image, and they are encouraged to use their best judgments for the good of the company.

To prevent the expensive mistake of designing an office facility that is not compatible with its corporate culture, interior design firms offer a service called a *cultural audit* as a predesign service. "The cultural audit helps define the activities that need to be built into the change process for it to have a chance to succeed" (Becker 2004, 115). The audit might be done in conjunction with or following the company's strategic planning process. This is important, as the mission, vision, and goals of the company are related to the corporate culture. A cultural audit of the company before space planning is undertaken helps to improve planning—especially for companies in transition from a traditional to a nontraditional office plan.

A cultural audit often involves interviewing key personnel along with a random sample of other persons who will be working in the project area. If a very large number of employees will be housed in the project space, questionnaires might be used to



Figure 5-8 Reception area for Steelcase Worklife Center, New York City. The design reflects the contemporary image of the company.
Photograph courtesy of Steelcase, Inc.

gather information about how space is used, what is needed, and how communication takes place. Interior designers can also learn quite a bit about the use of space and offices by visually surveying the existing offices. For example, offices filled with extra file cabinets could mean that an employee is not turning files over to a central file area and is simply a "pack rat" unable to let go of any piece of paper.

The information from the cultural audit helps the interior designer make better recommendations on space allocation, space planning, and product specifications. Plans are better when developed around actual functional needs rather than rank or status. Furniture products are specified that match employee needs—for example,

flexible workstations for team areas and private or semiprivate offices for managers and other executives who really need privacy. Technology and mechanical interface issues become easier to manage with better product specification.

When changes take place that dramatically affect the workplace environment and how employees are expected to function in the new environment, the changes will usually succeed if the employees have been involved to some degree. "Workplace design is a powerful catalyst for organizational change, and a great tool for improving organizational effectiveness" (Tobin 2004, 3). When employees are part of the process and are informed about how these changes will improve the overall effectiveness of the company as well as the individual's work responsibilities, the change will occur more smoothly.

IMAGE AND STATUS

Office interiors make a statement to potential customers, stockholders, employees, and the community at large. Many factors affect that image, including the brand that the company has developed, the design of the logo, architecture, and the design of the interior. The factors that create a company's image help differentiate one company from another.

Look at Figure 5-8 and Figure 5-9. Both of these photos are of office facilities. Each conveys a different image of the company to its employees and customers. An interior designer not only plans the space, but he or she also designs the interior envelope to reflect



Figure 5-9 The reception area for a small corporate office facility helps to reinforce corporate image. *Interior design by Debra May Himes, ASID, IIDA, LEED AP. Photographer: Dino Tonn.*

the client's attitudes toward its employees, customers, and visitors. An important part of the designer's job, then, is to interpret what the company wants its design image to be.

A company reveals something about itself by the image its interiors portray. Reception areas with scratched furniture and spots in the carpet do not project a positive image for any business. For a small firm like a small law office, high-priced furnishings and finishes might frighten potential clients away. By contrast, clients of a top legal firm will expect an expensive interior. Projecting an image or brand that helps convey clarity and positive values is critical to the continued success and growth of firms of all sizes. Not all companies can afford the highest-quality furniture and finish products. Yet the interior must express an appropriate sensitivity to potential customers' expectations of the business.

Image is more than the quality of the furniture and accessories used. It is an expression of the company itself. Being able to interpret that image starts with programming decisions that lead to the planning and interior specification decisions needed to complete the project. The interior designer must attempt to express that image when selecting the products, colors, textures, and styles that create the final interior design of the facilities. Design solutions must be in congruence with those goals and the image that the client has developed and wants to project. For example, a financial institution with traditional values and organizational structure located in a facility designed with glass and chrome furniture does not reflect the conservative image desired by its conservative clients.

In many companies, the concept of status in the office environment may be less pronounced than it was merely a few decades ago. In some respects, concern for status has taken on new meanings. Yet, employees want to retain at least some semblance of status. The corner office with the larger desk and finer upholstery is probably not always a status issue. For many, rank seems to still have privilege as managers and supervisors fight to retain their "private" offices.

There are some simple ways to provide status in offices today without returning to enclosed offices and enclosed cubicles. Here are a few ideas:

- Larger workstations provide space for conferencing, which is often needed by managers and supervisors.
- Workstations located near or next to windows are generally reserved for management-level employees.
- A high-backed chair versus a low-backed chair can indicate status.
- Premium fabrics on seating and premium veneers on surfaces also indicate status.
- The use of higher divider panels on one or two sides provides additional storage. This furniture option is primarily reserved for management personnel.

The interior designer must be sure that he or she understands what privileges each employee rank includes. It may be more important to the company to impress clients with an elegant reception area and conference room than to use expensive fabric on the chairs in managers' offices. Managers may claim that they need a closed office to hold confidential meetings with subordinates or to maintain client confidentiality, but it may be decided to hold all conferences in separate areas.

FACILITY MANAGEMENT AND FACILITY PLANNING

All businesses consist of the facility, the equipment needed for the facility to function, and the people who work there. For example, a store facility includes the space and the fixtures used to display the merchandise. In a hotel, the facility includes the guest rooms, restaurants, and other features. For a corporation's offices, the facility includes the building that houses the offices and all the equipment provided for the employees to perform their work.

The responsibility for making sure that the facility is planned appropriately and for providing what employees need to do their jobs falls to the facility management department. *Facility manager* is a position formerly called the plant manager, director of physical plant, or even office manager. When it comes time to decide if a new facility should be built or leased, the facility manager will be part of the team to arrange for that new space. When interior design work is scheduled, the interior designer will no doubt work with the client's facility manager.

Facility managers are responsible for making sure that the working environment is as optimal as possible, considering corporate goals, policies, and budget. *Facility management* involves the total nonfinancial asset management of a business. According to the International Facility Management Association (IFMA) website, "Facility management is a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology."

The facility manager is usually the prime contact with the interior designer on a project, since the facility manager often functions as the in-house project manager for any construction and installation. The facility manager is also involved in long-range facility planning, management of the FF&E, the manufacturing equipment, real estate acquisition, and interior space utilization. In other words, this individual is in charge of managing the enterprise's capital assets. *Capital assets* is an accounting term that encompasses any property, buildings, and equipment required to conduct business.

The facility management department manages the facility planning department. *Facility planning* involves the programming and space planning of offices and other areas of commercial businesses. Facility planners, sometimes called space planners, are most often involved with the layout of the spaces and generally have little responsibility for the aesthetics of the interiors. They are concerned with space planning and layout of office areas, support operation areas such as training rooms, and space needed for other business functions. Many retail chains use facility planners to determine the best merchandise display layouts to encourage sales. Hospitality enterprises—especially hotel chains—use facility planning to maximize guest services and convenience. Government agencies also use facility planners to determine office layouts. Individuals in the planning department will work with the facility manager and outside architects, interior designers, contractors, and others in planning and constructing the facility.

It is the interior designer's responsibility to research the needs of every employee or group of employees and combine them with the requirements of the company in terms of budget and privilege. This is not always an easy task, but it is a challenge that must be met in today's competitive climate for both the interior designer and the client.

Types of Office Spaces

Offices are very common commercial interiors, and the design of office spaces is a very common project for designers. The term "office" can be interpreted as the space in which a person works or the numerous spaces that are used to conduct professional and business activities. As was pointed out earlier, almost all commercial businesses have space devoted to office functions. Of course, not all businesses will have all the types of spaces discussed in this section.

How an office facility is planned should be based on the operational organization of the business. The more structured the business operations, the more likely it is that the office plan will be more structured using predominantly partitioned walled office spaces. The plan using predominantly partitioned walls to create office spaces is also called a *closed office plan*. This is sometimes called *conventional office planning*. This type of planning is still preferred by businesses with professionals who require privacy in their dealings—for example, lawyers, accountants, and medical professionals.

A business with an organizational structure that leans toward collaboration and team-oriented projects is likely to involve a space plan using movable furniture, such as that shown in Figure 5-10. A large majority of businesses use a hybrid.

Businesses that utilize a more collaborative team organization are likely to use an open plan methodology, sometimes referred to as open landscape. In the purest form of an open plan, no employee has an office with full-height walls and a door for privacy. This planning methodology uses movable wall panels and/or furniture items to divide the office footprint and create the work areas. Instead of the term "office," the term "workstation" is often applied to work areas. Team-oriented clusters of workstations are used instead of enclosed offices. However, some semi-enclosed cubicles in the office landscape may be needed for some job functions. These types of "offices" are more flexible in layout and specification of product.

Many companies today are more likely to use a modified open plan, which combines a number of private closed offices for some staff with open workstations for others. In this case, the private offices are either planed along exterior walls or located adjacent to the central core. Staff members are then housed in workstations in open areas of the office footprint.

Why do closed offices still exist? In many cases, it is a matter of status. As mentioned in the section on image and status, people who have worked many years for a company, moving up the corporate ladder, take great satisfaction in achieving the status of a closed private office. Many workers feel that they are more productive in a closed office or cubicle. But many researchers have shown that this is not the case. The closed office will still find a place in office environments. Whether for privacy, status, or security, some individuals will want, or even demand, a closed office or at least a "closed" cubicle (Figure 5-11).

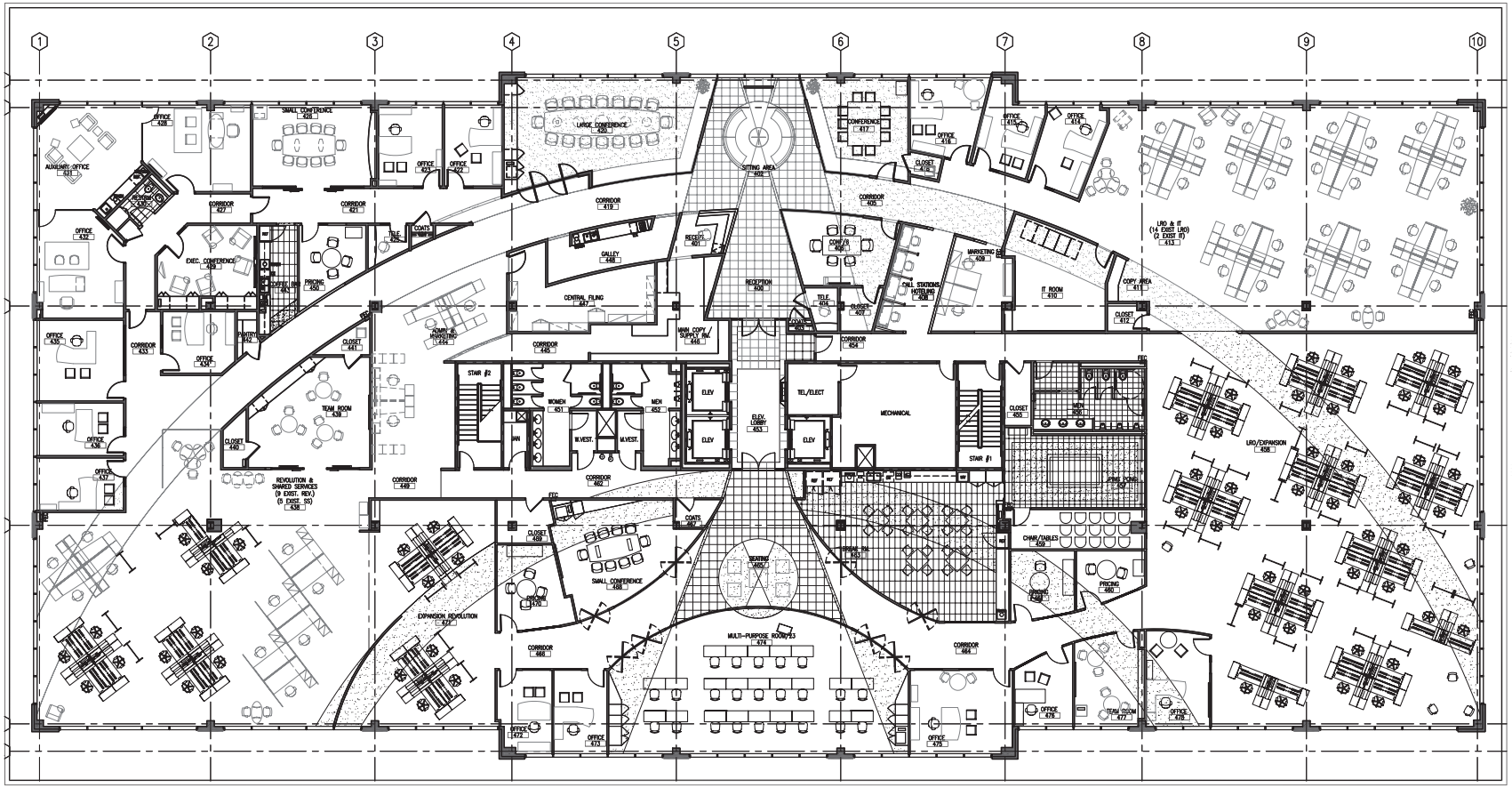


Figure 5-10 Floor plan of a corporate office group. Plan shows integration of system workstations and conventional planning.
Drawing by Carson-Guest, Inc.



Figure 5-11 Private office for an upper-management employee that was designed using systems furniture.
Interior design by Studio4 Design. Photographer: Paul Krucko.

The clearest way to describe the different types of office spaces the designer will encounter is to frankly lean on a more traditional office organization. However, the types of office spaces described also apply to the changing office hierarchy of the more collaborative and team-oriented organization. Additional details on the planning and design of the following types of offices appear in the next chapter.

- *Executive office/suite*: Office space for the highest-ranking individual (chief executive officer), generally in closed private offices. A separate reception area and a receptionist to greet visitors to the executive office suite are also common.

- *Other executive offices*: Office space for upper-level management positions. A secretary outside the office is common, but a waiting area is not. These offices may be grouped with the CEO.

- *Small business owners or managers*: Usually have their own versions of the executive suite, being given more space in premium locations.

- *Department manager's offices and/or workstations*: These are generally located on the same floor or near their department area. Staff offices for managers are smaller and have less impressive furniture than what is used in the executive suite.

- *Supervisor's offices and workstations*: These are rarely private offices. They are positioned in the area where their subordinates are located. Furniture items are smaller than a department manager's and less impressive products are likely to be specified.

- *Workstations for general office job descriptions*: Workstations for various types of production employees, such as sales representatives and computer programmers, represent the largest number of office spaces. The size, configuration, specific furniture, and

equipment needs can vary according to the department's primary responsibility. Some examples are provided in the next chapter.

- *Ancillary or support spaces*: These are various types of spaces that are required to support basic office work. With the exception of the primary reception room, ancillary spaces are designed and specified with utility rather than aesthetics in mind. A list of common support spaces with their square footage allowances is provided in Table 6-1 in the next chapter.

It is impossible to clearly identify all the different types of offices and supporting spaces that are part of the office environment. That is because many businesses have specialized needs that are not typical of other businesses. For example, an advertising agency will need spaces for creating storyboards, even if they are using computers to create the ideas in the first place. An office assistant/secretary requires space for computer monitors, filing, and paperwork. Someone in the design-build industry requires space for a computer monitor and possibly a large table to review printed floor plans. Support spaces include conference rooms, duplication/copying rooms, filing rooms, reference storage, supply storage, and even employee lunchrooms or cafeterias.

Summary

Office design is the single largest area of commercial interior design. Of course, this makes sense because offices are needed by every type of company in order to conduct day-to-day business. The design and planning of offices varies greatly, depending on the actual type of office and size.

Technology is changing the way offices function and the manner in which they are designed, but offices will always exist. Even office workers who telecommute or work from a home office will likely have a "head office" to report to—assuming that they are not entrepreneurs.

The reporting structure of the employees in an office directly impacts the space planning of an office. Students should consider taking a general business or management class to understand how office management and operations function. In addition, students should be constantly observing and learning about offices every time they have an opportunity to enter one. Observe how the spaces have been planned, what kinds and styles of furniture are used, and the size of each item. It is also useful to read the trade magazines that feature office projects. They are full of great design ideas for a variety of offices and commercial spaces. *Contract, Interiors & Sources,* and *Interior Design* magazines feature commercial facilities in every issue.

This chapter has focused on the functional and organizational influences on the office environment. It has briefly discussed the typical work responsibilities of a generic corporation, and it provided planning and design fundamentals relevant to the different levels and job functions of an office facility. Topics concerning issues such as the knowledge worker and status have been added to the discussion of the office environment. Chapter 6 presents a detailed discussion of the elements that directly impact the planning and design of an office facility. It will also include sections concerning design applications to help you see how the planning elements affect the office environment.

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INTERNET RESOURCES

Allsteel, Inc.: www.allsteeloffice.com

American Society of Interior Designers (ASID): www.asid.org

Buffalo Organization for Social and Technological Information (BOSTI Associates): www.bosti.com

Building Owners and Managers Association (BOMA): www.boma.org

Haworth, Inc.: www.haworth.com

Herman Miller, Inc.: www.hermanmiller.com

International Code Council: www.iccsafe.org

International Facility Management Association (IFMA): www.ifma.org

International Interior Design Association (IIDA): www.iida.org

Knoll, Inc.: www.knoll.com

Steelcase, Inc.: www.steelcase.com

CHAPTER 6

Office Interior Design Elements

The design of offices represents the largest portion of commercial interior design business. According to data from *Interior Design* magazine, fees for corporate interiors amounted 36 percent of all design fees (Zimmerman 2014, 84). That includes data only from the largest firms and the largest of projects.

In a sense, it really doesn't matter what size the office facility is or whether it is a stand-alone professional office or an office as part of a different kind of commercial facility. The designer must understand the functional space needs and working relationships of employees in order to appropriately design the office. Design decisions will also be affected by the organizational structure of the firm. The designer must also understand the business of that office facility like any other commercial facility.

For many office environments, space and functional requirements have not changed much over the past 25 years or so. For others, major changes in how employees work together and how an office facility is planned have gone through dramatic changes and likely will continue to change over time. Innovative space planning, designs that accommodate a diverse workforce, and appropriate furniture products are all part of today's office environment.

This chapter continues with the discussion of designing office interiors begun in the previous chapter. It has been separated to provide options for the reader in focusing attention on needed information. The topics in this chapter will be mirrored in the subsequent chapters.

The chapter concludes by discussing specific design guidelines for a generic general office. The first design application is for a traditional style of office organization using predominantly case goods and closed planning. A second design application will outline design guidelines for a generic office using primarily office systems products. A new design application discussion of a small professional office has been added.

Planning and Design Elements

One might argue that the key to a good office design project rests with understanding communication patterns between employees and functional interrelationships that place them where needed in the office. Even in a small office, getting the employees who need to work together in proximity to each other will help that office work more effectively. In a large corporation, arranging who goes where on each floor can make or break the success of the whole company.

Today's office environment has changed, as was discussed in the previous chapter. The social network and technology allow workers to work remotely from the road or home—or even the coffee shop—as long as the boss agrees that the employee's work is getting done. This means that fewer hard offices—whether designed along the traditional model or using systems furniture—are needed.

For some businesses, the work areas need to be private, with full-height walls for privacy and security. Depending on the position of the individual in the office hierarchy, that can mean a private office against the windows with a secretary right outside (Figure 6-1). Of course, this type of arrangement does very little to encourage the collaboration of knowledge workers, but it is perfectly suitable for a law office or accounting firm.

The open plan office environment allows for easy interaction and collaboration. This might be a grouping of workstations—each one somewhat open, providing only enough separation to accommodate storage shelves. The group might also include collaborative spaces with a table and chairs or even a lounge seating group, where employees can meet to hash over questions someone might raise.

One is right for one type of client; the other is preferable for others. As interior designers, we serve to plan the type of office spaces that suit the needs of the client. Being able

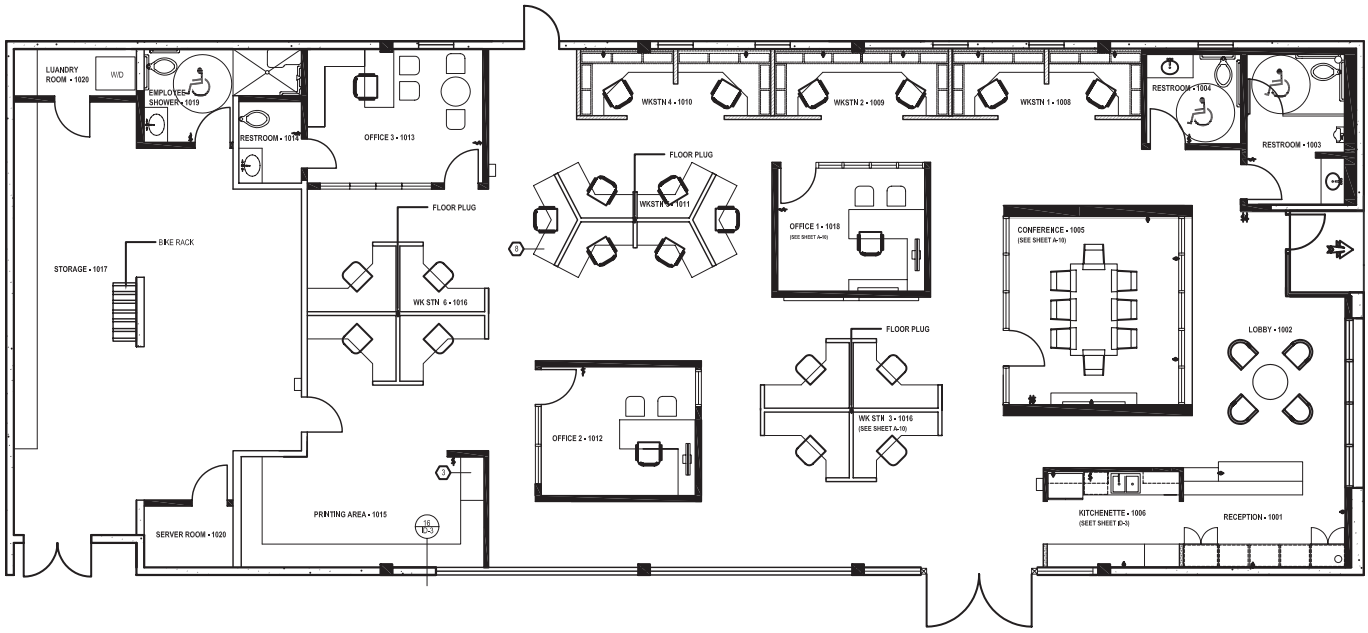


Figure 6-1 This project refurbished a commercial laundry facility into graphic design offices. Systems furniture was used extensively in the plan. *Design and drawing by SVJD Design.*

to plan either type of floor plan is critical to those interior designers who want to specialize in the office environment.

There are numerous terms introduced in this chapter. The definitions for terms are placed in the sections where they are more fully discussed.

This chapter lays out the basic planning and design elements that occur in an office environment. Topics in this chapter will discuss feasibility studies, sustainable design criteria, safety and security issues, code requirements, and space allocation and circulation. Also discussed are furniture typical to this type of facility, materials, finishes, color, and mechanical systems that can be impacted in planning by the interior designer.

The chapter concludes with a section called "Design Applications." In this section, generic projects will be discussed in relation to the design planning elements. This same pattern of information is provided for the other types of commercial interiors discussed in this book.

FEASIBILITY STUDIES

It is common for clients to hire a design firm to help them determine whether the office space to be leased or built is sufficient for their needs. This research is particularly important for new construction or if extensive tenant improvements appear to be necessary. This type of study can benefit any client regardless of the size of the project, but it is more common for larger projects. This research is generally referred to as a *feasibility study.*

As we saw in Chapter 3, feasibility studies have many uses in business and are very important when planning interior space requirements. Feasibility studies are "in-depth estimates of the planning and specifications that will be needed for a project" (Piotrowski 2013, 650). In large projects, the study will also look at the financial and economic impact of construction, the impact of moving the staff, the issue of disposing of existing furniture in exchange for new furniture, and many other factors that can affect the project.

In the case of an office facility, the designer will need to research the following:

- Employees work relationships and adjacencies
- Communication patterns
- Furniture requirements
- Privacy needs
- Technology needs
- Space requirements for conferencing
- Allowance for office storage and filing
- Support areas such as employee lunchrooms

This information is obtained through observation, asking the client thoughtful questions, and/or utilizing predesigned questionnaires completed by employees. A vital part of this information gathering is determining working relationships and

work interactions of employees. Working relationships are a key ingredient to a successful space plan. The interior designer must ensure that employees and work teams are located so that group communication can take place in a comfortable, efficient environment. Programming data and matrixes developed to clarify adjacencies are then applied to the schematic floor plans that will show preliminary space allocations, partition layouts, and traffic paths.

If questionnaires are not used, interviews are necessary to make sure the interior designer understands the working relationships in order to plan the adjacencies correctly. Adjacency matrixes developed from questionnaires, interviews, or observations are important aids that help the designer understand how to develop the floor plan. Adjacency matrixes help the interior designer plan locations for individuals and departments that must work together. Karlen (2004) provides excellent information on matrixes for planning purposes.

SELECTED LEASING TERMINOLOGY

- *Aisle*: An unenclosed path of travel that occupies space between furniture and equipment.
- *As is*: The space is rented by the tenant without any changes to the interior. The tenant may request changes, but the landlord is not obligated to provide them.
- *Building standards*: Predetermined architectural finishes and other details the tenant can use with no extra charge.
- *Build-out allowance*: An amount per square foot representing the cost of building partitions, basic plumbing and lighting fixtures, and architectural finishes.
- *Build to suit*: The landlord will build the interior of the commercial space to suit the needs of the tenant.
- *Capital improvements*: Permanent changes to the building's interior that cannot be removed without damaging the structure, such as wood paneling. They increase the value of the space and are paid for either by the landlord or by the tenant without compensation.
- *Corridor*: A path of travel defined by full-height walls and any partitions more than 69 inches (1752 mm) high.
- *Demising wall:* Any partition used to separate one tenant space from another. Each tenant is responsible for one-half of the thickness of all demising walls. Partition walls separating the tenant's space from the public corridors are not demising walls, and the tenant does not pay for that thickness.

The feasibility study provides the client information to help them decide to proceed with the project or to modify needs. It is not unusual for the client to underestimate the amount of space needed for projects that utilize a closed plan, while they may overestimate the amount of space needed for an open plan—or vice versa. A feasibility study also generally includes budget estimates for construction build-out of the space and the FF&E.

The results of the feasibility study become part of the programming research undertaken to begin the design project in earnest. Programming information developed from the feasibility study will also help determine furniture needs. Information regarding codes and regulations, safety, and aesthetic preferences will also be obtained during programming.

Because space requirements are such a dominating factor in the office feasibility study, the terms related to leasing are included here. They may be utilized throughout this chapter and in other chapters as well.

- *Demountable wall*: A type of interior partition that is built at a factory. These walls are held in place by tension with a gripper on the floor and special attachment at the ceiling.
- *Lease-hold* or *tenant improvements*: Upgrades or other improvements to the rented space paid for by the tenant. If they are physically attached to the building, they belong to the landlord if the tenant moves out.
- *Net area required*: The space determined to accommodate all offices and support spaces.
- *Premises*: The space described to be rented. The description should include the usable square footage and other details of the space.
- *Rentable area*: The total amount of square footage required for office and support spaces. It includes allowances for demising walls, columns, mechanical closets, and even a portion of the exterior walls.
- *Tenant work letter*: A contract used to supplement the lease describing the specific interior construction and finishing of a leased space. It specifies what the tenant is responsible for and what the landlord will provide.
- *Trade fixtures*: Materials or equipment attached to the building paid for by the tenant. They must be easily removed from the building without damaging the structure and are not integral to the structure; otherwise, they are not considered trade fixtures.
- *Usable square footage*: The amount of space that can actually be used for the office or other facility. It excludes demising walls, exterior walls, structural columns, chases, and electrical closets within the space.

SUSTAINABLE DESIGN

The remodeling of office facilities can result in literally thousands of pounds of waste that can go to a landfill. To avoid some of that waste, the client and designer can find ways to recycle products such as carpeting, window treatments, and construction materials. Doing the research necessary to recycle and donate reusable materials such as carpeting will take some time. However, there are numerous nonprofits that would love to have the carpet that a client no longer wants.

Recycling is the easy solution to a greener office. Tactics such as encouraging employees to use beverage cups that can be washed rather than thrown away is another easy solution the client can implement. But what about the interior designer?

Offices are among the commercial facilities most often designed to obtain LEED certification. With this goal for many clients, the designer can pay special attention to the products that are specified in a remodeling or new design of any type of office space. In addition to using green materials and products, the designer can utilize the three Rs: reusing, refinishing, and reupholstering products. Although they might prefer to work with new products for any kind of project, in order to think sustainably, designers must be open to reusing furniture items that are in good repair and still have useful life in the design. They need to have sources that can refinish case goods and even metal products. Seating, in many cases, can be reupholstered if the frame is in good condition.

Yes, in some cases like reupholstering, the refurbishing work can be more expensive than buying something new. But if the client and designer want to be sustainable, the cost comparisons must be explored.

Here are several other tactics that can aid in designing an office that seeks to look at sustainable solutions:

- Specify energy-efficient devices and lighting to conserve energy.
- Use water-saving plumbing fixtures for water conservation LEED credits.
- Specify products that come from renewable sources.
- Eliminate the use of products that add toxic chemicals to the interior environment.
- Prepare space plans that better utilize daylight in interior spaces of the office.
- Position offices, conference rooms, and support spaces that need full-height walls at the core of the building rather than along the perimeter. This allows daylight into more areas of the office. (See Figure 5-10 and Figure 5-11.)

For other ideas, the reader may want to refer back to the sections in Chapter 2 about sustainable design.

SAFETY AND SECURITY

From a design point of view, office safety and security starts with strict adherence to building and fire safety codes during the design development of the project. In addition to the building codes, accessibility regulations will also need to be applied to the floor plans and specifications. Depending on the type of business conducted in the office facility, additional security measures may be needed.

Many companies will need minimal security other than fireproof safes or file cabinets to store paper and computer records. Others will want the design team to include a security consultant for advice on designing sophisticated monitoring and access systems.

After the 9/11 terrorist attacks in the United States, many types of businesses implemented tight security screening for anyone entering their buildings. Government offices are not the only office buildings that may need additional security systems. A research and development (R&D) company must protect data and prototypes of new products. An R&D company will also have strict security screening at the entrance to its research facilities. Banks and brokerage offices have to guard funds, negotiable securities, and other documents. Museums require various levels of security to protect their collections. Even libraries will have certain parts of their collections that must be secured.

Many office buildings have security guards on the street level by the elevators. These security guards provide security passes to visitors and, in general, monitor traffic into the building. The desk or counter for the security guards is a custom-designed millwork item that must accommodate telephone equipment, perhaps monitors displaying security cameras, storage cabinets, computers and printers to print out visitors' badges, and other needs specific to their particular corporation. Some facilities even post security guards outside the front entrance.

How many and what kinds of security mechanisms are needed depend on the nature of the business. The interior designer needs to discuss security issues with the client during programming. Visitors are not generally allowed to wander through office facilities—and this, in itself, is a security design. A visitor may have to sign in at a reception desk, be provided a guest ID card, and may even be allowed past the reception desk only when accompanied by an employee to conference rooms or employee offices for meetings.

As with many kinds of commercial facilities, observant employees with clear sight lines in reception rooms and lobbies are often the first line of defense in an office facility. Passing traffic from reception areas to work areas that are secured with buzzers—or at least a closable door—help prevent visitors from wandering into the facility unescorted. Placement of a receptionist across from the elevators makes security easier on each floor of a high-rise office building.

In some office buildings, employees may need to show identification cards or use card access passes to move from the entrance to the upper floors of the building. Card access or keypad hardware is often required for access to secure rooms, such as computer rooms and areas where financial records are kept. More sophisticated access systems, such as retinal scanning devices, may be required at the most secure areas in government buildings and corporate research areas.

If the project requires secure rooms, the interior designer should understand that standard partitions do not provide more security. Wallboard can be easily penetrated to break into a room unless special provisions are made. The partition must go to the ceiling deck above, not the dropped ceiling. It may even be necessary to reinforce some walls with steel or masonry. A level of acoustical security for a conference room can be achieved by specifying insulation in the walls. However, this is not enough for highly sensitive secure rooms.

The security and safety of employees and visitors to office facilities can take many forms. The interior designer must work with the client, architect, and security consultant to do all that is possible to meet the security needs of the particular business.

CODE REQUIREMENTS

Office buildings and internal office spaces are subject to building, life safety, and accessibility regulations. The interior designer's responsibility in these areas begins with understanding which codes actually affect the project. Today, most jurisdictions in the United States have adopted all or parts of the International Building Code (IBC), along with the companion fire, plumbing, electrical, mechanical, and other codes. However, a jurisdiction may still use one of the other model codes. The model codes for life safety (or fire) are generally those written by the NFPA, which includes the Life Safety Code (NFPA 101). In the United States, accessibility regulations are governed by the ADA and ABA.

A jurisdiction can also modify one of the model codes or write its own codes to suit its needs and laws. The jurisdiction may use an older version of an updated code. Remember that the codes in effect in the location of the design firm's office might not be those existing at the location of the project. It is the designer's responsibility to know what codes are applicable to the project's location.

The primary code used in Canada is the National Building Code of Canada (NBC). In Canada, each province may have specific code variations that affect elements of the design and specification of structures. It is important to note that in Canada, provinces do not use the ADA guidelines per se, and each province has its own accessibility regulations.

As was discussed in Chapter 2, office buildings and professional service offices, such as accounting, law, medical (not housed within a hospital), and many other kinds of strictly office facilities are considered business occupancies. This classification will direct many of the interior designer's decisions concerning space planning and architectural finish specification.

In addition to the occupancy type, the occupancy load will affect planning decisions. For example, a small office having fewer than 50 occupants can generally be designed with only one exit door. An office with 51 or more occupants will require two exits. As the number of occupants increases, additional exits must be provided. Offices on the second story or above may be required to have additional exits, even with occupancy under 50. Naturally, these general requirements may not be true in all cases and in all jurisdictions.

Whether the project is planned using partitioned offices or open office planning will also be impacted by codes. The building codes will affect design choices in areas that include the size, number, and locations of egress doors; the size of corridors and aisles; and permissible lengths of corridors. In an open office plan with a larger number of people housed in the area versus partitioned offices, egress needs to be carefully designed for occupant safety.

Specification of architectural finishes will also impact design choices, as well as the finishes applied to divider panels in an open office space plan. Code requirements will be different for flooring and wall finishes, depending on the use of the space and whether the traffic paths are considered to be aisles or corridors. Of course, there are many other code issues that will influence the design of individual projects.

In the United States, office facilities are generally considered public buildings open to the general public. When this is the case (some office facilities may not meet this criteria, such as offices for research and development), the office plan must meet the ADA's accessibility design guidelines in every respect. For offices, the ADA guidelines affect such issues as:

- The size of corridors and aisles
- The location of areas of refuge in multistory and very large one-story buildings
- Heights of reception counters
- Design and location of signage
- Flooring specifications
- The design of public toilet facilities

Circulation paths have specific accessibility requirements. Interior designers should provide circulation paths at least 44″ (1118 mm) wide, to provide turnaround areas at intersections of paths, and they should design entrances into workstations that are at least 36″ (914 mm) wide to facilitate accessibility in all plans. Remember that corridors in closed plan projects may need to be larger than 44 or 36″ (1118 or 914 mm), depending on the size of the total space and the number of occupants in any one complex. The reader should refer to the accessibility design guidelines for specific accessibility requirements.

In a multistory building, each floor must provide toilet facilities. When a floor is divided for two or more occupants, these facilities will probably be provided on each floor. When the office is a leased space as part of a series of office suites in a one-story building, each suite will likely require its own restroom. Some one-story and low-rise office buildings are designed (with prior approval) with toilet facilities in a common area. Remember to provide baby changing stations in both men's and women's toilet facilities. Additional code and design requirements for toilet facilities were discussed in Chapter 2.

Most jurisdictions adopt the Life Safety Code published by the NFPA for detailed regulations on finish materials. However, the building codes also have chapters that deal with finish materials. In office facilities, the finishes applied to the walls, floor, ceiling, and window treatments will have restrictions. Materials in exits and exit access corridors will be required to be Class A or B for walls and ceiling and Class I or II for floor finishes. Materials in private offices or other spaces within the office can be Class A, B, or C and Class II (Harmon and Kennon 2011, 402). Table 10.2.2 in the Life Safety Code provides a quick review of classification finishes.

Depending on the jurisdiction and building type where the office is located, the fabric, the fillings, and even the upholstered furniture items must pass one or more tests. Smolder resistance tests, such as the Cigarette Ignition Test, determine the smolder resistance of a textile or a seating item. The ASTM E1537 Test Method for Fire Testing of Real-Scale Upholstered Furniture Item, also known as the CAL 133 or TB 133 test, is a very strict smolder test; all components of the seating item—fabric, stuffing, and frame—must pass the test.

Manufacturers who produce commercial-grade upholstery, wall coverings, and flooring test their products and certify that they have passed certain tests. These test results are identified on hangtags and in catalogs. Fire marshals or other code officials may require that testing information be provided before the client can occupy a space. The interior designer should be sure to give this information to the client for his or her records.

Several states have adopted Technical Bulletin CAL 133 concerning upholstered furniture in commercial interiors. This regulation was first introduced in California in the early 1990s. In states that require the whole furniture item to pass the CAL 133 regulation, manufacturers test the seating item and certify that it passes the test; otherwise, the unit cannot be used in many types of occupancies. If any one item in the unit fails the test, the unit cannot be used. This test is applicable to occupancies that contain 10 or more seating units, especially in places of assembly and institutional occupancies. Some jurisdictions may require that seating pass this test in large office environments as well. This fire safety code has been adopted by many states in addition to California. The reader should verify whether TB 133 is applicable to his or her jurisdiction.

Office projects utilizing an open plan and systems furniture must also be designed to meet specific code requirements even though open office products are furniture. The products as delivered by the manufacturer will meet minimum standards since manufacturers produce panels and screens to meet Class A fire safety standards when specified with standard vertical-surface fabrics or materials. If the designer wants to substitute a special fabric, referred to as a COM fabric, for any panel or component item, the fabrics selected must be Class A or must be treated to conform to this standard. Neglecting to do this will leave the interior designer liable for bringing the noncompliant materials up to code.

Designing commercial projects to meet applicable codes and regulations is a critical concern for interior designers involved in any type of commercial specialty. An in-depth discussion of the code requirements for each type of commercial facility is beyond the scope of this book. Interior designers unfamiliar with the codes should consider taking a course at a university or college or attend appropriate continuing education workshops and seminars. In addition, designers should have copies of the model codes in effect in their jurisdictions in their personal libraries and perhaps some of the books mentioned in the "Bibliography and References" section.

SPACE ALLOCATION AND CIRCULATION

The programming phase of the project will provide the designer with the data required to determine how much space is needed for each department and the various other support spaces needed. Central to determining space allocation allowances will be the decisions regarding a closed versus an open or modified open plan, the type of furniture to be used, the numbers of employees in each job function, and the types of support spaces required. Building and accessibility codes need to be researched to make sure the interior designer does not violate any code restrictions when determining space allocations.

Large businesses will have predetermined allowances for many levels of job functions based on corporate policy. For example, typical corporate standards might be 250 square feet (23.2 square meters) for vice presidents, 200 square feet (18.6 square meters) for senior managers, 150 square feet (13.9 square meters) for managers, 100 square feet (9.3

square meters) for supervisors, and 48 to 64 square feet (4.5 square meters to 6.0 square meters) for secretarial and clerical staff. The designer is normally required to plan the facility using corporate standards when they exist or to develop them when they do not.

Figure 6-2 shows several typical floor plans for closed office spaces based on a hierarchical level or specific job responsibility. The client, however, may expect different space allowances and furniture allowances.

Figure 6-2 Floor plans representing typical furniture layouts for various job responsibilities based on a closed planning concept: (a) supervisor; (b) mid-level management; (c) senior manager; (d) executive. *Drawings by Esther Gonzalez, ASID.*



When square foot allowances are not controlled by corporate policy, the designer can determine them by developing typical plan sketches of the offices and areas. Once the designer understands the job functions, he or she can determine what kinds and sizes of furniture are expected in each space. The designer should know whether certain individuals are to be given additional space for either functional or status reasons. The manager of the real estate division may be given a larger office to accommodate the review of large sets of drawings. A senior vice president may be allocated a larger office than the other vice presidents. Accessibility codes will also require additional square footage for some employees. When planning is completed, prototypical floor plans of furniture layouts for the offices can be sketched. Experienced designers often have a "library" of typical office layouts on a computer that can be used in the early programming discussions with the client.

When an open plan product and planning concept are used, the typical space allowances are determined in a similar manner. However, the square footage allowed for each job function is generally less than that of a closed plan. The organization and configuration of the components on panels will factor into the amount of square footage needed for the workstation of each employee. Even in an open plan project, status may be a factor in some companies. In addition, work methodologies, such as the use of teaming versus individual work assignments, affect square footage requirements. All these factors must be considered in determining the layouts.

In addition to the typical offices are a variety of support spaces. Conference rooms or areas, places for storing files, copy machine locations, coffee areas, and other spaces are commonly part of an office plan. When a project is located in a high-rise building, these support spaces are placed adjacent to the central core. When there is a large footprint, some smaller "neighborhood" support spaces may also be part of the plan. Table 6-1 gives area ranges for support spaces common to office facilities.

Circulation paths move people through the office facility and connect the departments together. A major circulation path is provided to move people into and out of the general office space. This may be a major fire-rated corridor from the elevator around the building core providing access to the one or more office suites on the floor. Alternatively, the major circulation path may only be the path from the front exterior door through corridors and aisleways in a small office on the ground floor. When the plan is a closed one, the circulation paths are considered corridors. If an open or modified open plan is used, at least some of the circulation paths will be pathways through the open plan areas (Figure 6-3).

Circulation paths require 20 to 50 percent additional floor space. This does not include space for the major traffic paths that are considered exit paths from suites into core exit access. The exact amount of space will be influenced by whether the project is a closed plan with primarily private offices or an open plan, the requirement or desire for generous circulation paths, the number of spaces required in the project, and the footprint of the space.

When designing the circulation paths of an office facility, several planning standards must be kept in mind. *Corridors* are paths of travel defined by full-height walls and any partitions over 69″ (1752 mm) high. The building codes require them to be a minimum of 44″ (1118 mm) wide unless the occupant load is less than 49. Circulation

Table 6-1 Area Ranges for Support Spaces

	Office of 30,000 SF or Less	Office of 30,000–100,000 SF	Office of More Than 100,000 SF
Support Space	**Area (SF)**	**Area (SF)**	**Area (SF)**
Reception	250–300	300–400	1000
Conference room	250–300	300–500	750
Work room	250	250	300
Training room	____	750	1500
Computer room	400	1000	2500
Equipment rooms	120	250	250
File room	120–200	200–400	1200
Copy room	200	300–400	1000
Mail room	200	300–400	1000
Library	200–300	400–600	1000
Pantry	200	300	300
Daycare center			8000
Fitness center			4000–6000
Cafeteria			10,000–12,000
Conference center			12,000
Auditorium			5000

Source: Rayfield 1994, 111. Reprinted with permission of John Wiley & Sons.



Figure 6-3 Modified open plan using open office products that create various types of collaborative workspaces and incorporate required enclosed offices.
Drawing courtesy of Phoenix Design One.

paths that are defined as aisles must also be sized for the occupant load and generally are required to be a minimum of 36″ (914 mm) wide. An *aisle* is defined as an unenclosed path of travel that occupies space between furniture and/or equipment. If systems divider panels are the "furniture items" creating the passageway, the divider panels must be less than 69″ (1752 mm) high; otherwise, the passageway might be considered a corridor.

The actual width of major circulation paths and exit corridors may need to be larger, based on the number of occupants in the suite and on which floor in a multistory building the office is located. Circulation paths also need to meet the Americans with Disabilities Act (ADA) or other accessibility guidelines in effect. Special design elements, such as areas of refuge, wheelchair turnaround space, and maneuvering alcoves, may also be required. The appropriate codes should be referenced when planning space allocations and when actual space planning begins.

Open office projects can take up more space than projects with full-height walls. This is because extra aisles will be required between all the workstations. That requirement, however, will vary based on the type of systems furniture used and whether the circulation paths are designed with twists and turns (some sort of maze), another open arrangement, or a more cubicle-oriented plan. Straight paths are more efficient, but they can be boring in a large layout. Mazes take up a lot of space, as do floor plans on angles. Although there is no sure way to determine how much space should be allowed, the guideline above will help the reader estimate how much total space is needed to plan office facilities. Figure 6-3 and Figure 6-4 show free-flowing floor plans.

These space allowances for workstations or offices and support spaces comprise the net area required to plan the facility—in other words, the space needs for offices, support spaces such as conference rooms and file rooms, and internal circulation space. But this net area does not allow for architectural features and spaces that are considered part of the required office facility. These additional areas include general circulation space, columns, wall thicknesses, electrical closets, and other similar spaces. The terms in the "Selected Leasing Terminology" sidebar provide additional information regarding when a client intends to lease office space rather than own it.

Once space allocations for the various office facilities are determined and the functional adjacencies of each job function and department are clarified, the designer is ready to begin schematic planning of the floor plan. Schematic plans will be developed to test the information obtained in the programming phase and to begin to show the client potential layouts for the project.

ADA IMPACT IN OFFICE PLANNING

Most office facilities will be required to meet the guidelines for accessibility because most offices allow the general public to enter the facility. There are some that are considered commercial facilities by the ADA. In this case, *commercial facility* is defined as offices (and other types of nonresidential facilities) that are not open to the public—for example, a research and development office. If an office permits nonemployees to enter

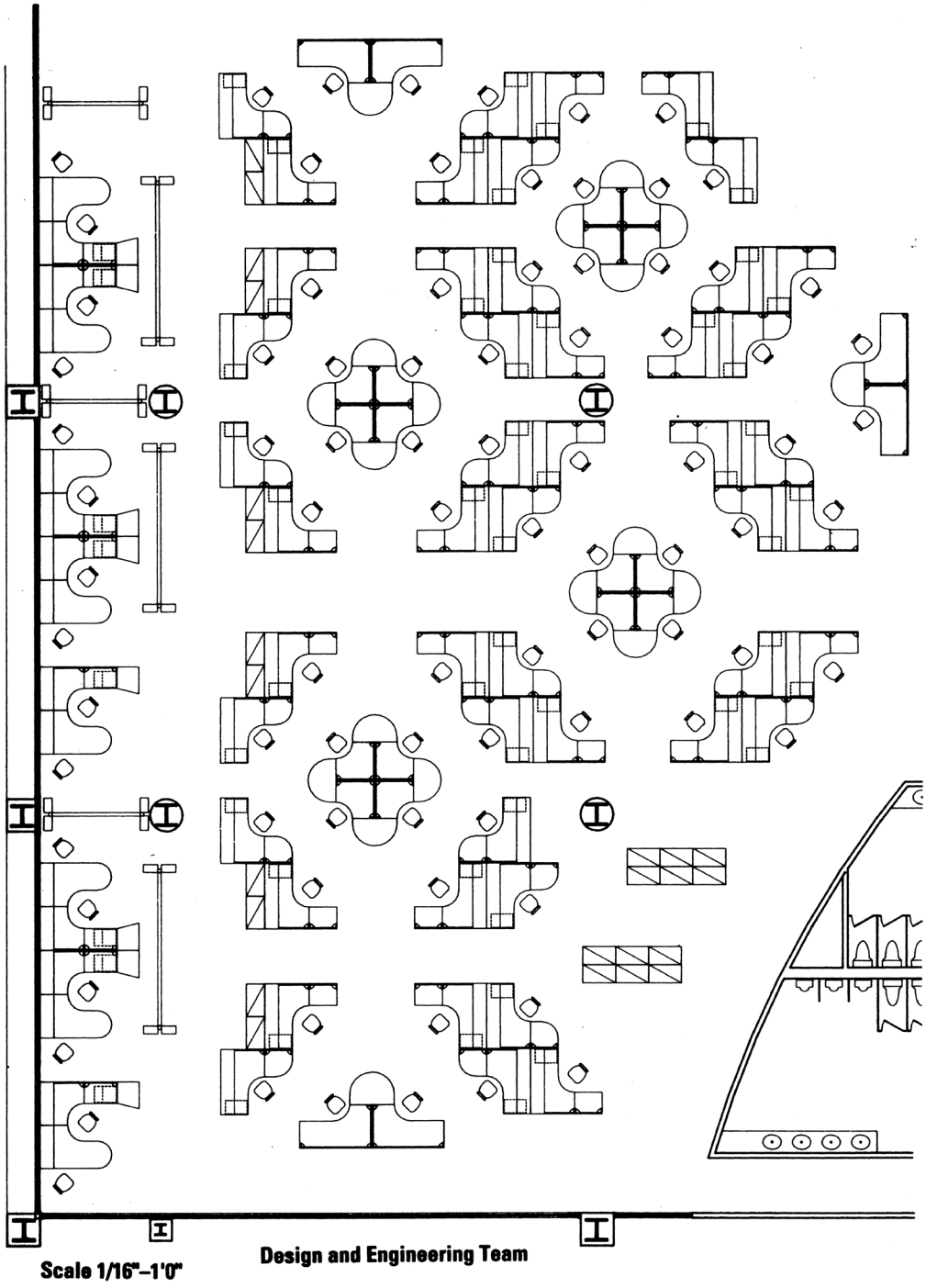


Figure 6-4 Systems furniture floor plan indicating angled circulation paths.
© Steelcase, Inc. Used with permission.

the office area, then the guidelines listed in sections 4 and 7 of the ADAAG must be utilized.

If the business restricts public entrance into the facility offices and other spaces, it still must be designed using ADA guidelines if any of the employees are deemed as having disabilities. The employee work areas must be designed so that those with

disabilities can enter, exit, and travel through the work areas. The number of work areas designed to be accessible are detailed in the ADA Accessibility Guidelines under A4.1.1(3), but any known employees with disabilities should be afforded an accessible work area. Requirements concerning accessible routes, door sizes, and other issues concerning accessibility in a work area should be considered in planning as a matter of course.

An office will need to be designed in accordance with applicable accessible guidelines. Design issues within the ADA Accessibility Guidelines include:

- The size of corridors and aisles
- Accessible routes
- Floor surfaces
- Elevators
- Drinking fountains and water coolers
- Toilet stalls, lavatories, water closets, and urinals
- Grab bars in toilet facilities
- Counters
- Alarms and signage
- Built-in seating

These elements are among the items that must be considered when planning accessible design for an office.

It is the designer's responsibility to design the office spaces in accordance with the ADAAG per the type of facility.

FURNITURE

There are literally hundreds—maybe even thousands—of options for office furniture. Numerous choices in style, finish, fabric on upholstered items, size, and price point can be specified as standard stock items. It is also possible to specify semicustom items and custom-designed furniture. All these choices, however, start with the functional needs of the client, the employees, and the project in general.

Function must take priority over pure aesthetics, although some designers might argue this point. Yet, because there are so many alternatives, it is relatively easy to combine functional needs with creative design. The item, be it a desk, seating unit, or file cabinet, must first satisfy performance criteria. A desk that is too small or a file cabinet that will not hold the client's file folders is not a correctly specified product.

For a corporate or other business client, the cost of furniture items is important. It might even be the overriding factor for some clients. Most clients and interior designers think of the initial cost of the goods as the only cost. However, there is a long-term cost,

often referred to as the *life cycle cost,* that factors in maintenance and replacement (see the discussion in Chapter 2).

Budget-priced furniture may have a low initial cost, but it will likely have to be replaced sooner than a more expensive item. Low-budget items will show damage more quickly and, in general, will not hold up in office layouts that experience greater use.

More expensive items will be better built and made of higher-quality materials that will take wear and tear far better, resulting in less frequent replacement. Higher-quality furniture has better warranties, providing an additional economic benefit to the client. Higher-quality furniture items also have superior design characteristics, making them a better fit with the client's aesthetic goals for the office.

Of course, many projects will be designed with mid-priced products. Fortunately, the performance and aesthetic quality in this price range are quite high. Many mid-priced furniture items will be suitable for a wide range of office interiors.

Without question, to the designer, aesthetics are important. Choosing furniture styles and a color scheme to create a pleasing interior contributes to employee satisfaction with the workplace. However, the majority of clients are more concerned with product performance and price than with aesthetics. That is always unfortunate from the designer's point of view.

The most traditional category of furniture is called *general use furniture,* also known as *conventional furniture* or freestanding furniture. General use furniture includes desks, credenzas, bookcases, file cabinets, and seating, General use furniture is further categorized into case goods and seating. Case goods are items made of "cases," like desks, credenzas, bookcases, file cabinets, and the like. Some designers also think of tables as case goods, but many just refer to them as tables. To help the student and other readers with unfamiliar terms, the following definitions related to furniture and seating are offered:

Furniture Items

- *Case goods*: Furniture items made of "cases," like desks, credenzas, bookcases, file cabinets, and so on.
- *Conventional furniture*: Desks, credenzas, file cabinets, and bookcases
- *Credenza*: A storage unit with pedestals or cabinets for extra storage
- *Double pedestal desk*: A desk with two drawer units
- *Executive return*: An additional desk unit at the same height as the desk
- *Lateral file cabinet*: A space-efficient file that is generally 18″ (457 mm) deep, with a variety of widths
- *Pedestal*: A configuration of drawers 15–18″ (381–457 mm) wide in a desk or credenza
- *Return*: An additional desk unit only 25″ (635 mm) high that creates an L- or
- U-shaped desk

- *Single pedestal desk*: A desk with only one drawer unit
- *Table desk*: A desk unit without pedestals
- *Vertical file cabinet*: The traditional filing unit that is usually 15–18″ (381–457 mm) wide by 28″ (712 mm) deep

Seating

- *Ergonomic chair*: A wide variety of desk chairs in many styles designed for increased user comfort
- *Executive chair*: A desk chair that is wider and has a higher back than most desk chairs, usually designed with arms that are fully upholstered
- *Guest chair*: Any small-sized chair that is used at or near the desk by visitors
- *Posture chair*: A desk chair designed to improve posture and comfort
- *Sled-base chair*: A guest chair with a floor-level piece of metal or wood extending from the front to the back legs, making it easier to move than a chair on unconnected legs
- *Task chair* (also referred to as a secretarial or operational chair): A smaller-scale chair with or without arms (that are recessed) for employees doing repetitive tasks like typing

The configuration of furniture for a particular employee will vary quite a bit depending on his or her position in the office chain of command. Generally, the higher up the employee is in the organization, the larger the workspace and the greater the size and configuration of the furniture. For example, the chief executive will have the largest office and the highest quality and number of items of furniture. A middle manager will have a smaller office and probably lesser-quality furniture and fewer items. Let us first look at typical furniture items in closed offices or offices specified with case goods furniture.

Case goods desks come in a variety of configurations and overall sizes. Figure 6-5 shows the most common. The size and arrangement of pedestals and possibly returns can be matched with the functional needs of each job and, at times, the job status of the employee. Note that not all desks and desk returns are sized properly for computers and keyboards.

Credenzas are another typical item of case goods in general office furniture. A credenza serves primarily as an extra storage unit and is specified to have the same basic width as the desk. A credenza is almost always positioned behind the desk.

Even though much information is now kept in digital format, paper files are still kept by many companies. Thus, file cabinets are still important furniture items. Files that must be referred to frequently are kept in a desk or credenza pedestal. Other files needed by workers are kept in a file cabinet in the office or work area. File cabinets vary in size to accommodate letter- and legal-size paper. Because standard vertical file

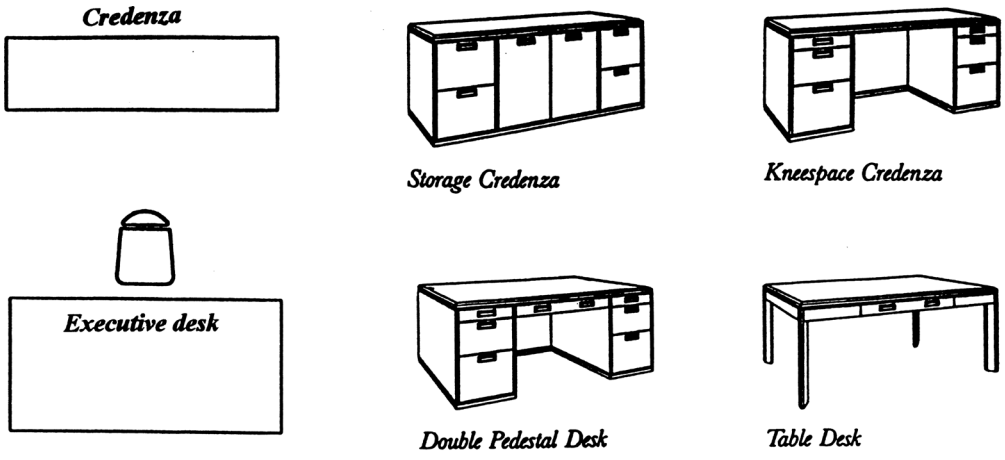
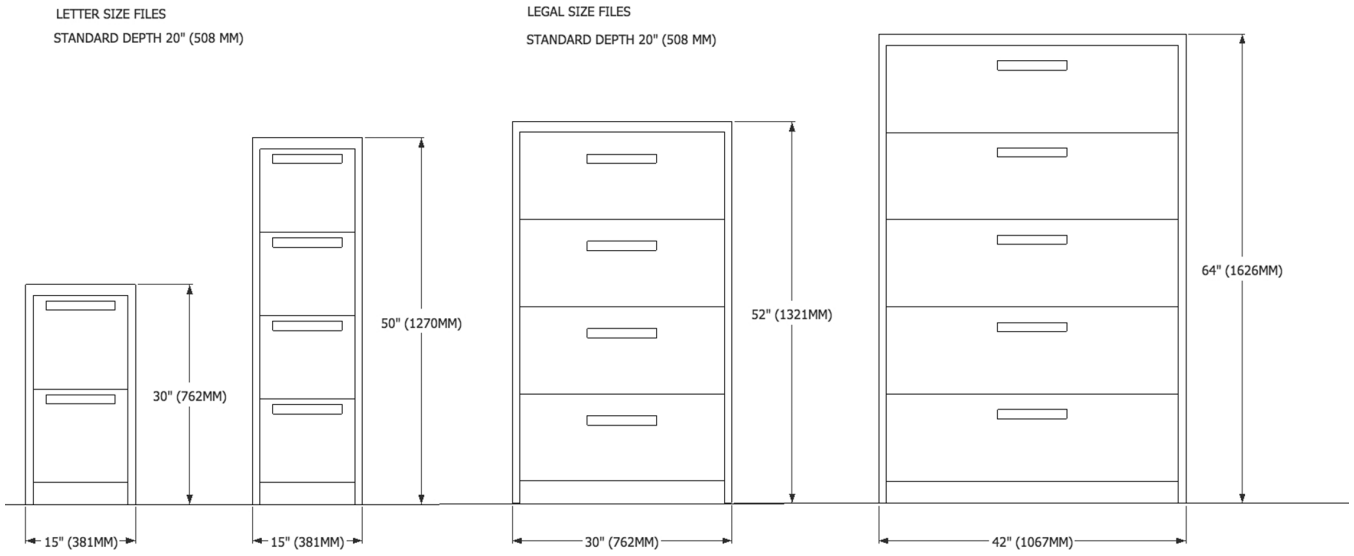


Figure 6-5 Typical case goods office furniture. Sizes noted in figure are the typical sizes of these items. *Line drawings courtesy of Kimball Office Group.*

Figure 6-6 Typical file cabinet units (vertical files on left; lateral files on right). Note the different heights and depths of these units.
Drawing by Esther Gonzalez, ASID.



cabinets take up so much floor space, many designers and clients prefer to use lateral files. These are not as deep as vertical files, but they are wider and more space efficient. Figure 6-6 shows this difference.

Naturally, the office worker requires a desk chair. This seating piece is called desk seating, a posture chair, ergonomic desk chair, or a variety of other names created by manufacturers (Figure 6-7 and Figure 6-8). Comfortable, supportive chairs are a requirement, not an option, in office design. Since the introduction of ergonomic seating for office workers in the 1970s, desk seating has become more comfortable and healthful. Ergonomic chairs are designed not only for greater comfort but also to be more functionally useful.

Other types of office seating are available for different employee needs. Side, guest, and conference chairs are items used by office guests and in conference rooms. Other office chairs with names such as secretarial, operational, management, stools, high-back executive, stacking, sled-base, and others are options. *Soft seating* is another type of seating unit. This group includes lounge chairs, loveseats, settees, modular seating, and sofas—generally fully upholstered. Manufacturers provide many options for upholstery to suit the interior designer's and company's aesthetic goals. The upholstery fabrics available from the factory are guaranteed to look right and stand up to the hard use of office seating. Interior designers can—with the approval of the seating manufacturer—also use customer's own materials (COMs), selecting goods from a source other than the chair manufacturer.

The other category of office furniture is called *systems furniture* or *open office furniture.* This type of furniture is used when a company decides to use an open or modified open plan for its office layouts. When utilizing any of the many types of systems furniture, vertical panels that are less than full height (but not to the ceiling) are



Figure 6-7 Typical office seating units in traditional and contemporary styles.
Drawing courtesy of Gunlocke.

combined with components like shelves and work surfaces that are hung from the divider panels to create the offices—which are commonly called workstations.

For clarification of the many names for products and product items that are part of open office systems furniture, the following terms are included:

- *Components*: The individual items, such as shelves, work surfaces, and drawer units that are attached to or hung from the divider panels.

- *Counter caps* (also referred to as transaction surfaces): Used on low panels (34–48″ [864–1219 mm] high) in reception areas to create a more private across-the-counter transaction area.

- *Divider panels*: The vertical support units that form the workstations and from which components are hung. Width and height dimensions of panels are given in



Figure 6-8 The Aeron chair is a popular ergonomic–style office chair. It is available in different sizes and configurations. *Courtesy of Herman Miller, Inc.*

nominal dimensions. The most typical nominal panel widths are 12, 18, 24, 30, 36, 45, and 48″ (305, 457, 610, 762, 914, 1143, and 12,219 mm). The most typical panel heights are 30, 36, 39, 45, 47, 53, 63, 72, and 85″ (762, 914, 991, 1143, 1194, 1347, 1600, 1829, and 2159 mm).

- *Pedestal*: A combination of drawers that can be suspended from the work surface. It is mobile or freestanding and functions like a pedestal on a case goods desk.
- *Peninsula work surface*: A work surface that attaches at one end to another work-surface and juts out into the workstation to create a desk-like appearance.
- *Storage shelves*: Components that come in various heights and widths; they may be open or closable.
- *Systems creep* (also called panel creep): When systems furniture is used, every time a panel run makes a turn, an allowance must be made in the drawings for the thickness of the panel and the connecting hardware.
- *Systems furniture* (also called modular furniture): A furniture product that consists of divider panels and components used to provide station functionality.

■ *Task lights* (also called shelf lights): Luminaries that fit under shelf units.

■ *Workstation*: An individual work area or "office" created by the use of vertical divider panels and components.

■ *Work surface*: The product that serves as the desktop. It may be rectangular, curved, corner, split-top, or curvilinear in shape.

There are hundreds of options in the styles of systems furniture, providing the interior designer with many choices to meet the functional needs, aesthetic desires, and price point of systems furniture for office projects. Not only are the styles and finishes different, but also the way the products are configured varies. There are basically six categories of systems products that have been developed over the years. Manufacturers may have different proprietary names for their categories, but these descriptions remain:

■ *Vertical divider panels*: This is the simplest and generally least expensive way of using systems furniture and the open plan. Divider panels—possibly with the use of overhead shelves—are combined with freestanding desks. Power and technology cannot be run through the base of the panels. Panels generally have low acoustic ratings.

■ *Case goods product*: Generally, components are attached to and supported from the sides of panels. The furniture has the look of conventional furniture using the open plan (Figure 6-9).

■ *Modular component systems* (also called panel-based systems): These products consist of monolithic vertical panels that support a wide variety of components anywhere along their height. Components are cantilevered from the back panels, not the side, and are generally adjustable in 1-inch increments (Figure 6-10).



Figure 6-9 Product specification using open-plan systems furniture with a case goods appearance. *Design by Phoenix Design One. Photographer: Mark Boisclair Photography.*



Figure 6-10 Action office is one of the original open plan products. It retains its original design features in a contemporary style of product options.
Courtesy of Herman Miller, Inc.

■ *Frame and tile.* A steel frame is the basis of the layout of stations. Horizontal tiles and components create the station and finish the exterior surface, giving a more architectural look to the systems furniture. Figure 6-11 shows this type of product.



Figure 6-11 Office designed using a frame and tile product.
Interior design by Jo Rabaut, ASID, Rabaut Design. Photograph: © Jim Roof Creative, Inc.

There are, of course, other styles of systems furniture designed and marketed by the various manufacturers. The styles mentioned here may have different names based on the manufacturer. The reader can easily research products from the manufacturers by visiting their websites.

Systems furniture is very flexible and can accommodate changes in workstation configurations. It is also very adaptable to changes in office technology. L-shaped, U-shaped, and open configurations provide plenty of surface space for equipment and regular paperwork. Overhead shelves and many other types of components provide all the functional equipment equivalences of a case goods–style office in less space.

Open office projects are planned around a skeleton of divider panels. The panels create workstations, form aisles, and provide varying amounts of privacy. Depending on the product, components such as shelves, work surfaces, and files can be suspended from the panels. Panels also provide a certain amount of acoustical control and allow for the distribution of electrical, telephone, and data transmission throughout the space. Panels are freestanding or self-supporting, meaning that they are not attached to the floor. Care must be taken in the design of the station and the way components are used so that the panels are designed safely. It is essential to follow the manufacturer's directions on how to design with any open plan panel system and components (Figure 6-12).

There are, of course, many advantages and disadvantages to using open plan or systems furniture. A few key ones are listed here to help the designer discuss these issues with the client.

Advantages

- Potential overall floor space savings. Workstations generally utilize less square footage of space than traditional built offices (Figure 6-13).

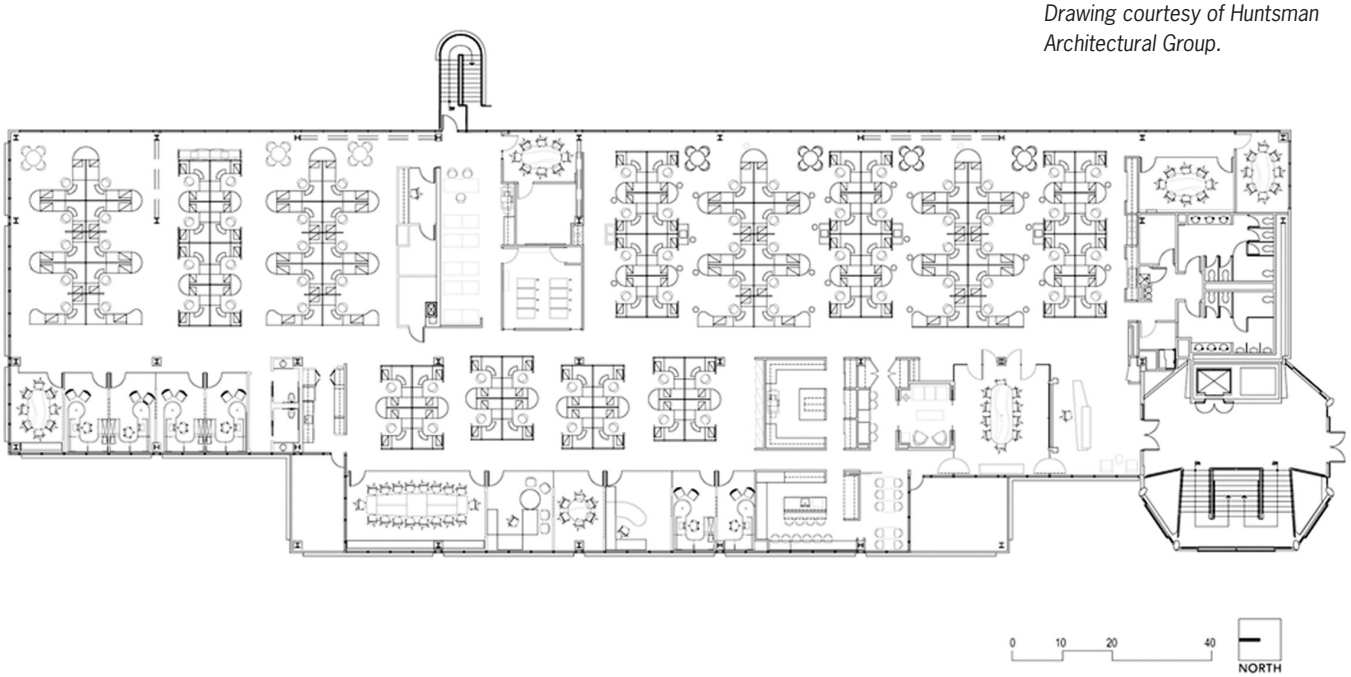


Figure 6-12 Floor plan showing a variety of uses for workstations and components.
Drawing courtesy of Huntsman Architectural Group.

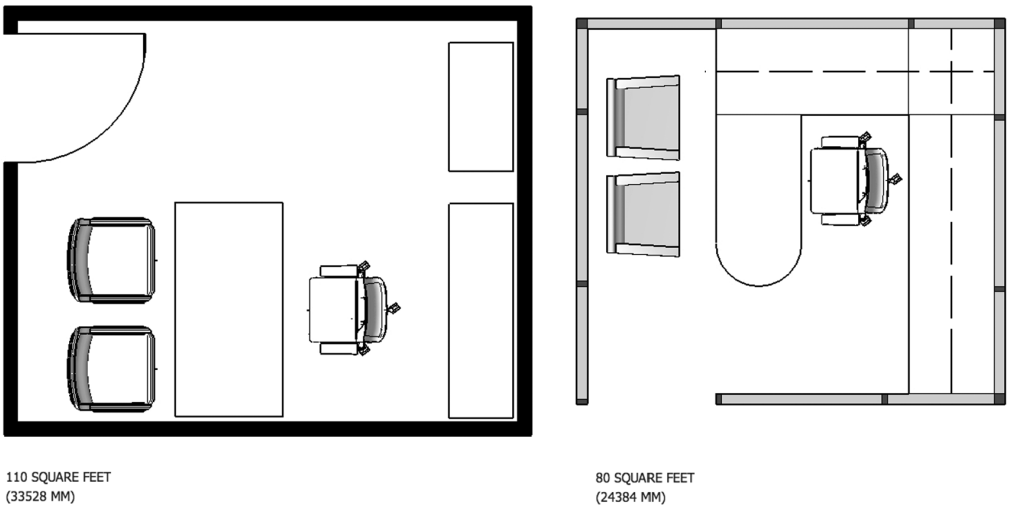


Figure 6-13 Plans of two managers' offices showing savings in square footage with the use of systems furniture versus conventional case goods furniture. *Drawings by Esther Gonzalez, ASID.*

- Lower build-out and construction costs. Fewer full-height partitions are needed. Some permanent mechanical systems construction is reduced as well.
- Less down time. Less time is needed to tear down workstations and reconfigure the spaces for new uses than is needed for demolition and new construction of hard walls.
- Flexible. Reconfiguration of workstations can be done quickly and can easily meet individual employee needs.
- Energy savings. Open plans generally reduce costs for building and operating the HVAC system. Less ductwork, wiring, and other kinds of hard equipment are required at the time of initial installation.
- Potential tax savings. Panels are considered furniture and as such are subject to a different accounting depreciation calculation than full-height walls.

Disadvantages

- Lack of privacy. Loss of the private office remains an issue in many projects.
- Noise. Open plans can be noisy if acoustical issues are not addressed.
- Lack of status. A workstation has less status than an office. However, the styles of furniture and finishes available today make it easy for the designer to provide for distinctions in status.
- Initial higher furniture costs. Panels and components are initially more expensive than movable furniture and constructing walls. Systems furniture becomes cheaper when the client needs to reconfigure space often.

MATERIALS, FINISHES, AND COLOR

Improvements to the interior of an office building increase the value of the building for the owner. The greater the value of the architectural finishes utilized, the more value is added to the asset. For example, marble floors in the corridors of the executive area will add more value to the building than carpet. If the client owns the building, he or

she may see the use of high-end materials for walls and floors as a contribution to the company's assets.

On the other hand, when a client rents a portion of a building, improvements to the building made by the tenant belong to the landlord, not the tenant. That is why many clients are reluctant to spend a great deal of money on special architectural finishes when they rent office space. The costs for those materials come primarily out of the pocket of the tenant, but the value goes to the landlord.

Tenants receive an allowance from the landlord to pay for certain improvements to the space. The allowance is usually for a group of materials that are considered building standards, as well as for the cost of building and supplying certain non-load-bearing structural elements such as partitions, plumbing, and architectural lighting fixtures. This is done to maintain some continuity of design in exterior and interior public spaces. Some of these standards, like window treatments and door styles, must be used. If the interior designer cannot utilize the building standards or wants to specify materials that are priced beyond the build-out allowance, then the client may approve the upgrading of materials. The client pays the difference between the allowance and the upgrade. As noted in the "Selected Leasing Terminology" sidebar earlier in the chapter, these upgrades are called leasehold improvements; an upgrade from vinyl tile in the entry to marble is an example. Some improvements, however, may be discouraged, as they may make renting the space to another tenant in the future difficult.

Materials used on the floors, walls, and ceiling, as well as window treatments, must meet the applicable building codes and, in the case of flooring materials, accessibility codes. Architectural finishes must be commercial-grade products to stand up to heavy wear and maintenance. Let us look at flooring materials first.

Carpeting is the most common material for flooring in most areas of the office. Resilient and hard-surface materials are also used in some areas, especially utilitarian areas like mail rooms and storage rooms. Carpeting provides acoustical control and is more comfortable. Commercial-grade carpets with a tightly tufted or woven short-level looped surface function best for heavy foot traffic, movement of chairs, and overall ease of maintenance. Care must be taken in the specification of carpet because dry conditions and carpet fibers can create static electricity, which can damage computer data or hardware. Carpet with static-inhibiting fibers is the best solution to this problem. Topical treatments can also be used; however, they are not as reliable. Cut pile surfaces will show traffic patterns faster unless they are extremely dense carpets with a short nap. It will also be much harder to move office chairs on a plush surface than on a looped surface. On the other hand, executive areas that receive less wear can be specified with cut pile surfaces and more luxurious materials. Code requirements will also vary for carpets, depending on the space where the carpet is used. In general, carpet must consist of National Fire Protection Association (NFPA)-101 Class I or Class II materials. Interior designers must check with the applicable jurisdiction for specific code requirements for the facility. ADA requirements limit the height of the pile with backing to 0.5 inch.

Interesting custom designs can be created with carpet tiles that might not be possible with broadloom carpet. *Carpet tiles* are specially produced tightly woven carpet bonded usually to a rubber base. They can be glued to the subfloor, and some styles can be "free laid," which means they are not glued to the floor. When the project is primarily an open plan project, carpet tiles are particularly advantageous. They

can provide access to floor outlets and raised floor mechanical chases without damaging the flooring. In fact, carpet tiles are required when carpeting is used over a raised floor. Carpet tiles are manufactured and installed in sections 18–24″ (457–610 mm) square. Depending on the manufacturer's instructions, carpet tiles might be installed with self-releasing or minimal adhesives so that they can easily be replaced if damaged or if they show heavy wear. The initial cost of the tiles is greater than that of broadloom carpet of equivalent quality. The ADA requirements cited above also apply to carpet tiles.

Resilient and hard-surface materials are noisier than carpet and are used sparingly in office environments. The heaviest traffic areas, like entrance lobbies, public corridors, and restrooms, are commonly specified to have resilient and hard-surface flooring. Some areas of the office that require higher-end design specification, such as portions of executive suites, might also see the use of woods, ceramic tiles, or stones for flooring materials. Interior designers need to choose resilient and hard-surface materials carefully to ensure that office users do not slip on slick surfaces. Some of these materials also require more maintenance to keep them looking good. This factor alone can influence the selection of flooring materials.

The specification of materials for use on full-height partition walls, movable walls, columns, and other interior surfaces will be regulated by the location of the walls within the project space. The codes will list what type of test the finish material must pass. The test information can be obtained from the product manufacturer, while the codes will list the test needed. Harmon and Kennon (2011) provide an excellent review of the tests and standards for all types of finishes.

Most office partitions are built on-site (sometimes referred to as *stick built*). Depending on the building classification and local codes, they are constructed of metal or wood studs covered with drywall that meets code related to the type of space it divides. For example, the drywall used in an exit corridor will be rated higher than the drywall used in an office. Finish materials installed on exit corridor walls also will be expected to be at a higher rating than walls in an office. A design point to keep in mind with stick-built partitions is this: If the walls only go to the dropped ceiling, noise, including conversations, will be heard in the spaces next door. If privacy is needed, the partitions should be built to the underside of the ceiling plenum.

Some clients use demountable walls for office partitions. A demountable wall is an interior partition built at a factory in specific sizes. These walls are then held in place by tension via a gripper system on the bottom of the wall and attached to the T-bar in suspended ceilings at the top. They can be relocated when the needs of the office require a new space plan. Demountable walls require less down time for demolition and new construction. They can be finished with drywall and painted, but are most commonly finished with a vinyl or fabric wallcovering that meets Class A fire code requirements. They will not provide any acoustical control because they only go to the ceiling tile. Demountable walls can also accommodate windows and doors so that fully private offices of almost any size or configuration can be created. Electrical and communications cables fit within cavities in the wall sections. Plumbing, however, is not generally accommodated in demountable walls, since they are not thick enough to handle waste pipes.

Compared to the walls creating a private office or conference room, wall finishes for an exit access corridor wall will have higher code restrictions and, thus, more limitations on material types. If a wallcovering is to be used in corridors and exit ways, only commercial-grade materials should be specified. A wide variety of patterns and colors of commercial wallcoverings is available to create the right backdrop for corridors and other partition walls in the interior spaces. Depending on local codes, the designer may have the option of using residential-grade materials in private offices and conference rooms.

If the designer wants to use textile wallcoverings, he or she must check with the local jurisdiction concerning any code restrictions. In some jurisdictions, textiles on walls are allowed only if a sprinkler system is in the facility or the textile is treated with a fire-resistant chemical. Unfortunately, this will change the color of the textile to some degree. Architectural surfaces in office occupancies that will qualify for classification as businesses must be Class A (Class I for floor finishes) when used in enclosed stairways, Class B (Class II for floor finishes) when used in other corridors, and Class C in other areas.

The most common material used for ceilings in commercial office facilities are suspended ceiling systems using fiberglass tiles. The tiles are installed in a metal ceiling grid suspended from the structural ceiling above. These fiberglass tiles are made in standard sizes and are either 2 by 4′ (610 by 1219 mm) or 2 by 2′ (610 by 610 mm). Ceiling tiles have various qualities of sound absorption and finish and, although primarily considered a background, can be specified and designed to provide design interest.

Mechanical systems such as HVAC ducts, electrical wiring, plumbing for fire sprinklers, and telephone and data cables are most often installed in the space between the acoustical tiles and the structural ceiling above. This space is called the *plenum.* Lighting fixtures can be easily dropped into the grid, or holes can be cut to install various kinds of spot and can lighting.

Some clients want to eliminate the suspended ceiling in certain areas and keep the appearance of the mechanical systems as part of the design. Eliminating a suspended ceiling can be a cost savings, but it also means that the space will be noisier. Generally, the ceiling will control 60 to 65 percent of sound; 25 to 30 percent relates to furniture and 5 to 10 percent to flooring. Other factors that can improve acoustical control in the space should be investigated and specified to maintain a pleasant work environment.

Window treatments are quite simple in commercial office interiors. Building owners and managers want to present a uniform look from the outside. The most common treatments used to achieve this effect are either vertical or horizontal blinds. When an area such as an executive office is being designed, the interior designer might specify fabric drapery over the blinds. However, local fire codes may prohibit the use of textile window coverings in commercial offices unless the material meets a high flame resistance standard or the fabric is treated with a flame-resistant chemical. Like textile wall coverings, flame-resistant treatments of window coverings almost always change the color of the fabric and the hand of the material.

Color is important in the office interior—as in any commercial interior—because it "contributes to the productivity and to the psychological satisfaction of the occupants in a space" (Ragan 1995, 33). Interior designers can do a wide variety of exciting designs or

create calming backgrounds by using color in office interiors. The Color Marketing Group (CMG) annually forecasts the colors that will predominate in fashion, interior design, and other products and services related to consumer and commercial industries. Interior designers look to these forecasts to determine what might happen to the products they will get from manufacturers, as well as what they can suggest to clients as cutting-edge design.

Color preferences are incredibly varied in office facilities. Interior designers generally have many choices of color schemes. Some businesses may have color standards for their offices related to corporate branding, as discussed in Chapter 2. These standards, as well as general color preferences expressed by the client, must be honored. A workable and pleasing color scheme, in conjunction with proper lighting, can increase productivity and worker comfort; thus, color schemes should be selected carefully.

Interior designers should remember light reflectance factors related to color choices. Light values will reflect a high percentage of light, while dark values will reflect very little light. Office areas with few or no windows should not be specified with dark colors. Almost any color combination can work in today's office facility if it is planned carefully and if it meets the wishes of the client.

There are several excellent resources listed in the references for further detailed information on lighting an office facility.

MECHANICAL SYSTEMS

For the majority of the mechanical systems, the interior designer only plays a supporting role. The designer may provide lighting design services or a specialty lighting designer may be retained to plan the lighting from the floor plans and equipment drawings. The designer can specify certain elements of the equipment, but this needs to be coordinated with the architect or electrical contractor.

The interior designer can provide an electrical plan to show locations of equipment and needs for outlets, switches, telephones, data units such as computers, and other basic components. This type of plan is particularly important when the project includes the use of open office systems furniture.

Acoustic treatment is another "mechanical system" the interior designer must understand, as it is integral to the planning of systems furniture products. The fact that the interior designer may be less involved in the design of mechanical systems does not negate his or her responsibility to understand how these systems work and are a part of the overall office design.

This section provides basic information on the design of the mechanical systems of an office project. We will discuss lighting design and electrical interfaces, especially as they affect open plan systems products, data and telecommunications, and acoustics.

Lighting

A significant effort to reduce over-lighting of office areas in an effort to increase energy efficiency continues. There are many options to provide energy-efficient lighting to meet functional requirements.

Interior designers face the greatest challenge in lighting designs when the client is leasing office space. Most often, the building owner has dictated the types of lighting fixtures, the sizes of fixtures, and even the colors of the lamps in the fixtures. Replacing building standard fixtures adds substantially to the build-out cost for the tenant, who

Office Area	Lux Guideline
Auditoriums and assembly	150–200
Lobbies	200
Corridors	200
Conference room	300
Routine work with task light and overhead lighting	500

Source: U.S. General Services Administration, Facilities Standards, Section 6.15.

Table 6-2 Office Lighting Levels

has financial responsibility for the upgrades. When a client cannot afford to make changes, the interior designer will need to do more careful planning and specification of colors, materials, and textures to design a space that is functional and attractive.

Lighting specification begins with identifying the tasks to be performed in each area or room of the office facility. This information is used in conjunction with standard lighting-level guidelines provided by sources such as the Illuminating Engineering Society to calculate the required lighting for the different tasks and areas of the facility. The types of fixtures and the placement of fixtures to achieve the required lighting levels must be carefully researched and specified. Table 6-2 provides a few recommended lux lighting levels (lumens/square meter). Lux is defined as "the SI unit of illuminance equal to one lumen per square meter."[1] The lux level is the unit more commonly used today. Foot-candle level is another way of specifying lighting levels.

In an office, lighting specification is complicated because of computer monitors. Light from windows, as well as from ceiling fixtures, can easily cause glare on monitors, leading to eye fatigue. *Glare* is uncomfortably bright or reflected light that makes it difficult for an individual to see properly. It occurs when the light is brighter than that to which the individual is accustomed. The light from a window reflecting on a computer screen makes it nearly impossible to see the screen. Light reflecting down from direct ceiling fixtures also creates great difficulty for the office worker. This indicates how important it is for the designer to specify general and task lighting with great care beyond the specification of the fixture.

Like nearly all kinds of commercial interiors, offices utilize three types of lighting to meet the needs of the client and the interior designer. *Ambient lighting* (sometimes called general lighting) provides a uniform level of illumination sufficient for individuals in the space to move around safely. Various kinds of ceiling fixtures, including fluorescent fixtures, are used for general lighting. Ambient lighting can also be achieved by an indirect method whereby light is bounced off the ceiling from fixtures that are standing on the floor, placed on top of shelves, or suspended from the ceiling rather than directed down from the ceiling. This indirect method is a common lighting solution when the open plan and systems furniture are used.

Ambient lighting often does not provide adequate light for many tasks. Small movable fixtures, such as desk lamps, floor lamps, or undershelf fixtures, deliver light to a

[1] *Oxford American College Dictionary,* s.v.

specific location, creating task lighting. *Task lighting* provides each office worker with the additional light needed to work comfortably.

In large office spaces, *accent lighting* may be used. Track lighting, lighting in soffits, and spotlights provide design interest to the interior. Artwork may be highlighted in the reception area and conference room, soffit lights may be specified in the employee lunchroom, and track lights may even be used as supplemental or primary ambient fixtures instead of fluorescent tube fixtures. The designer must factor accent lights into the overall light levels because these fixtures will contribute to the overall ambient light level.

Daylighting has become a more critical form of office lighting with the new interest in energy conservation and sustainable design. Daylight is natural light produced by the sun that enters a building through windows, skylights, or reflection off surfaces. Interior design planning that removes the traditional full-height-wall private office from the perimeter of the building allows more daylight to enter the entire office space. Factoring daylighting into the lighting load may allow companies to reduce or modify the number of artificial light fixtures and the types of lamps used. However, daylighting also has a downside. Increased glare, heat from the sun through uncovered windows, veiling reflections, and sun damage to furniture and finishes all must be considered as part of the trade-off when using daylight as a functional lighting source. Of course, daylighting provides no functional light if the offices must be available to workers at night.

Electrical, Telephone, and Data Communications

The greatest challenge in providing electrical, telephone, and data communications services to offices occurs when the program calls for the use of any type of open office systems furniture. If the project is predominantly a closed plan with conventional furniture, providing electrical services (as well as other systems) is much less complicated.

The interior designer is most concerned with the wiring system within the building. The National Electrical Code (NEC), part of the National Fire Protection Association (NFPA), continues to provide the standards for planning the electrical systems in commercial interiors. The reader is urged to check the NEC and local code interpretations to properly plan the office electrical service.

Understanding the following terms is important for open office system projects, as well as standard electrical service. Of course, they also apply to electrical service in other types of commercial facilities. The last three terms in this list relate to data service.

- *Access floors*: A raised floor added over a floor slab. The space houses electrical, telephone, and data cabling and HVAC ducts.
- *Amperage*: The amount of electrical current required to operate appliances or equipment.
- *Armored* or *BX cable*: Two or more insulated wires and a ground wire covered by a flexible wound mental wrapping. It is sometimes called flexible cable.
- *Dedicated circuit*: A separate circuit with its own hot, neutral, and ground wires, none of which are shared with any other circuit.
- *Ethernet*: "A system for connecting a number of computer systems to form a local area network…"[2]

[2] *Oxford American College Dictionary,* s.v.

- *Flat cable*: Also known as ribbon cable. Electrical wiring that has been flattened within a plastic material and then shielded between thin, galvanized steel plates. Receptacle boxes can be attached along the flat cable strip. Data and communications flat cable is also available. Flat cable cannot be used under broadloom carpet.

- *Fiber-optic cable*: A data cable utilizing a thin glass filament wire for the transmission of signals.

- *Local Area Network* (LAN): A telecommunications network designed to eliminate the possibility of signals that would interrupt the network. They usually apply only to a small area such as one building.

- *Nonmetallic sheath* or *Romex cable*: Two or more insulated wires covered by a nonmetallic, moisture-resistant sheath to carry electricity.

- *Rigid conduit*: A heavy steel tube in which insulated wires are fed through to carry electrical wiring.

- *Twisted-pair cable*: Two copper wires twisted together, shielded by an insulator. It is a basic type of phone/data cable.

- *Wi-Fi*: Stands for wireless fidelity. This allows for wireless networking between many computers and other devices with a wireless chip.

- *WLAN*: A wireless version of LAN.

The interior designer's responsibilities when preparing a floor plan are likely to include locating the office equipment and other small equipment needing electrical service, such as a small refrigerator. Interior designers specify locations for outlets and switches (as well as the types of these items) to ensure that the office equipment that will be specified can be accommodated. The legal ability to do this depends on the local regulations. The actual responsibility for designing the electrical system and meeting the electrical code requirements rests with the architect and the consulting electrical engineer. The interior designer's electrical plans will also provide locations for data and telecommunications equipment. These plans will be reviewed and finalized by the company providing telephone, Internet, and data service.

Commercial buildings have either single-phase or three-phase electrical service. Single-phase service is called 240/120 V service. It is the former standard for electrical service still found in older commercial buildings and is still provided in many new construction projects. It is designed to support two sets of 120-volt circuits. Three-phase electrical service is the present standard in newer commercial buildings. It is called 208 Y/120 V service and is designed to support three sets of 120-volt circuits. The difference is significant when the client wants to use primarily an open plan and predominantly, or exclusively, office systems furniture. The three-phase service is needed to fully support open office furniture. In addition, 480 Y/277 V systems are needed for major equipment like the air conditioning system. Older buildings may require new wiring to properly utilize systems furniture products.

There are several ways that electrical service can be provided to the interior. These methods are discussed in the following list and shown in Figure 6-14.

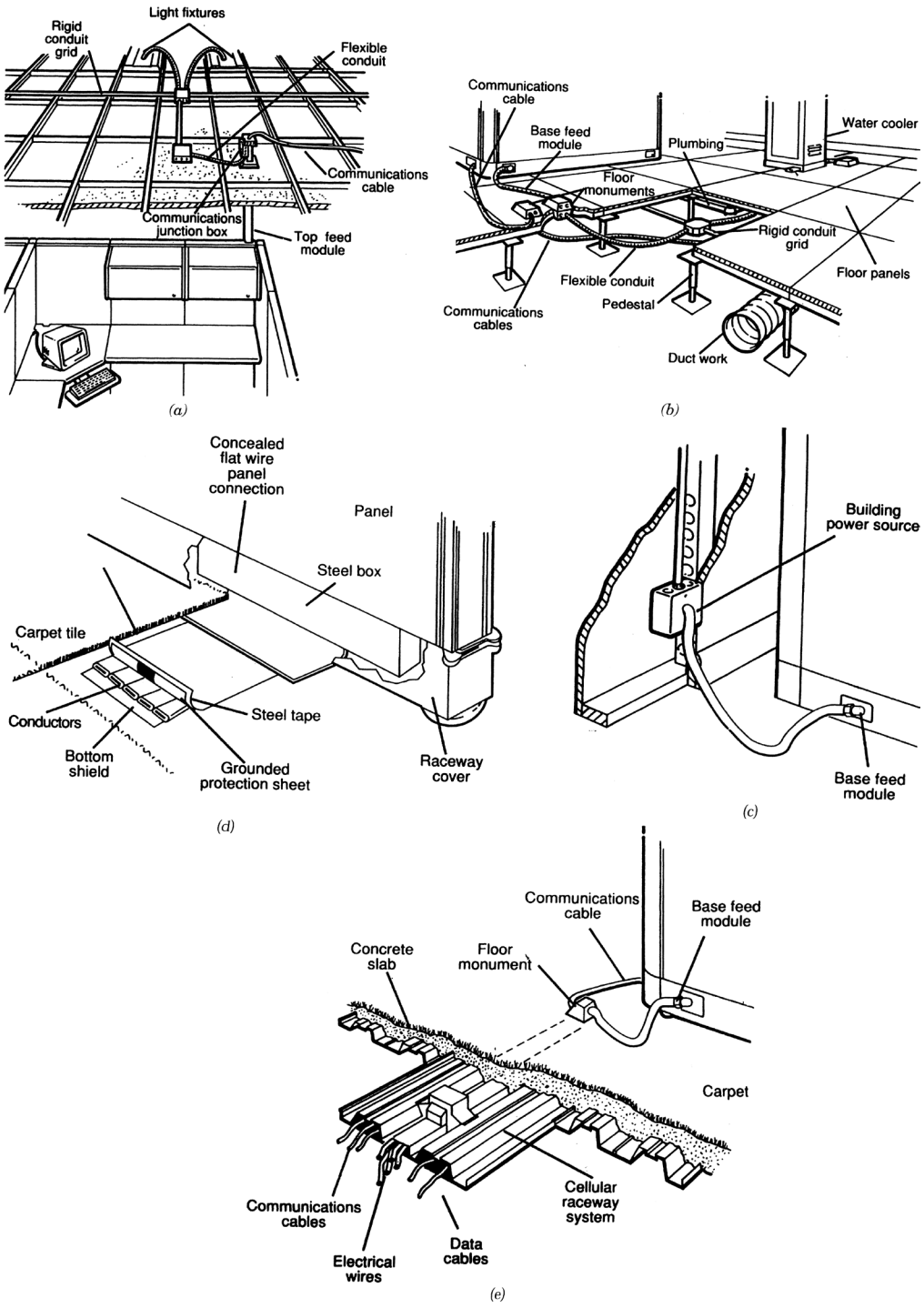


Figure 6-14 Methods of connecting electrical service to open office panel systems.
Drawing courtesy of Haworth, Inc.

■ *Power poles* from the ceiling plenum (Figure 6-14a). In commercial buildings with plenums, it is possible to provide power drops exactly where they are required by incorporating power poles to carry the cables and wires from the ceiling grid to the floor. Outlet access is provided at the bottom of the pole.

■ *Raised floors*—also called access floors—for electrical and data service (Figure 6-14b). The raised floor creates a second floor over the slab. The space between the slab and

the raised floor allows the introduction of electrical, telephone, and data cabling. It provides unlimited flexibility in projects using systems furniture. The caveat to using a raised floor is that broadloom carpet is not allowed. The project must include the use of carpet tiles.

- Through partition walls and on the surface of columns. This is the most common method and is shown in Figure 6-14c. It is similar to specifying the locations of outlets in a residence.

- *Flat wire cable*. Wiring is flattened, encased in plastic, and attached to the rough floor using special installation techniques to guarantee safety (Figure 6-14d). The flat cable is connected to the wall or a column and runs to the place where the connections to panels, power poles, or floor monuments are located. These cables carry electrical, data, and telephone lines as needed.

- *Raceway system*. In this case, a raceway system is built into the floor. These raceways can house electrical, telephone, and data cables (Figure 6-14e). Depending on the design of the raceway, there can be good flexibility for changing floor plans.

- *Poke through system* (not shown in illustration). In this case, wiring is brought up through holes drilled through the floor deck from the plenum below. The wiring is finalized through surface-mounted or recessed floor monuments, connections to the systems panels, or sometimes power poles. Drilling holes in the floor, called core drilling, can be done only if the number and locations of the holes do not destroy the structural integrity of the floor system.

Specification and planning with systems furniture involves understanding the methodology the manufacturer has used to integrate electrical and data communications service with the panels. The most common is the base feed system. A trough runs along the base of each panel and contains separate channels for electrical conduit and telecommunications cables. By code, these communications cables must be separated from electrical wiring. A second common method of distributing these services in panels is called a belt-line system. In this case, the outlets and channels are approximately 30 inches (762 mm) above the base of the panel. That height allows for plug-in above the work surface. A vertical channel along one side of the panel brings the service from floor entries or base feeds up to the belt-line feed unit. This is connected to the building's system by any of the methods discussed above. It is important for the designer to understand the method of integrating wiring in the furniture system to be used in the project. Each supplier has variations, and an incorrect specification can be quite costly.

To properly plan the electrical system for any project, particularly those that use panels, the designer must know the amperage of common office equipment that will be placed in the stations. Amperage levels for equipment vary widely based on the type of equipment used. For example, a stand-alone printer can use from 1.0 to 7.0+ amps, and a computer monitor can vary from 1 to 2.5 amps. The designer should verify the amperage of all office equipment to be used in the stations and coordinate that with the architect and electrical engineer involved in the project.

Acoustics

An office can be a noisy environment unless everyone is in a private office and has the door closed. This has become even more the case with more open collaborative workspaces. Noise from equipment, telephone conversations, and business or casual conversations can add significantly to the noise that disturbs work.

The mere existence of noise is not the issue. What is a concern is noise that distracts people from their work. Loud or repetitive noises in particular can interfere with concentration. However, it seems that hearing conversations beyond one's immediate work area is especially disruptive. Generally, it is not the actual noise that is a problem but whether the conversations are intelligible.

Intelligibility refers to the ability to gather information from available sounds. As little as 15 percent of the words in a sentence may make the meaning of the entire sentence clear to the listener. If this drops to less than 10 percent, intelligibility almost vanishes. Sounds may be audible—stimulate the ear—without carrying any intelligibility and without being annoying. In an open plan office, the designer must limit the intelligibility to specified zones while reducing other sounds to tolerable levels.

Sound is measured in terms of *decibel levels* or *dBA*. The abbreviation dBA ("decibel A-weighting") defines relative loudness of sounds. All sounds have different decibel levels. For example, street noise can be 100 dBA or higher, and a noisy office can be 60. Normal speech between two people takes place at a distance of about 36 to 42 inches (914 to 1067 mm) and produces a decibel level of about 65 dB at the listener's ear. This is such a common level that people tend to adjust their voice level or physical separation to establish it. Have you noticed that restaurants are sometimes exceptionally noisy because of the many simultaneous conversations? Levels below 30 dB are considered very quiet; levels above 85 dB are very loud, making normal conversation almost impossible. Here are a few important terms concerning acoustics in the office:

- *Decibel (dB)*: The scale of measurement of sound. The higher the number, the louder the sound. Normal conversation has a rating of 65 dB at a distance of 3 feet.

- *Noise Reduction Coefficient (NRC)*: A numerical value between 0 and 1 representing the fraction or percentage of energy (striking the material) that is absorbed. A rating of 0 means that no sound is absorbed. A rating of 1 means that all the sound is absorbed.

- *Sound Transmission Class (STC)*: A one-number rating that describes the ability of an object to block the transmission of sound. An STC of 0 means that there is no drop in sound level through the object; an STC of 50 means that very little sound goes through.

Interior designers, acousticians, and architects do not try to make an office as quiet as possible. Some ambient noise will always be present. In fact, when a room is very quiet (no ambient sounds), any sound can be distracting. The idea is to create an environment that is free of distraction, not free of noise. Acoustical control can be achieved by controlling the source, the path, and the listener. Careful zoning of work groups—especially those that will be noisy—is important in an open plan project. Utilizing divider panels that have a high acoustical value around people who can't seem to lower their voices when on the phone is another option. In an open plan project, when people do not need to be in direct communication with each other, the designer should face them away from each other. Noisy work teams should be kept away from those who need quiet.

Thoughtful specification of flooring, wall treatments, and ceiling materials also helps control noise. Carpeting obviously has more acoustic properties than hard surfaces and resilient materials. Specify carpets that provide an NRC of about .40. In areas where constructed full-height partitions are used, sound between offices or areas can be reduced by insulating the walls. In spaces that need very strict reduction of sound transference, the partition walls need to be built up to the next floor deck, not just to the dropped ceiling, so that sound cannot transfer through the ceiling plenum. It may not seem significant, but a vinyl wall covering has better acoustic properties than painted walls. If possible, cover the wall surface at least from the floor to 6 feet above the floor with acoustical materials. Lighting fixtures, for example, that replace absorptive ceiling tiles seriously add to acoustical problems. Using parabolic or egg crate–style diffusers rather than a flat lens will also help. Windows are commonly a serious contributor to noise unless they are covered with fabric drapes and the drapes are kept closed—an unlikely occurrence. Try to use window walls as traffic-aisle walls rather than as part of the workstations.

Masking noise can also help reduce its intelligibility. Masking does not eliminate or reduce noise; rather, it increases the sound level in the space. Sound masking can be achieved simply by using a music system that plays music that is not distracting. In more difficult situations or where music cannot be used, an electronic noise-generating system may be needed to produce a background sound. It should be used when the existing background is too quiet to mask annoying sounds or to cover up speech sounds that should not be overheard. The sound produced by electronic masking systems generally sounds like a hiss but is thought of as white noise. It can be adjusted throughout a large space so that sound levels are higher or lower, as needed by nearby occupants. Masking systems should be planned with the aid of an acoustician.

Design Applications

This section presents information on planning and design concepts applied to office facilities. It will help the reader understand the basic space and functional equipment needs of private offices using casework furniture and several support spaces in a generic office-based business.

A second design application section discusses design issues applied to using open office systems furniture. Although the spaces may be configured differently in an open plan, the space needs and product needs are quite similar. Recognize that it is not possible to discuss each type of business or specific job function in this chapter.

A new design application section discusses the design of a small professional office. This has been added because it is a common studio design project.

CLOSED OFFICE PLANS

The traditional closed office plan may seem to be a dinosaur in office planning. It is not. Many upper-level executives in large companies and many professional offices, such as attorneys and accountants, retain offices designed using traditional concepts. In some organizations, these traditional planning concepts are preferred, to indicate the status, even prestige, of the office occupant (Figure 6-15). These closed office plans are designed



Figure 6-15 Professional office with systems furniture and conventional closed office planning.
Drawing courtesy of Carson-Guest, Inc.

using full-height partition walls built on-site or specified using full-height demountable wall systems. They are specified for those who require private offices or closed conference spaces. The closed office plan provides security for individual employees of many businesses. Although it is an older design concept, the sets designed for the television program *Mad Men* show this planning concept quite vividly.

By providing a design application discussion based on a closed office plan, the reader can become familiar with how space allocation, furniture specification, and materials specification are made based on job responsibility. These concepts are important to any businesses other than the most open and collaborative organizations.

This discussion follows a visitor from the entry to the office to the spaces of the executive or employee with whom the visitor will have business. It includes brief design discussions concerning support spaces common to any general office. It is not specific to any particular kind of professional office, as it would not be possible to discussion the nuances of all types of business offices.

Entry Lobby

In a large office building, an entry lobby will be designed to welcome the visitor. It is also likely the main entry point for employees. An entry lobby is an open space often with very little furniture except a security desk. In some situations, however, a small amount of seating is provided using soft seating units. A guest may have to wait for a short period of time for an employee to come to the lobby to escort the guest to the inner office area (Figure 6-16).

A discussion of the security desk purpose was presented earlier in this chapter. The design of the desk is custom millwork and will also require some number of desk chairs for the security personnel. These chairs will be stool height, approximately 30 inches (762 mm) high.

The entry lobby will have signage provided to help guests find their way. Signage is needed to direct guests to elevators and to facilities, such as coffee shops, that might be located on the ground floor. Finishes in the entry lobby must meet applicable codes. Flooring especially must be specified to take heavy foot traffic. Care should also be used so that slip-resistant materials are installed at entry doors. It seems natural to expect a certain amount of artwork to be specified for the entry lobby. That artwork could be a sculpture or paintings sized to fit the large expanses of walls.

The entry lobby of a smaller office building will have similar needs without the inclusion of a security desk. Some office buildings may allow a coffee shop to be included in the open space and, thus, will require space for a small amount of seating with tables.

Reception and Waiting Areas

Business offices use a reception or waiting area as the place where clients and guests are received. It is in a sense the "gateway" to the office facility itself. The number of visitors who are commonly expected to wait for brief periods dictates its size. A comparison



Figure 6-16 Entry lobby for lululemon athletica. Note the textural differences in the feature walls. *Design by Gustavson Wylie Architects, Inc. Photographer: Ema Peter.*



Figure 6-17 Entry lobby for a small accounting office. This office for W.H. Puckett, CPA, is an adaptive use project.
Interior design by Phyllis Moore, FASID, RID.

familiar to most readers is the large size of the reception and waiting areas of many medical office suites versus the usually modest size of waiting area in a small professional office.

A reception and waiting area is designed and specified to create the right image and introduce visitors to the business. The larger the business, the more elaborate this reception area becomes. Smaller businesses may merely have a few chairs located near the entrance door. Interior designers are challenged to create a reception area that introduces the company while keeping the functional needs of the reception area in mind.

For security, the receptionist must have visual control of the entrance to the office suite from elevators, or the outside—depending on the office itself—as well as the entrance into the back office. The receptionist often has other responsibilities involving the need for a telephone and computer, perhaps security monitors, and space for other paperwork or sorting. Note the reception area in Figure 6-15.

The furniture specified for the receptionist must be selected or designed to accommodate these various job functions. The receptionist will be given a custom-designed counter or, in a small office, a desk. Depending on the nature of the business of the organization, this counter may have to be designed to meet accessibility guidelines. Receptionists, as well as almost all secretaries, have small armless chairs so that the chair can be easily pulled up close to the desk or return.

Visitor traffic from the reception area may require visitors to pass through doors into the general office space for security. Some businesses, such as medical office suites, require the visitor to approach a window within the reception area and sign in. The receptionist is, thus, in a separate room, not in the reception and waiting room. Not all

offices, however, have this added security issue that will impact planning. Large firms may locate personnel offices, training rooms, and some conference areas adjacent to the reception area so that visitors are restricted in how far they may enter the facility. Major corridors move visitors from the reception area to the different areas of the office facility.

It is common to use higher-quality furniture and materials in the reception and waiting area to set the tone and image the company wishes to convey to its visitors. For a small business, the products specified for the reception area may be similar to those used in other office areas rather than upgraded. The seating units in a reception area are frequently chairs rather than sofas. Many styles of seating can be used in the reception area, from the small chairs discussed earlier in this chapter to larger chairs that fit the design concept of the office complex. A few end tables for magazines may be needed, and some companies may have display cabinets of their products in the reception area.

Executive Offices

The larger the business, the more likely an executive office suite will be planned for the CEO and vice presidents. The owner of a small professional business and the upper management of many kinds of office-based businesses will also have private offices. In general, it is the boss's or owner's office that is designed to impress guests who have business with the firm. This section focuses on the executive office suite and executive office.

An executive office suite is almost always a closed plan due to the privacy these individuals need. Obviously, a closed plan in this area also provides the appropriate status and image-focused design that is important to impress visitors. The executive office suite is often placed on the perimeter of the top floor or in another prime location in the building (Figure 6-18). In large corporations, it is a "world of its own" with private elevators to the executive floor, a separate reception area, and perhaps a private dining room, lounge, and other amenities. In smaller facilities, business owners locate their office where they feel the prime location might be. For some, that could be the rear of the suite, even if this means that they do not have many windows. The interior designer will advise the client of the best location to meet the client's needs and overall project goals.

A visitor to a high-ranking executive in the executive office suite will enter a reception area to be greeted by a receptionist (who also might be called an administrative assistant). This area may not be very large, but its functions are similar to those of any reception area in any business. It is a place to greet visitors to the suite, provide a comfortable place for visitors to wait, and convey a certain image. Furnishings in this area are similar to those in the main reception area, although their style and quality generally are higher. Beautiful fabrics, wall coverings, and accessories are also specified to give the reception area the look of importance required.

The executive suite commonly has a boardroom. Once again it is important to point out that boardrooms of large businesses are designed to display the image and status of the company to the visitors invited to this space (Figure 6-19). The boardroom is designed as much to impress as it is to hold meetings. It is not uncommon to have the conference table custom-designed in beautiful woods and surrounded by large, comfortable chairs. Designers also provide projection screens, marker boards,

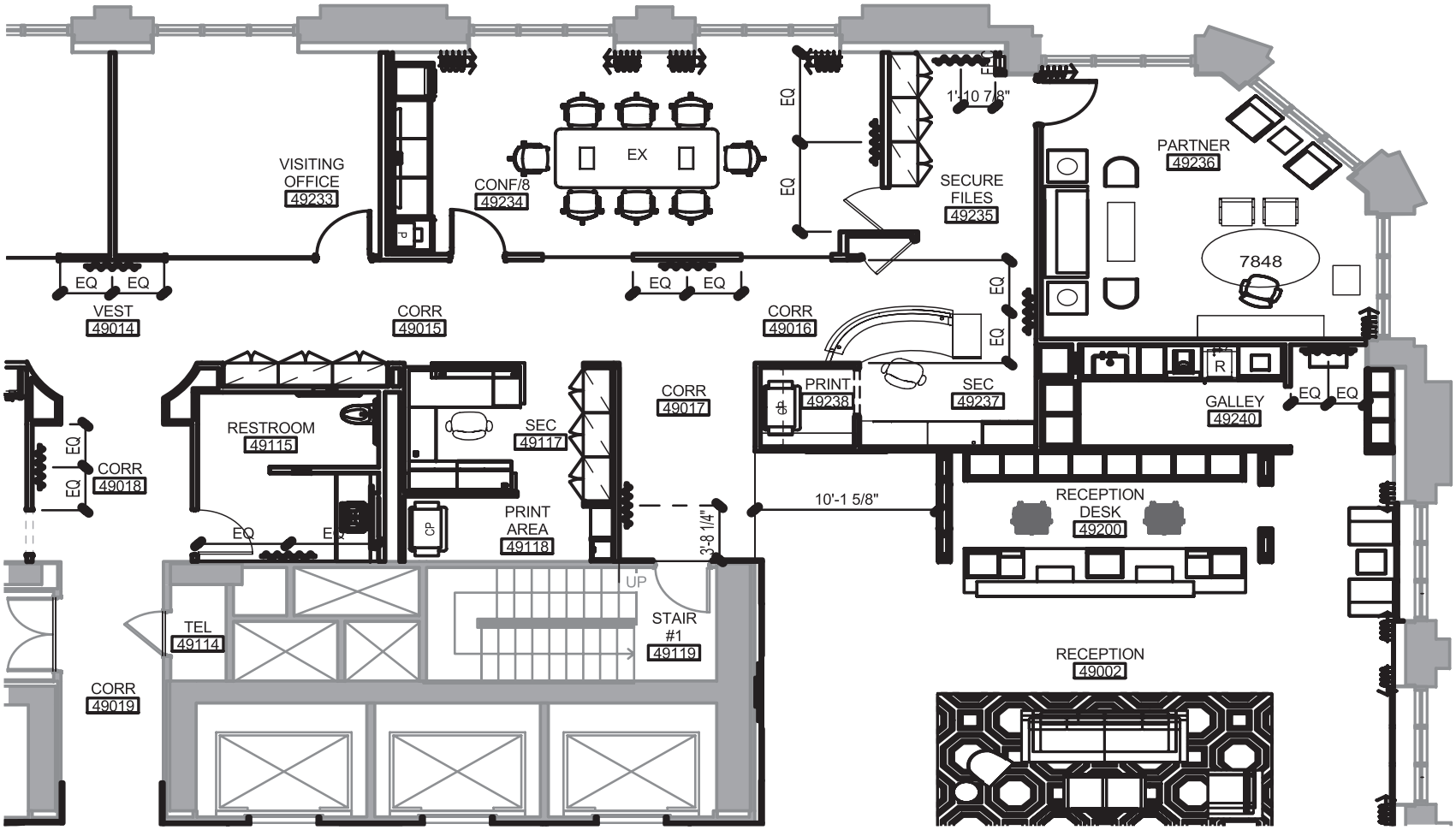


Figure 6-18 Floor plan showing the executive office suite.
Drawing courtesy of Carson Guest, Inc.



Figure 6-19 Florida Business Interiors conference room. Boardrooms are designed to project the image and status of the company.
Photograph courtesy of Burke, Hogue, & Mills, Architects.

and cabinets that can house a beverage service and other accoutrements for high-level business meetings. In some cases, a projection room behind the boardroom is provided to house the necessary audiovisual equipment and setups for projection into the conference space.

Visitors will move down corridors to the appropriate executive office, to be greeted by the private secretary many upper-level executives are assigned. Executive offices are large, sometimes hundreds of square feet in size. There is really no standard for the offices of top executives other than what company policy and/or individual interests dictate. For a small business, the owner's office might be approximately 250 square feet (23.2 square meters); larger companies will likely provide at least 400 square feet (37.1 square meters)—or more—for the CEO.

The workspace for executive offices begins of course, with a desk. Desks come in a variety of sizes and types, as shown in Figure 6-5. The size and arrangement of pedestals and possibly returns match the functional needs of each job. A large desk and matching credenza unit; a large posture chair for the executive; two or more guest chairs at the desk; a soft seating group consisting of club chairs, loveseats, settees, or sofa and club chair arrangements; and perhaps additional storage units such as bookcases, file cabinets, or display cabinets are all common in executive offices (Figure 6-20). Sometimes a conference area is also included in an executive office. Colors and styles of furniture are also tailored to individual tastes in the executive suite.

Furniture arrangements are also important in executive offices. A desk placed to face the door, with guest seating placed in front of the desk, makes a more powerful



Figure 6-20 Executive office highlighted with a custom-designed desk.
Interior design and desk design by Debra May Himes, ASID, IIDA, LEEDAP. Photographer: Dino Tonn.

statement than a desk facing away from the door or placed against the wall. Another non-power arrangement finds the desk placed perpendicular to the door. Soft seating groupings in L- or U-shaped configurations are more conducive to casual conversation, while seating placed across from a coffee table is more formal.

Color schemes are commonly neutral for the architectural finishes, with stronger colors and patterns used in upholstery. Of course, this can vary widely with the executive. However, the interior designer must recognize that executive offices are not hospitality facilities, so strong colors and large patterns are generally not appropriate. There are many excellent works that discuss the specifics of hierarchy and design to project power in executive offices. One such book is Pélegrin-Genel (1996).

Private Offices for Mid-Level Management

Let us now consider key points concerning other private offices. Mid-level management staff could also be placed in private offices with full-height walls. For example, in a small company, work areas for job functions above staff positions are often located in small private offices.

Upper-level executives almost always have an administrative assistant located right outside their office. This assistant will have a large desk or cabinet to accommodate a computer terminal similar to that of the other clerical staff. File cabinets to hold records for his or her boss are also common.

The size of other private offices can range from approximately 144–250 square feet (13.3–23.2 square meters). The size differences are based on job title and company

standards. Figure 6-2 illustrates private offices of various sizes. Furniture specification for a private office should include a desk and credenza, posture chair, and guest chairs at minimum. A conference table or soft seating group or unit is an option at upper-management levels.

These offices are primarily furnished with a smaller desk and credenza than those given to upper-level management. The credenza, by the way, serves primarily as an extra storage unit and is specified to have the same basic width as the desk. A credenza is almost always positioned behind the desk. This office also requires guest chairs at the desk. Mid-level managers who have more frequent meetings might be given extra guest chairs or possibly a small conference table and chairs. It is rare for them to have a soft seating group.

Companies that have many mid-level managers provide some variation by changing the color of fabrics on seating or the color of wall covering. Specifying many styles and colors of products throughout the facility is not practical, as costs for each individualized space can become prohibitive in large numbers.

Office seating for executive and private offices should be a comfortable desk or posture chair that is functional and supports the body properly. Manufacturers and chair designers have created a variety of ergonomically designed seating to meet the job functions and the status requirements of different levels of employees.

Chairs used behind a desk are specified with casters to allow them to move more freely. A single-wheel caster is used for hard-surface floors and double-wheel casters for carpet. Chairs for offices can also be specified to swivel and tilt. Guest chairs come in many styles, providing various functional and aesthetic options. It is common for manufacturers to have several versions of the same style chair so that a single source can be used for seating.

Upholstery should also be selected with maintenance as well as aesthetics in mind. Whenever possible, for best performance the designer should use the fabrics offered by the seating manufacturer. Some seating companies cannot use customer's own material (COM) fabric—that is, fabric that does not come from the chair manufacturer—because the shape of the chair or fabric is not flexible enough. Even if the fabric is accepted, the manufacturer may not guarantee the performance of a COM. Seating units are always more costly when COM is specified.

Other Staff Office Spaces

There can be many other sizes of workspaces for staff members of the office. In fact, there are too many variations of office workspaces to define the furniture needs for all those varieties here. Actual furniture specification will be determined from the programming information. A few comments are in order, however.

In a traditional office, many of these staff positions will be in open areas using either a case goods desk and return unit or systems furniture. The size and quality of these staff furniture items are at the lower price-point range, but should not be budget furniture. These staff workspaces may also include file cabinets, although the files these individuals utilize are usually kept in a general filing area. Some may require extra storage shelves for binders. The only seating in the majority of these spaces is a small-desk posture chair for the employee.

Conference Rooms

Conference rooms are typical ancillary spaces in an office complex. Whether the office is a small private company or a large conglomerate, some meetings need to take place in a private conference room. A conference room can be a very formal setting, much like the boardroom discussed earlier, or more relaxed. Conference rooms used by clients are often designed with higher grades of furniture and furnishings than those used only by employees.

Conference rooms provide space for employee meetings, training, and presentations to clients. Conference rooms are generally enclosed for privacy. They may be constructed using full-height stick-built walls or using demountable walls. However, in an open plan project, a conference space or team area might be in the open, with no panels or walls surrounding the seating and table. This provides flexibility for the team as it expands and contracts in size.

Conference room sizes vary with use. A conference room or area can be as small as 120–150 square feet (11.5–14 square meters) and comfortably accommodate four people and a small table approximately 36–48″ (914–1219 mm) in diameter or 60″ (1524 mm) long. The designer can plan approximately 30 square feet (2.8 square meters) minimum per person for conference rooms that do not include cabinets or credenzas for storage. The space should not feel cramped, providing sufficient room for the table, chairs, and circulation space. If presentations are made with a leader standing at a podium or otherwise at the front of the room, additional space will be needed. Even if a podium is not used, make sure that sufficient circulation space has been provided so that someone can write on a chalkboard or point at a screen.

As would be expected, conference rooms are furnished with a table and chairs. Round tables are very good for small groups, although rectangular tables are also used. In a large conference room, a *boat-shaped table* is used. This table looks like the plan view of a boat with its ends flattened. This shape makes it easier for everyone at the table to see everyone else. A common size for a rectangular table for eight people is 8′(2438 mm) in length, allowing approximately 36″ (914 mm) of table length per person on one side of the table. Remember that someone will be seated at both ends as well. The size of the table is proportional to the size of the chairs; the larger the chairs, the larger the table. Figure 6-12 illustrates a boat-shaped table.

Chairs are often specified with casters or sometimes a sled base for ease of movement. In the more important conference rooms, they may also be specified as swivel/tilt chairs. These features help to make sitting in the meng more comfortable. Small staff-meeting rooms may have smaller chairs with fewer features than chairs specified for conference rooms where presentations to clients will take place.

Depending on the use of the conference room or space, it might be necessary to consider and specify specialized equipment. Among those items are

- Liquid writing surfaces, chalkboards, and/or tack boards
- Projection screens
- Audiovisual equipment



Figure 6-21 Floor plan shows many types of conferencing arrangements.
Drawing courtesy of Gary Wheeler, FASID; Wheelerkänik, London, England.

- Screens and equipment to provide for teleconferencing, including cameras, sound equipment, and monitors
- Cabinets to store supplies of various kinds
- Small sink and refrigerator
- Speaker's podium and sound system in larger conference or training rooms.

The globalization of many large businesses has increased the demand for alternative conferencing solutions and possibly teleconferencing. Some manufacturers have developed specialized conference tables with data ports, pop-up screens at the table, and other options to deliver teleconferencing capabilities. With today's technology, teleconferencing can occur easily in any workstation, office, or conference room. Special attention must be paid to acoustics, lighting, and sight lines in conference rooms where teleconferencing will take place.

Acoustic control is very important. Sounds within the room can reverberate and make it difficult for the remote group member to hear the proceedings. Ambient noise from outside the conference room can also make it difficult for those in the conference room to hear. As much as possible, these rooms should be treated as mini sound studios, with sound-absorbent materials on the walls and high-quality acoustical ceilings.

Multiple lighting systems, such as recessed or surface-mounted fixtures for normal lighting and spotlights on dimmers for when audiovisual equipment is used, are common lighting solutions in enclosed conference rooms. Fixtures should be on multiple switches and dimmers to adjust the lighting to suit occupants' needs. Plan the furniture locations and lighting fixtures so that sufficient light is provided on the table surface, not behind guests. Appropriate spotlights might then be needed for the podium or front of the room.

Additional Ancillary and Support Spaces

Many kinds of support or ancillary spaces may be needed for an office. These spaces provide workrooms or backup spaces to the main office functions. Table 6-1 lists the square footage of common support spaces. Of course, not every office will have all of these functional spaces as rooms. For example, a small office is unlikely to have an employee lunchroom. However, a counter would be located to provide space for a coffeemaker, small refrigerator, and other items. Although these areas are discussed in this section on the closed plan, the designer will also plan and specify similar spaces for the open plan.

A small or medium-sized office will likely locate a shared printer and copy machine in a storage room or along a corridor of sufficient size to accommodate the machines and traffic. In a large facility, copy stations may be located strategically throughout the space, with a centralized copy center in the services core. Space must be provided for the machines and for storage of supplies. The space allowance needs to include the equipment, adjacent counters or tables required as work areas, and space to service the equipment. Floor space for the machine operator and circulation space must also be allowed. The designer needs to check with the client and the copy machine company about size, weight, and mechanical systems specifications. Copy machines, other than desktop models, may require a 220-volt electrical line and a separate circuit. This must be noted on drawings and in specifications.



Figure 6-22 Employee break room. *Design by Phoenix Design One. Photographer: Marc Boisclair Photography.*

Central filing areas are rooms filled with file cabinets or filing systems, storing files that must remain on-site. Though design firms and office furniture manufacturers have discussed the "paperless office" for decades, storage of hard copy paper files remains a necessity for big and small companies. In more recent years, archived files have been scanned and retained on computer discs and the paper files stored in off-site storage facilities. Figure 6-23 shows a type of filing product that can hold large amounts of materials when standard lateral and vertical file cabinets are not practical.

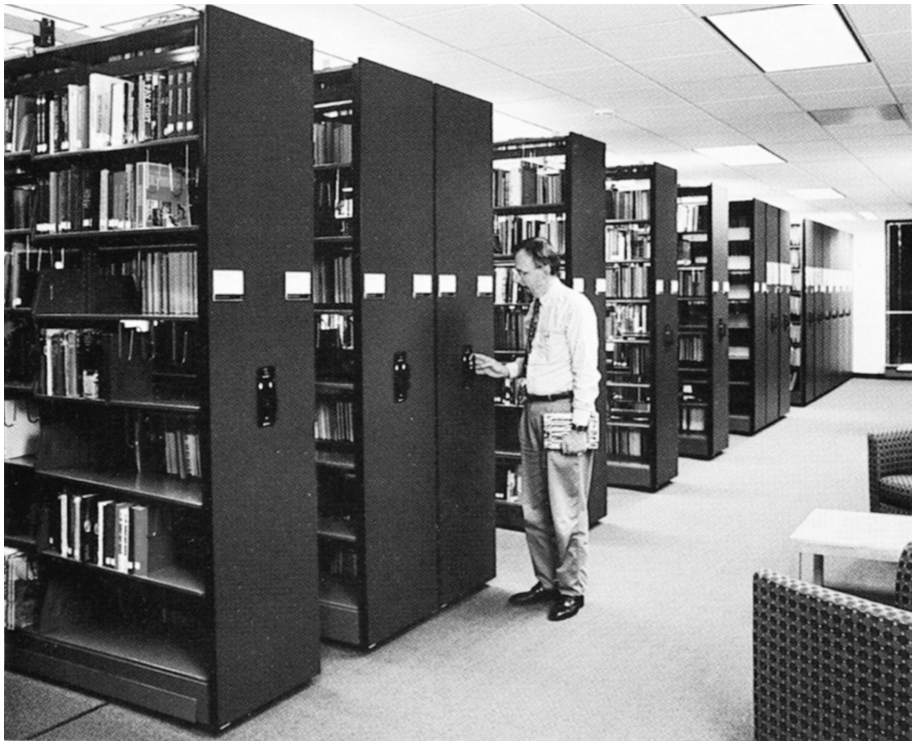


Figure 6-23 Open-shelf filing units can provide storage for extensive amounts of paper files and other types of reference materials. *Photograph courtesy of Jim Franck, Franck & Associates, Inc.*

A concern whenever planning the location of numerous file cabinets is weight. A building structure has two kinds of loads. The *live load* includes the weight of people, furniture, and equipment added to the building. The *dead load* refers to permanent structural elements of the building. A four-drawer, 42-inch-wide lateral file cabinet filled with paper can weigh 720 pounds (De Chiara et al. 1991, 287).

The interior designer, with the advice of an architect or engineer, must estimate the total load of these massed storage units. The designer can obtain the live load limits of the floor from the facilities managers, the leasing agents, or the architect to ensure that the floor will not sag or fail. If the estimated load of the massed units exceeds the safe load limits, it will be necessary to either reinforce the floor or move the storage units to more than one location.

One last ancillary space that requires mention is space to store resource materials. Often these materials are kept centralized in a resource materials area rather than scattered throughout the facility. Examples are the law library in a law office, sample catalogs needed by interior designers, and advertising brochures for the marketing department. Once again, these spaces must be designed and located with consideration of the load on the floor. Books vary so much in size that it is difficult to provide an estimate. If a book weighs about one and one half to two pounds—the size of many design reference books—then approximately 15 books would weigh from 25 to 30 pounds. Of course, if you are designing a law library or other reference area with a large number of books, the architect will help you determine load limits on locations in the space.

Refer back to Table 6-1 for the names of additional support and ancillary spaces that might be included in a traditional or open office project.

OPEN OFFICE PLANS

Projects utilizing primarily open office–style products will have similar spaces as a traditional case goods–oriented project. The biggest differences will be the lack of or certainly reduction in full-height stick-built partition walls in an open office project.

Conceptually, planning office and support spaces using office systems furniture is the same regardless of the product line. However, each product has distinct differences in sizes of panels, widths of components, and various other factors that affect safe, logical planning. Even how the panels are connected to each other can impact the plan, as size and thickness of panels and connectors can "grow." This is referred to as *systems creep*, which is defined thus: every time a panel run using systems furniture makes a turn, an allowance must be made in the drawings for the thickness of the panel and the connecting hardware. Therefore, the interior designer will need information and guidance from manufacturers' representatives on the best way to plan using the product.

In an open office, circulation space differentiates traffic aisles from traffic corridors. Remember that a corridor may exist if divider panels over 69″ (1752 mm) in height are used on one side and a full-height partition is used on the other side of the corridor. In this case, the corridor must be a minimum of 44″ (1118 mm) wide if it is in a space with an occupant load over 50. Aisles are circulation spaces between furniture items, and between furniture items and partitions, as long as those partitions or divider panels are less than 69″ (1752 mm) high. An aisle can be less than 44″ (1118 mm) wide unless it serves a large number of occupants or must meet accessibility regulations. Keep in mind that in many of the collaborative planned spaces, aisles are not always straight but

may curve, depending on the needs of the client's plan. Wider circulation spaces give a more open, spacious feeling. Main traffic spaces should be sized according to occupant load and local code requirements. Other code issues were discussed previously in this chapter and will not be repeated here.

These terms are important to office design. They are more often encountered for projects using systems furniture:

- *Employee churn*: Turnover in the office staff.
- *Free address*: Unassigned workspaces that are available to anyone on a first-come, first-served basis. No reservations are needed to use them. Also called hot desks.
- *Guesting*: An assigned or unassigned work area provided to a visitor from another company.
- *Hoteling*: A system of unassigned workspaces that are available to workers by reservation—as in a hotel.
- *Just-in-time*: An open, flexible unassigned workstation that individuals or groups can use for various periods of time.
- *Shared assigned work areas*: Stations that are shared by two or more individuals, such as a secretarial station where two or more workers working part-time use the same workspace.
- *Unassigned office space*: Space that is not designated for an individual worker. It can be used by any number of people on any given day. Unassigned offices may need to be reserved at a reservation desk.

In today's market, there are numerous choices of products that can be used for an open office project. It is not possible to discuss all the details about all the products that can create open office plans. Some of these differences were explained in the section on furniture earlier in this chapter. This discussion is generic and will not refer to any specific manufacturer's product line. Thus, this section is more about planning concepts than details about products.

Visitors will enter a reception and waiting area to be greeted by a receptionist. The receptionist will likely be provided a counter approximately 42″ (1067 mm) high, configured with systems furniture. At a standard desk height, the receptionist will have a work surface for paperwork and to hold telephones, computer monitors, and other office equipment. Waiting room seating can be any appropriate chairs or even benches or sofas that fit the design concept and business goals as related to the image the business wants to convey. As with any reception area, accessories will help create the image of the business.

Unless the client company has totally embraced open offices, there will be some private offices and even cubicle-type workstations in the office area. Frequently today, private offices are designed using demountable walls rather than stick-built partitions. These demountable walls are full height and can be of a size that matches the dimensions of work surfaces and components of the open office product.

Upper-level executives in private offices will often have open office furniture components for their back desks (taking the place of a credenza) and a table desk for their

desk. Other furniture would be what the client feels is necessary. The size of this type of office will often be approximately the same size as those described in the section on traditional furniture planning. The desk chair will likely be an ergonomic-style chair of some kind. The workstation will possibly include a small conference table and chairs, or certainly two or more guest chairs at the table desk. Items such as file cabinets and shelves will be discretionary based on company policies and employee needs.

Staff offices will make up the bulk of the office spaces utilizing open office products. The configuration of staff workstations will be determined by discussions with management. They may be open stations using low panels or even the proverbial cubicle. Let's look at some of the concepts related to open stations first.

In staff areas, workstations are designed to meet space and furniture items needed for each job function. In many cases, workstations are still designed as *typicals,* meaning each category of workstation gets the same size space with the same components. This is done for cost savings, as multiples of the same product items will cost less than one-off items. These can be considered assigned workstations where the employee uses the workstation on a daily basis. Other workstations may be unassigned stations and used by employees who only come to the office off and on due to telecommuting job responsibility.

The size of workstations will be determined by job function and any company standards that are reported by the client. A workstation for staff members can be approximately 64–120 square feet. Naturally, some are larger based on needs and job rank. The station is then completed with the appropriate configuration of components for work surfaces, storage, and filing.

Open and partially enclosed L- and U-shaped (or even triangular) workstations are common today. These configurations are advantageous for locating a computer in the corner and preserving space on one or both sides of the computer for other work areas. Go back to Figure 6-3 to view these configurations. The shape of the workstation is created by the use of vertical panels. The divider panels that will be used to separate the more open workstations are low, from approximately 42″ (1067 mm) high. Some may be up to 60″ (1524 mm) high if extra storage or semiprivacy is needed. In some projects, the workstation is not "enclosed" like a cubicle, most commonly looking like an open Y-shaped workstation. The employee generally still faces into the divider panel, however, as most products are designed so that the work surface (desktop) is supported by the panels. The work area may include a side work area or table that may be shared with the employee at the next station.

Lower panels obviously allow more communication between employees, while higher-height panels provide measures of privacy or can be used to add storage components. Lower panels also allow more daylight to penetrate into the office space. Small, movable conference tables might also be specified in a workstation or in the direct vicinity of a number of workstations. In collaborative areas, one side of the workstation is not enclosed, as a cubicle would be. Figure 5-7 provides a representation of this planning concept.

Panels are available in several different widths and heights to meet the needs of employees and support their functions. These were discussed in the section on furniture earlier in the chapter. Divider panels can be fabric covered, providing the opportunity to inject color and patterns into the office. Divider panels might also be finished in

wood laminates, selected melamine finishes, or other finishes. Fabric on divider panels must meet Class A fire codes, and those available from the manufacture will meet code. Any custom fabrics may need to be treated to be fire retardant.

Color and pattern can also be introduced in the workstation via tack boards, shelf covers, and seating. In other situations, panels are kept neutral, whether fabric covered or hard surface, with color introduced by the material on seating and accessory items like the fronts of storage shelves. Recognition of status can involve specifying work-surface finishes in wood veneer or wood laminates for managers and neutral tones for lower-level employees. The station is completed with the appropriate configuration of components for work surfaces, storage, and filing.

Seating in the workstation is generally some type of ergonomic chair as the main desk chair. It is specified without arms or with arms that are recessed from the front edge of the seat pan. This allows the worker to pull the chair up to the proper distance to make working on the computer more comfortable. One or two small guest chairs are also common.

True cubicle planning does still exist in many companies. The difference between cubicles of today versus, say, 10 years ago is that the panels used to create the cubicles are lower, creating a more open feeling. Of course, some companies and some employees retain the higher-height panels to create a workstation harkening back to the older cubicle concept. When this is the case, the panels are likely to be approximately 58″ (1473 mm) high on at least two sides.

Space allowances will be similar to those described above. Regardless of the planning/furniture concepts, space allowances for workstations will be determined with regard to input from the client, configuration of component items the stations require, and the designer's experience.

Collaborative spaces have been a hot trend in office design for several years. Designing an open office plan with a focus on teams or collaboration is not new. The term "collaborative work" has emerged to take the place of "teamwork" in the jargon of the industry. We will use *collaborative* to mean these more open areas of workstations, as that is the current usage.

Collaborative spaces provide conference, gathering, and interaction spaces for groups of employees who are often working on the same project. They also provide places where employee interaction might help generate ideas and solutions outside a specific work group. Conference or meeting areas in the collaborative area of the office can have lounge-type seating or conference room seating. What is specified in these areas will be directed by the needs of the work group. Some examples of collaborative work areas can be seen in Figure 1-2, Figure 5-3, and Figure 6-24.

In designing an area for a collaborative group, a key concept in planning and specifying is flexibility. Today all the major manufacturers of systems furniture offer many options that are designed to be flexible and meet the needs of clients whose collaborative groups demand the ability to customize their work areas and create gathering places. In order to effectively plan work areas and specify needed furniture items, the interior designer must understand how the employees work.

With the changes to open collaborative workstations and planning from cubicles, issues of privacy, noise, and loss of work focus have impacted the planning process in recent years. Many employees have complained that the very open workstation plans



Figure 6-24 Collaboration takes place in many areas of the office, including an employee break area. *Design by Phoenix Design One. Photographer: Marc Boischlair Photography.*

and integral collaborative spaces make concentration difficult. This is not to say that companies all want to go back to cubicles and private offices. Companies feel that the space plans that emphasize collaborative areas help with teamwork and the generation of ideas and solutions. The company also saves money because the space requirements of the more open work areas takes less square footage than a cubicle plan with aisles. However, many designers and manufacturers find that a blend of collaborative spaces and areas of privacy—although not necessarily private cubicles or offices—has its advantages for many companies.

Today's office environment takes on many different configurations. Some companies continue to be reluctant to accept the use of office systems furniture due to the "industrial look" of that product. Others see that economic advantages and embrace the product. Still others see that the open office has evolved into a furniture product and planning process that allows a different mindset in the organization that meets today's younger workers' needs and technological ways of conducting work. The interior designer's role is to understand these different styles of office work, product availability, and business goals in order to plan the most effective office for each client.

DESIGNING A SMALL, PROFESSIONAL OFFICE

The commercial interior designer specializing in offices will design many small, professional offices. These projects might be for professionals such as accountants, lawyers in a limited practice, consultants, real estate brokers, insurance agents, and even architects, to name just a few. Although these offices can be many different sizes, this discussion is limited to an office of approximately 3000 square feet (279 square meters) of leased space.

Naturally, the space needs and configuration will vary with the actual office functions and type of professional. Consider that these are often small businesses, owned

and operated by the entrepreneur who started the business. They can also be branches of larger corporations. Financial resources for leasehold improvements and furniture will likely be more limited than for the corporate facilities discussed in other sections of this chapter. Key issues for this type of facility will be functionality, excellent space allocation, and design and specifications on a budget. This discussion is focused on the entrepreneurial professional office.

It is normal to assume that this type of office will include the following spaces:

- A reception/waiting area.
- One or two secretaries, one of whom will be the receptionist.
- The business owner/principal of the company.
- One or two additional professionals as employees.
- A small conference room may be needed depending on the specialty.
- Space for storage of supplies, a copy machine, file cabinets, and refreshment supplies. These can be in one space or in separate areas, based on client preferences.
- The office may be required to include at least one unisex accessible toilet facility within the suite.

We begin with space allocation. A client of the professional will enter the reception area directly from outside or a corridor in an office building. A space allowance of approximately 144–180 square feet (13.4–16.7 square meters) is to be allotted for the reception area, with more depending on many factors related to the desires of the owner. This space will most likely contain two to four small waiting-room chairs and appropriate end tables. Depending on the business, a limited number of display shelves or cabinets might also be in order in the waiting area. As with any office suite, the design of the reception area sets the tone and provides an impression of the business to the client. Remember that unless the exit door of the suite opens into an internal building corridor, the exit door will swing out.

The receptionist in a small office will more often than not be located within the space of the reception/waiting area. It is rare that the receptionist is in a closed space with a window into the waiting area as is done in many medical office suites. This person will require a desk plus space for a computer monitor and keyboard, along with one or more file cabinets. Some clients may prefer systems furniture as a reception desk, but a custom cabinet is rare in a small office. This person's desk should not be planned so that the individual's back is to the entry door.

Circulation planning is simple, as there is usually only one main corridor from the waiting/reception area to the other offices. This corridor will lead the client to other offices and spaces in the suite. The corridor should meet building codes and accessibility regulations as well. In small office suites, it is not uncommon for the corridor to include an alcove space for the office copy machine, coffee area, and even a wireless printer that may be shared by all. However, all these functions can also be housed in separate spaces according to the desire of the client and overall space allowances.

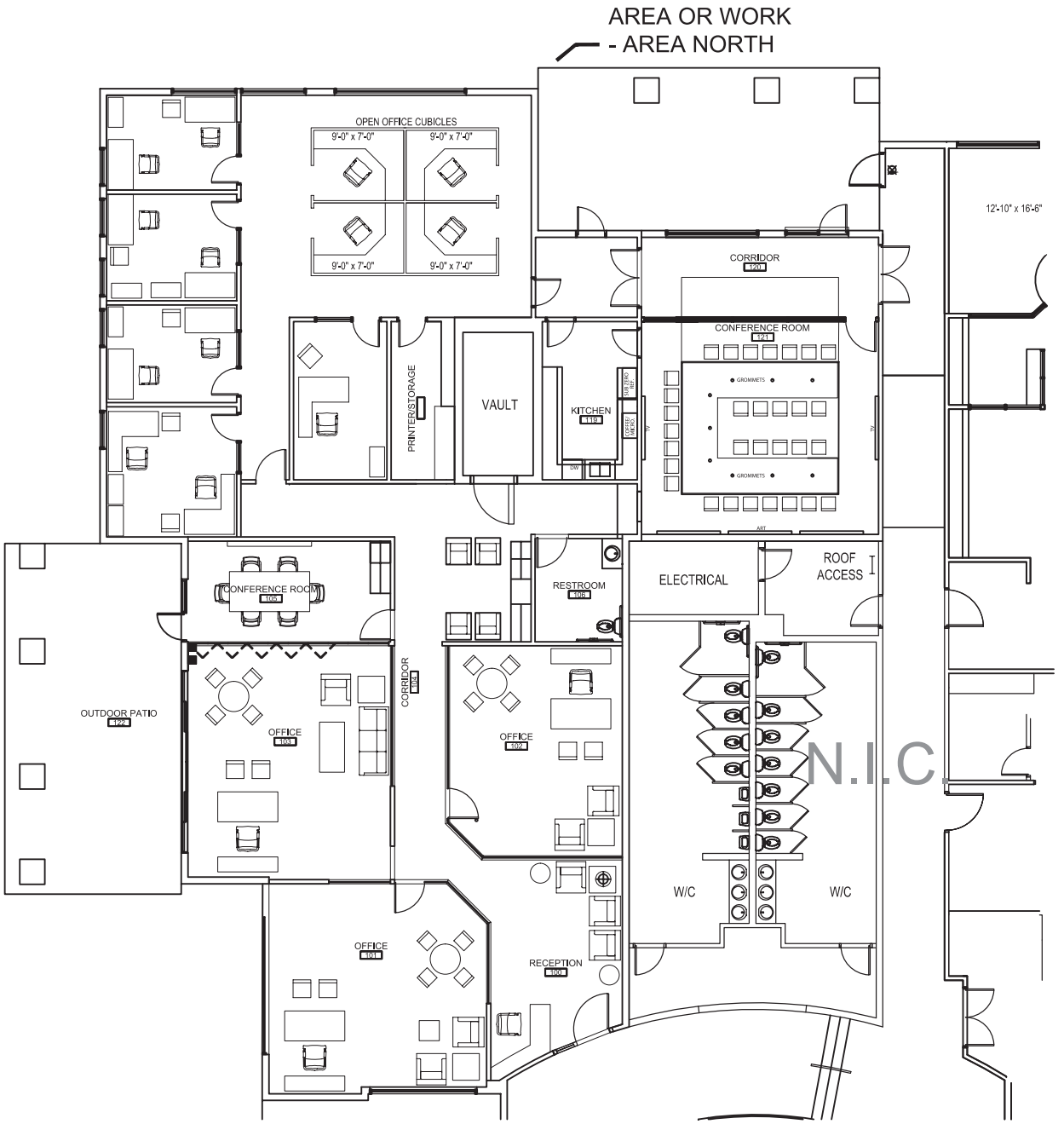


Figure 6-25 Floor plan of small pro-fessional office. Notice the mix of case goods furniture and systems furniture. *Drawing courtesy of Debra May Himes, ASID, IIDA, LEED AP.*



Figure 6-26 View of work area and private offices in a design office. *Interior design by SVJD Design. Photographer: Henry Cabala.*

The owner or principal of the business will have the largest office space. It can range in size from approximately 144 square feet (13.4 square meters) to whatever the owner wants it to be. The designer will need to work with the client to determine the square footage of this office in coordination with other spaces in the office suite. The quality of the furniture items tend to be at a mid-price point. The furniture includes a desk, credenza, posture chair, at least two guest chairs by the desk, a cabinet of some type for the computer, and additional file cabinets and shelves as the client requires. In a larger office, the owner may find a small conference table with two to four small chairs desirable.

In some offices, the second secretary may be needed right outside the owner's office. This person will require a desk and return or surface for the computer monitor and keyboard, necessary filing cabinets and shelves, and a desk chair. A guest chair is not likely to be needed for the secretary in a small, professional office.

Note that there is no one way to lay out the furniture in an office. Some prefer that the desk is positioned so that the client faces the door from behind the desk. Others prefer a layout so that they face windows if the office has windows to the outside. This is another issue to be carefully discussed during programming.

The second professional's office will be smaller than the owner's office unless that second professional is actually a business partner. Then both offices will be essentially the same size. The furniture items needed will be similar if a partner, or somewhat different if an employee. Remember that different sizes of desks are one way to show status in case goods planned offices. The furniture includes a posture chair behind the desk, two guest chairs, credenza, space for the computer, a file cabinet, and perhaps some other storage items as the position requires.

HOME OFFICES

Working at home is a possibility for many entrepreneurs and employees who are allowed to work from home at least part of their workweek. This office space might be in a spare bedroom, a remodeled garage, or even a corner of the dining room. Whether it is a place for a telecommuter to work part time or an entrepreneur to work full time, the home office should be designed with thought and good planning principles. It is, of course, more closely related to residential than commercial interior



Figure 6-27 Home office highlighted by custom cabinets.
Design by Debra May Himes, ASID, IIDA, LEED AP. Photographer: Dino Tonn.

design, but it is considered in this book due to the number of individuals working from home.

Here are several key tips for the design of a home office:

- The location in the home will impact the extent of the client's interaction with family issues during the workday. Ideally, the home office is located in a separate bedroom or another private space.
- Image is as important in the home office as in any commercial office location. When clients meet at the home office, higher-quality products should be used.
- The home office should be furnished with standard office furniture that meets the client's functional needs and cost limitations. Some clients will want custom cabinets and desks for the home office; others will be satisfied with appropriate price-point commercial furniture.
- For employees working from home, the company may provide furniture and other home office products.
- Good space planning in the home office space is needed to accommodate the necessary office furniture and equipment.
- Adjustable chairs that encourage proper seated posture for long hours of work are just as important in the home office as they are in the standard office.
- Light and neutral colors work best in a home office, since they make the typically small rooms, crowded with furniture and equipment, seem less confining. Choose colors and materials that will enhance the office space but not create uncomfortable surroundings.
- An older house may require retrofitting electrical, telephone, and Internet service. A dedicated circuit for the computer will provide added safety from power surges.
- Task lights will be necessary to provide adequate light in the work areas.

One last consideration when moving an office to the home involves codes and regulations. Generally, building codes do not impact a home office unless the office is in a converted garage or an addition to the house. Homeowners' associations and local laws may also restrict the location of a business in a home. These are issues the homeowner should research before hiring an interior designer. Designers, however, should also investigate zoning restrictions and building code restrictions before proceeding with a home office project.

Both of these offices and the secretaries' work areas could be specified using systems furniture if the client chooses. Items can be freestanding components or hung on the wall, and they can include a freestanding table desk or desk. Recall that the strategic choice of finishes for systems furniture items can provide a very nice executive look.

If a conference room is required, it is usually a space that will sit from four to six people at a conference table. This will require a minimum of 144–150 square feet (13.4 –14 square meters) to seat six. Actual size will depend on the style and size of chairs and table specified. Chairs on casters are most appropriate, but chairs can also be on legs or be sled-base styles. A credenza or storage cabinet is appropriate to store materials of many kinds. A marker board with a ledge can also be useful for many professionals for presentations. Actual items in this space will vary with the type of office services.

During programming, the designer will discuss size requirements and types of furniture, such as the type of guest chairs, upholstery, and color preferences. Furniture items for this type of office are commonly budget to mid-priced items. They can be of any style of furniture from traditional to contemporary, based on client preferences. High-end items are less frequently specified, although some clients may require high-end items due to the nature of their business.

In a small office suite, the main mechanical systems responsibility of the interior designer involves specification of lighting other than architectural ceiling lighting. Architectural ceiling lighting in the form of fluorescent light fixtures is a common building standard for leased office space. The designer might be able to impact ceiling lighting if he or she is involved early enough in the project. The designer can influence the client and building owner to use better quality lenses for these fixtures rather than building standards, which will be very simple. Task lights for deskwork is a probability, and decorative lighting could be an option in the reception area and conference room. All these items will vary greatly by the type of professional working in the space, and the client's willingness to change from building standards.

The designer needs to research code restrictions for walls and floors based on whether the suite is a freestanding building or within a multistory office building. The materials designated as building standards for wall and floor finishes will meet codes. Modifications must also meet code should the designer encourage the client to upgrade these items to better quality and appearance. Since this is a small office space, finishes are standardized throughout the office other than in the owner's office. He or she may approve different wall coverings or an upgrade in flooring from what is in the rest of the suite. A tight, low-level loop carpet that is glued down is ideal, as it will take the abuse of the casters on chairs and traffic in the small office. However, a carpet over pad is an upgrade for the owner.

The designer may want to encourage the owner to use upgraded sustainable products for finishes and upholstery. It is unlikely that the building standards will include low-VOC paints and nontoxic glues for carpeting. Other than using the standards discussed previously in Chapters 2 and 5, there are no additional sustainable standards to apply to a small professional office. It would be difficult for a small, professional office housed as a tenant in an office building to achieve LEED status because many of the building issues will be beyond the control of the client and interior designer.

Summary

To many students, the design of office spaces and suites may seem boring and not very creative. They are, however, the entry to many jobs in specialized commercial interior design. The learning curve of designing office suites and spaces teaches the emerging professional much about planning commercial interiors, regardless of the future desired specialty.

The designer may be involved in designing spaces as grand and complex as a corporate headquarters for an international manufacturer, an office for a local real estate agency, or a humble home office. There are even those lucky few who have gained the experience and expertise to design offices such as the offices of corporate executives, senators, governors, and even the Oval Office in the White House. Regardless of the size of the project, the interior designer is challenged to meet the functional needs of the occupants, meet the budget needs of the owners, and provide the aesthetic elements that the business's clients may expect.

The designer must be constantly learning about the way business works. With that knowledge, the designer must analyze product standards for a wide range of workers, realizing that while both a stockbroker and a graphic designer need a desk, each requires many other items that are different from each other. Furniture products in an office also are a mix of conventional and systems furniture.

Planning an office using conventional furniture is different from planning the same office using systems furniture. The sometimes hundreds of pieces that make up a particular system's product line can be easily described (and have been by many) as a giant erector set of parts. Mastering those parts in order to properly plan an office environment is a challenge for many interior designers. But designing an office involves more than furniture. It also means choosing materials, colors, textiles, accessories, and adequate lighting; interfacing with the mechanical systems of the building; and meeting code requirements. Design options are limited by the client's wishes, budget, and imagination.

This chapter has presented an overview of the elements in the design of office spaces, providing the foundation for understanding what must be considered in the planning, design, and specification of offices, big and small. The design applications sections have provided detailed information on the planning of a closed plan, an open plan, a small professional office, and a home office.

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INTERNET RESOURCES

ADA Accessibility Guidelines (ADAAG): www.access-board.gov/guidelines-and-standards

Allsteel, Inc.: www.allsteeloffice.com

Americans with Disabilities Act (ADA): www.ada.gov

American Society of Interior Designers (ASID): www.asid.org

Architectural Barriers Act (ABA): www.access-board.gov

Buffalo Organization for Social and Technological Information (BOSTI Associates): www.bosti.com

Building Owners and Managers Association (BOMA): www.boma.org

Color Marketing Group (CMG): www.colormarketing.org

Haworth, Inc.: www.haworth.com

Herman Miller, Inc.: www.hermanmiller.com

International Code Council (ICC): www.iccsafe.org

International Facility Management Association (IFMA): www.ifma.org

International Interior Design Association (IIDA): www.iida.org

Kimball Office Group, Inc.: www.kimballoffice.com

Knoll, Inc.: www.knoll.com

National Fire Protection Association (NFPA) and Life Safety Code: www.nfpa.org

Steelcase, Inc.: www.steelcase.com

CHAPTER 7

Lodging Facilities

We travel all over the world today for business, relaxation, and vacations with family. Depending on the reason for that travel, the expectations for the quality of the facility will be different. We know that a budget hotel along the freeway will not likely be designed as nicely as a big-city conference hotel. The resort in the mountains will be more casual than a luxury hotel in New York City. These choices give guests the opportunity to experience the type of facility that is likely to meet their needs, meet their price point, and provide a safe and pleasant stay.

Today, rooms at lodging facilities need to be large, clean, and secure, with amenities in line with higher and higher price points. On-property restaurants, gift shops, room service, and Internet availability are standard demands—and those are just the beginning. Customers want not just a coffee shop, but a gourmet restaurant, a spa, and two pools—one for the kids and one for adults. Although they can accept the small gift shop where only candy bars and a few cold beverages are available, many guests are disappointed when there is not at least a store with tourist T-shirts and other clothes, newspapers and snacks, souvenirs, and even nice gifts to take home. Thus, the lodging industry must continually reinvent its properties, services, and amenities to meet the demands of the twenty-first-century business, recreation, and family traveler.

Lodging facilities are one part of the hospitality industry. "The word hospitality has ancient roots, dating from the earliest days of Roman civilization. It is derived from the Latin word *hospitare*, meaning 'to receive as a guest'" (Dittmer and Griffin 1993, 4). The hospitality industry also includes food service and beverage facilities such as bars and lounges. Detailed design discussions concerning these sections of the industry are presented in the next chapter.

To be successful in this highly competitive specialty in commercial interior design, the designer must understand the functional concerns of a hotel or other lodging facility. To provide context to the chapter and an explanation of the lodging industry, a brief history is offered. It is followed with a discussion of the business of the business with an overview of the responsibility areas and management structure of a generic hotel. A review of the different types of lodging facilities is included.

This chapter discusses specific criteria that affect the planning and design of lodging facilities. The "Design Applications" section will discuss specifics of the design of a generic hotel, covering areas commonly assigned as projects to students: the lobby,

guest rooms, and function areas. A brief description of back-of-house and recreation areas is included. A second design application discusses a bed and breakfast facility. The design goals for food and beverage facilities within lodging properties conclude the chapter.

Historical Overview

Lodging, or more appropriately the hospitality industry, has ancient roots. Early travelers found accommodations were meager at best, providing shelter from the weather and perhaps a meal. The earliest lodging was likely at religious facilities and private homes. Taverns and inns evolved during the Roman Empire.

Inns and taverns continued to develop and offer better accommodations and meals to travelers from the sixteenth century on. As time went by, these facilities also provided local politicians and leaders places to gather. The first inn built specifically as a hotel in the United States, according to Gray and Liguori (1994), was the City Hotel, which opened in 1794 in New York City, and the first first-class hotel was the Tremont House, built in 1829 in Boston. "The Tremont innovates such features as private rooms with locks, soap and water for each room, bellboys, and French cuisine" (4–5).

As businesses flourished and people began to move from rural areas to cities during the Industrial Revolution of the nineteenth century, lodging construction grew. Comfortable places were demanded by the wealthy, and clean, safe lodging was sought by the lower classes. The nineteenth century saw the development of grand hotels in the large cities, such as the first Waldorf Astoria in New York City (first built in 1896; relocated and rebuilt in 1931), the Palace Hotel in San Francisco (1875), and the Palmer House in Chicago (1870s). Luxurious tourist facilities such as the Grand Hotel on Mackinac Island, Michigan (Figure 7-1), and the Hotel del Coronado in San Diego, California,



Figure 7-1 The Grand Hotel on Mackinac Island, Michigan. *Photograph courtesy of the Grand Hotel, Mackinac Island, MI.*

which both opened in the 1880s, were also demanded by the wealthy. As interest in the national parks grew, so did the accommodations. Wealthier travelers were not satisfied with tents and small cabins, so grand hotels such as the El Tovar Hotel at the Grand Canyon National Park and the Old Faithful Inn in Yellowstone National Park provided accommodations that were only mildly "wild."

At the turn of the twentieth century, hotels were often the most elaborately designed buildings in cities and towns. The Conrad Hilton in Chicago (1920s) was the largest hotel in the world for many years, with 3000 rooms. The Beverly Hills Hotel in California (early 1900s) and the Arizona Biltmore in Phoenix (1929) are other early examples of these grand hotels.

There were many smaller hotels in the smaller cities and along the roads. Elsworth M. Statler is often credited with starting the concept of the hotel chain by building Statler Hotels in numerous cities beginning at the turn of the twentieth century (AHLA 2005). His hotels offered many design concepts that set a new standard for guest comfort. Then the Depression of the 1930s resulted in the closing of many hotels throughout the country. There was little travel, as most people could not afford the expense. Occupancy at hotels hit an all-time low.

With the conclusion of World War II, travel became popular and possible once again. Construction of small hotels, cottages, and tourist cabins in rural areas and of hotels in the cities began in earnest. All this construction was in response to a greater interest by the traveling public.

This immense interest in travel provided the opportunity for entrepreneurs to begin the design and construction of newer varieties of lodging for travelers. Before the motels came tourist cabins. These were mostly small, independently built units containing a bedroom and no bathroom, though bathrooms were added later. Clustered around a picnic area and perhaps a small swimming pool, motels offered clean accommodations to the traveler away from the big cities. Over time, motels added restaurants and larger cabins and began connecting the units together rather than making them separate.

Early motels and smaller hotels were often small structures on one floor, and the motels had fewer amenities than even early hotels. Arthur Hineman is credited with opening the first motel in California in 1925 (Walker 1996, 56). He is also credited with coining the term "motel" (Rutes, Penner, and Adams 2001, 44). Kemmons Wilson, a building contractor from Tennessee, improved the design of early motels when he conceived the Holiday Inn Motel in 1952. His concept provided larger, nicer rooms in his roadside motels, marking an important transition in highway lodging from tourist cabins. He also included a restaurant on the property, creating a more service-oriented facility.

As business continued to boom, new urban hotels, resorts, and lodging facilities catering to business travelers and the increasing number of wealthy travelers were built. Hotels began providing amenities and services previously available only at the very expensive hotels in urban areas. For example, air conditioning became common in the 1940s, along with radios and television sets in the guest rooms.

Hotel construction continued to boom as travel became easier. Business travelers generated more competition, and guests in general demanded more amenities and finer design in lodging facilities. Extensive resort development added other options to the traveling public. Families demanded places where the whole family could enjoy a vacation and, thus, facilities such as Disneyland in California (opened in 1955) is now

in competition with places such as Legoland and other family-oriented resorts. Casinos, spa resorts, golf-focused resorts, and others cater to adults.

According to the American Hotel & Lodging Association, there were fewer than 10,000 hotels throughout the United States in 1900. In 2012, there were over 52,000 properties with nearly 5 million guest rooms. This dynamic industry provides a large range of services and exciting entertainment venues, as well as design challenges to interior designers and architects.

Overview of Lodging Business Operations

According to statistics from the American Hotel & Lodging Association website, the lodging industry in 2012 had over $155.5 billion dollars in sales. The lodging industry has a huge impact on the U.S. economy. It contributes dollars related to a traveler's stay for business, leisure, and family vacations. The traveler also contributes dollars to the local economy through the monies spent at food and beverage facilities and various shopping and entertainment venues. It is important for the designer to understand the lodging business in order to better appreciate the operational goals that will affect the interior design of the facility's spaces.

How and why a traveler chooses a particular lodging facility naturally varies with their reason for the trip, the location necessitated by the trip, and income of the traveler. For example, a business traveler may need to be downtown, while a vacation traveler may want to be in a remote resort area. The selection of a lodging facility is also influenced by whether it is a single person perhaps traveling for business or a family on vacation. At the very least, guests expect comfort and safety at their lodging facility.

Thus, the overall goal of the design of lodging facilities is to provide an atmosphere congruent with the type of facility and guest target market. The interior designer must create an atmosphere and design specification that will appeal to guests and make them feel that the lodging facility they choose is the kind of place where they would like to spend one or more nights.

The lodging industry is affected by the ups and downs of the economy, since much of the industry depends on consumer confidence in traveling for vacations and business. Delivering well-designed guest services goes beyond aesthetic values. Lodging facility managers and developers are constantly researching and redefining the services that are offered. These services impact the interior specifications as well as the overall space planning needed to meet the functional requirements. Thus, an important part of the designer's programming efforts will involve understanding what the lodging facility is really selling to the public. An important resource for those wanting to know more about the lodging industry is the website of the American Hotel and Lodging Association.

A substantial amount of terminology is related to the lodging industry. The following are several key terms with which the designer should become familiar:

- *Amenities*: Services or items that are provided to make the guest's stay more convenient or pleasant. Examples include soap, hair dryers, bathrobes, Wi-Fi access, and in-room minibars.

- *Back of house*: Those areas where employees have minimal contact with guests, such as the business office, laundry, and kitchen.

- *Front of house*: Those areas where employees have the most contact with guests, such as the registration desk, guest rooms, and food and beverage areas.
- *Function spaces*: Spaces utilized for meetings, banquets, and other specialized functions.
- *Guest room bay*: The amount of space required to house a single standard guest room.
- *Guest services*: Services provided to enhance the guest's stay at the facility, such as room service, valet service, bell service, health club, and dining room.
- *Hotel*: A large facility offering a variety of rooms, from standard guest rooms to luxurious suites.
- *Key*: A guest room that is considered a rentable unit.
- *Lodging facility*: A facility that provides sleeping accommodations for individuals away from their permanent homes. Sometimes called a lodging property or a transient living facility.
- *Motel*: Smaller facilities that generally offer limited associated services to the sleeping room and cater primarily to the traveler using an automobile.
- *Property*: The lodging facility, including the building and all the land owned by the facility.

MANAGEMENT AND RESPONSIBILITY AREAS

The management and responsibility areas of lodging facilities have many variations based on the actual ownership. Characteristics such as size, type of facility, and whether it is part of a chain or independently owned will all have an impact. Management priorities will also differ from one type of facility to another. For example, added personal service and privacy will be provided in a super-luxury hotel versus a small, suburban lodging facility. The recreational focus of a hotel such as a casino may require a separate manager at the executive level, whereas this responsibility will be part of the assistant manager's responsibilities in a smaller facility. However, there are some standards that apply regardless of the type of lodging facility.

Some differences are very logical. Small, independently owned facilities can be managed by a few people, while the operation of larger facilities will involve several levels of management. Owners or top-level management for hotels that are part of major chains are often located at a corporate headquarters, where the chairman of the board, president, and other top managers set directions and goals for the on-site managers. For smaller facilities like a bed and breakfast, the owner is more likely to be on-site.

The common areas of lodging responsibility can be explained by the following:

- *Administration*: Overall management of the property. Includes the general manager, department managers, accounting, and human resources functions. Specialty areas such as casinos, health clubs/spas, and business center are also included here, as well as banquet scheduling and management. Marketing directors manage the marketing campaigns for the property and may also be involved in conference, banquet, and special programs management.

- *Rooms* (may also be called guest services): Primary services for guest use of property, front desk and office—for registration, checkout, and reservations, guest rooms, and suites. Other guest services, including bellmen and specialty areas like hotel clubs or executive floors, fall into this category. Concierge services, security, and retail stores and shops also commonly fall within this area of responsibility. From a service point of view, these areas provide the guest's first impression of the facility. From an interior designer's point of view, the lobby's design and signage make an important first impression in welcoming the guest.

- *Housekeeping*: The housekeeping department is responsible for the daily care of guest rooms and all other areas of the facility. Guests do not so much see these activities as experience them. Poor housekeeping services will likely result in guests failing to return. The housekeeping department, along with the property operations department, will also work with interior designers on minor refurbishing and other issues related to the planning and design of the facility. The director of housekeeping is responsible for the upkeep of guest rooms and the entire facility. He or she will interface with the designer on design and remodeling assignments.

- *Food and beverage*: Restaurants, including food preparation areas, room service, beverage service, and food for banquets, are parts of this responsibility area. Some hotels are known for their excellent food and beverage departments, hiring renowned chefs and providing excellent food and service. Even smaller hotels along the highway have seen the benefit of providing quality food and beverage services. Food service represents an important segment of the revenue of the lodging facility. Banquet services for business conferences, weddings, and other events are other important functions of this department.

- *Property operations*: This includes engineering and maintenance of the physical plant of the property, building systems and grounds, renovation management, and repairs and maintenance.

Other guest services have become very important to the success of a lodging facility. For example, business centers are becoming a standard service in all sizes and types of lodging. Health clubs or workout areas have joined the ubiquitous swimming pool found in even the smallest facilities. In-house game rooms for children, tennis courts, and affiliation with a golf course are just a few of the entertainment options that might be available. Personal services such as laundry service and dry cleaning, hair salons, newsstands, and gift shops are other optional guest services.

Finally, security of the property and the guests is another important aspect of lodging operations. It might fall under the category of rooms or the property operations department. The security group is charged with making the lodging facility and its property safe for guests and employees. Security staffs attend to guest complaints about noise or suspicious activities, monitor safety equipment, and otherwise ensure the safety of guests, employees, and the property. The property operations group focuses on maintenance, building systems, and grounds. These individuals are responsible for the maintenance of all aspects of the lodging property, including the updating of guest rooms. The plant engineer is responsible for the supervision of all areas related to the building itself—mechanical systems such as heating, ventilation, and air conditioning; plumbing systems; and general repairs needed in guest rooms or other areas of the facility.

Types of Lodging Facilities

There are a large variety of lodging facilities from which travelers can choose. Travelers, vacationers, and business travelers can select a lodging facility to meet any budget, amenities, location, and any number of other criteria. These differing facilities cater to the diverse needs of the public and have grown in reaction to the demands of the market. Types of lodging are based on the services offered, as well as location and special services. Full-service facilities have all the activities and amenities that we expect from a luxury and high-end hotel. A focused service facility has a limited amount of on-site amenities and attracts certain kinds of travelers. Many of these focused service facilities do not, for example, have on-site restaurants.

When most readers think of lodging, they probably think of a hotel first. There are also motels, bed and breakfast inns, extended-stay facilities, timeshares, and cruise ships, to name a few, that are all considered some type of lodging.

Most of us think of *hotels* as large facilities offering a variety of rooms, from standard guest rooms to luxurious suites. In most cases, hotels also include a choice of restaurant, beverage, and other services and amenities. A super-luxurious facility will likely provide superior interior design and impeccable personalized services. A hotel may also be a low-cost lodging facility near the interstate highway, catering to the auto traveler. Hotels can also be classified by location: urban downtown, suburban area, or resort. Obviously, a hotel has many faces. Table 7-1 lists the most common types of lodging facilities.

Let us now define some of these specialized hotels. *Convention hotels* cater to large business, professional, or other organizational groups, where the emphasis during the stay is on meetings or related activities. *Conference centers* are hotels specially designed and organized for smaller meetings and conferences than those held at convention hotels. They offer many of the same facilities as the convention hotel, but for meetings



Figure 7-2 The Ayres Fountain Valley hotel lobby was designed with the client's desire to incorporate feng shui qualities into the design. *Interior design by SJVD Design.*

Hotel (generic)	Resorts
All-suite	Vacation ownership resorts
Luxury	Casino
Convention	Theme park resorts
Conference	Mega hotel
Timeshare	Boutique
Residential	Extended stay
Motels	Bed and breakfast
Cruise ships	Hostel

Table 7-1 Common Lodging Facilities

on a smaller scale. Hotels that cater to business travelers are commonly located in urban centers or near central business districts and are sometimes called commercial hotels. The *super-luxury hotel* provides impeccable service, amenities, and design. The staff places an emphasis on the privacy of guests, discretion, and security. *Boutique* hotels are usually smaller than the other types of hotels. They are trendy, emphasizing high fashion in their design and amenities. Boutique hotels are commonly located in downtown areas, but can be found in many locations. *Casino hotels* combine various price points of interior design with the casino experience. Casino hotels often are combinations of theater, gambling experiences, entertainment, great food and beverage facilities, and, of course, places to spend the night when gambling is concluded for the day.

Resort hotels are lodging facilities that often have luxurious guest rooms (Figure 7-3) and, as part of their services, extensive recreational facilities or activities. Resort hotels



Figure 7-3 Guest master bedroom suite at Caesar's Octavius Tower Resort.
Reproduced by permission of Wilson Associates.

come in many varieties, including those catering to guests interested in high-quality golf experiences, ski lodges, luxurious beach resorts, or mixed-use theme park resorts *All-suite hotels* are lodging facilities where all the guest rooms are suites consisting of a separate bedroom and living area. Many all-suite hotels also offer kitchen facilities within the suite. Generally classified as hotels, *extended-stay* or *all-suite facilities* provide a private bedroom and a separate living room space that often includes a kitchenette. They are a residential solution for families and business travelers who are away from home for an extended period of time. *Residential hotels* are those in which the majority of guests are accommodated for long-term stays, perhaps months or even years at a time.

Motels are smaller lodging facilities that generally offer limited services and cater primarily to the traveler using an automobile. They were originally located in suburban and rural areas. Motels today are located in many areas, including downtown areas or near airports. They are usually in the middle to budget price range. Motels generally have fewer amenities, but many know that guests commonly require a swimming pool. Some motels have food and beverage services. If you would like a glimpse at the wonderful design of early motor inns and motels, take a look at Margolies (1995).

Here are brief descriptions of a few other types of lodging establishments:

- *Bed and breakfast inn*: These facilities originated from early inns. There are many types, ranging from converted private residences to redesigned historic structures. They are more individualized than standard hotels and are primarily owned by an entrepreneur. Most of these only offer some kind of breakfast service rather than a service restaurant.

- *Timeshare*: They are usually associated with a resort-style facility. Individuals can purchase a share of the facility giving them the right to use a unit for specific periods of time. It can be an ownership situation or on a lease basis. If the unit is with a chain of hotels, they may have use of a unit in different locations.

- *Lodge*: Facilities commonly associated with a recreational activity such as skiing or fishing. They are usually small and are located in basically rural areas or areas close to the recreational activity.

- *Hostel*: Economy lodging facilities that often cater to students and budget-minded travelers. Hostels have very simple rooms and often lack in-room bathrooms. Some even require guests to bring their own linens.

The modern traveler is faced with multiple decisions when planning a stay at a lodging facility. The type of lodging facility, the kinds of amenities expected, necessary guest services, and the price for the stay are decisions the guest must contemplate. Although these decisions affect every guest, they also affect the design program and concept with which the interior designer, architect, and owner must contend in the development of the lodging facility.

The Changing Lodging Guest

Today's lodging guests are very much into the experiences of travel. They want comfort, a homelike atmosphere, and convenience. They will check into and return to places that meet their needs, whether on a business trip or vacation, as opposed to generic designs

and amenities that fit everyone. While some guests will want an atmosphere of luxury that they are used to or wish to experience, others will look for the laid-back spaces that offer a resort experience for families on a budget.

It is, therefore, imperative that the designer discuss guest expectations with management during programming to develop the design program for the facility that will best suit the target guest. Information throughout this chapter provides strong generic information on the design issues. Here are some key issues for the changing lodging guest.

BUSINESS VERSUS VACATION GUEST

What is the business traveler looking for? Certainly comfortable surroundings for the night or several nights of the trip. The business guest might expect good room service for those days when a lot of work is done in the room, or perhaps a good lobby coffee shop and on-property restaurant. In the room, he or she is looking for a good work desk with a rolling chair, and outlets to charge and use laptops, tablets, and cell phones. The designer must program for these work areas in guest rooms and go beyond the standard small desk with straight-back chair to meet these expectations. Many guests want Wi-Fi in the guest room or, for more safety, an Ethernet connection in the room. Of course, guests today in general want these same amenities in their rooms.

Many do not need a business center for Internet use other than perhaps printing a boarding pass. However, business travelers want a business center that can accommodate business needs such as making copies and sending and receiving faxes, and they expect help taking care of receiving and sending packages. Wireless printers in the business center allow guests to work in their room or the lobby, and get needed copies made. It is also desirable that the business center provide for the sale or rental of power cords, ink cartridges, and other small supply items.

Many business travelers prefer areas in the lobby where they can set up their laptops while enjoying coffee or other beverages as they work. Comfortable seating is preferred to uncomfortable tables and chairs. Some hotels also provide small areas in the business center that can accommodate small group meetings. Of course, it is also common for small groups to gather in the lobby. Naturally, conference rooms of various sizes will also be planned for the business traveler (Figure 7-4).

Vacation travelers will look for a concierge who can help them get tickets to shows, golfing, or whatever other vacation activity they want. The guest rooms must be designed to help create the vacation environment with textiles and furniture that can take some of the abuse of sports equipment—and children. For example, a hotel near a ski area should have a place to store skis, boots, and other snow equipment near the door but away from the regular closet.

Vacation travelers also want a wide variety of recreational activities on-site. Swimming pools, spa pools, and workout rooms go without saying. Some facilities provide play areas for children, game rooms filled with video games, and maybe putting greens on property, to name just a few.

Travelers will also want easy access to the nearby attractions that drew them to the area. This might mean footstep access in some cases, or golf carts, or at least van service to the activity.

Food service options are also important. This can be a small sandwich shop off the lobby that can make up lunch boxes, or even a room-service delivery to the room for lunch.



Figure 7-4 Conference center hotel meeting room.
Interior design by Jeanne Kopacz. Photographer: Warren Jagger Photography, Inc.

Of course, not all the decisions concerning amenities for the business or vacation traveler are the responsibility of the designer. He or she must work with the plan and guidelines of ownership.

GENERATIONAL SENSITIVITIES

First, let's look briefly at the senior guest. There is no one way to categorize the senior guest. Senior guests might be looking for luxury in their hotel stay or they might be more budget minded. Senior guests are more likely to be seeking a room with accessible accommodations in the bathroom area. This means easy-to-use showers, accessible tubs, and grab bars at the toilet. They also commonly look for more space between beds and walls (and other furniture) even if they aren't looking for a room with ADA accommodations.

What else do older guests want? Senior guests in high-end facilities are looking for beautifully appointed rooms and amenities. They expect great service from the staff as well. Budget-minded seniors want clean rooms with plenty of space for luggage, hanging clothing, and chairs to relax. Even though senior guests expect some sort of discount—whether through a group like the American Association of Retired People (AARP) or simply due to age—this does not mean they want to stay in a poorly designed hotel.

Younger travelers also have specific expectations. The Gen Y or millennial traveler is gaining in numbers and in income to spend on travel, whether for business or vacations. These guests expect a more environmentally friendly atmosphere and more recreational amenities. They are looking for energy efficiency and water conservation tactics. Convenience and speed of services are other factors the younger lodging guest seeks.

This tech-savvy traveler demands accommodations that provide an easy-to-use tech interface with little or no extra charge. Free Wi-Fi in the room, as well as public areas, is a must for these guests. They will appreciate design elements that focus on technology—for example, screens with changing images in the lobby. They are

interested in the experience that the hotel setting provides and not so interested in help carrying bags. They are looking for lobby spaces where they can congregate, use their laptops or tablets, and have coffee with friends rather than in their rooms. The millennial traveler also tends to like more contemporary interior designs than seniors, who are often more comfortable with traditional styles.

Planning and Interior Design Elements

It is important for lodging properties to refresh the interiors in order to stay competitive. The emphasis for this remodeling or "refreshing" would be on the lobby, guest rooms, and public spaces, such as meeting rooms. The hospitality industry, in general, has learned that design is integral to the success of a hotel. Guests will pay higher prices at many types of hotels for premium design, amenities, and, of course, services. Even the budget-priced hotels and motels understand that in today's competitive arena, a plain, simple room is not enough. In a more expensive property such as a luxury or resort property, premium architectural materials and textiles, soft comfortable beds, in-room whirlpool baths plus a shower, and even fireplaces are common.

The variations in type of hotel, its market, and its concept are always critical to the decisions that the interior designer must make concerning materials, products, and styles of FF&E for all the interior spaces. A convention hotel in New York City will be designed with different criteria than an all-suites hotel in a smaller city in a western state. However, there are also similarities in the design of lodging facilities. For example, guest rooms have minimum standard sizes and furniture configurations, regardless of the type of facility. All lodging facilities need a lobby with a place for guests to register and pay their bills. Planning for the basic operational functions discussed above must be considered as well. In this section, we discuss the planning and design elements of a generic type of hotel, since hotels will provide the greatest challenge to the design team.

Regardless of the type, size, and location of a lodging property, it has three basic products to sell to potential guests. The key product is guest accommodations or guest rooms. The interior design of guest rooms can range from simple, basic designs to the exquisite antiques found in super-luxury hotels. Additional guest services comprise the second product. These services can include gift shops and newsstands, food and beverage services offered through restaurants and room service, and recreational activities such as a spa or swimming pool. The amenities in the guest rooms are also important parts of the guest services package. The third product used to set the theme and design of the hotel is ambience. As the reader knows, ambience gives the facility its look and personality. Interior architectural finishes, lighting design and fixtures, style of furniture, accessories, fabrics, and many other elements create the desired ambience.

A set order of discussion on the planning and design elements of this type of facility follows those in other chapters. The discussion of the planning and design elements follows the outline begun in Chapter 6 and is common to the remaining chapters. It begins with a brief discussion of preplanning and feasibility studies. The critical issues

of sustainable design, security, and codes are next. These are followed by an overview of space allocation and traffic patterns, including suitable basic information on accessibility. The final parts of this section discuss furniture, materials and finishes, and mechanical systems. These brief discussions relate to a generic hotel property, focusing on the interior designer's responsibility for these areas. For the remainder of this chapter, the term "hotel" will be used to generically discuss lodging. Specific terms are used as are appropriate.

EXTERIOR LODGING DESIGN

The exterior design of the hotel property sets expectations and impressions for guests and visitors to the property. Perhaps it is the startling re-creation of the New York City skyline in a Las Vegas mega casino hotel. Then again, it might be the grandeur of the sweeping colonnade and porch along the front of the Grand Hotel on Mackinac Island, Michigan (see Figure 7-1). Whatever the architecture of the lodging facility, a guest's impression is confirmed or refuted with the exterior design.

The concept and theme, geographic location, and target guest define the exterior design. A property may have a grand landscaped driveway that entices the guest from the main highway to the front entrance, or it may be a log cabin tucked away under the pine trees in the mountains. Whatever the exterior design, it provides an impression of the hotel that will excite or set at ease the guest on his or her choice in facility.

The main entrance serves to draw the guest to the lobby. The main entrance doors are often situated under a canopy or porte cochere located over the driveway creating the main entrance. This canopy also protects guests from bad weather. Here guests will arrive for check-in, obtain valet service, or queue for tour buses, shuttles, and taxicabs. Multiple doors at the front entrance are always a requirement regulated by building codes.

Depending on the size and type of hotel, there may be several "main entrances." For example, the main entrance to a casino hotel is often directly into the casino space. The casino entrance is always prominent and exciting, but it may not be the most convenient entrance to the registration desk. Hotels with large function and conference spaces often have a second main entrance directly into the ballroom prefunction space. Resorts that have day-use spas frequently have a secondary entrance directly to the spa so that day-use visitors have the option of entering the spa directly or through the main lobby. Exterior signage will assist identification and guest wayfinding.

The exterior design sets the stage for what the guest will experience in the lobby and the rest of the interior of the facility. The interior designer must be sure that whatever he or she plans and specifies for the interior spaces retains the feeling developed for the exterior and expands the successful execution of the total design concept.

FEASIBILITY STUDIES AND CONCEPT STATEMENTS

The complexity and expense involved in the development of a new facility or a major remodeling of an existing facility require careful consideration of the market potential and financial investment for the project. The conceptualization and design of lodging projects usually begin with a *feasibility study*. Of course, all major commercial design projects involve feasibility studies.

The feasibility study will research economic factors, prepare demographic analysis, and other criteria deemed important to the design and development of the new facility. It will also include goals and objectives of the project as set forth by the ownership. This analysis is necessary to help determine if the project will succeed before construction begins. It is an objective report on the possible success (or lack of success) of the hotel concept. The owner, developer, and property management team review this report carefully to determine where changes to the concept, if any, need to be made before architectural programming and design begin.

A consultant who specializes in this type of work and is familiar with the hotel industry often prepares feasibility studies for hotel projects. It may take the consultant months to prepare the study, and it will cost the project owner thousands, perhaps hundreds of thousands, of dollars. However, the time and money spent on the feasibility study could save the developer many times the study's cost by avoiding poor decisions concerning the proposed property.

The types of information that will be researched include:

- Future growth of the location, especially the need for lodging
- The nearby competition
- Impact of location and points of interest to tourists
- The projected number of guest rooms and mix of room types
- Need for banquet and meeting rooms
- The type of recreational services and amenities

Financial factors are very important in the feasibility study analysis. Estimated operational costs for staffing the hotel, running the mechanical systems, and operating full-service kitchens for the food and beverage operations are considered. Other operational costs, such as for providing laundry and housekeeping services, maintaining security systems, providing parking services, and even watering interior and exterior plants, are all considered in the feasibility study. All these costs of doing business cannot exceed reasonably attainable revenues or the project will not be profitable.

Costs for generating the design documents, site development, actual construction, and finishing costs are only part of what will be required to build a hotel. Revenue projections are also developed in order to prepare a pro forma income statement of expected revenue and expenses. These revenue projections are based on industry standards adjusted for the local market. They are based on the desired types of guest rooms and other services that will bring in revenues to the hotel.

Concept statements are also developed along with the feasibility study. The concept is an overall idea that unifies all parts of the facility and provides a specific direction

for the design. It is usually prepared after the feasibility study, since that information will direct portions of the concept statement. The concept statement focuses the planning and design of all the interior spaces, as well as the design of every other detail of the hotel's operation, such as uniforms, graphics, and even the colors of linens for guest rooms.

The concept statement will examine characteristics of the feasibility study such as the guest target market, the service offerings, the mix of accommodation offerings, and the ambience to help create the design direction. Different specification decisions will need to be made based on the type of hotel and the expected guest market.

Service offerings impact the conceptual design in terms of space allocation and budgetary factors. A resort will have many more recreational facilities and options for guest accommodations than a small suburban hotel along the highway. Designers need to understand the projected mix of guest accommodations in order to plan appropriately for the interior treatment of each different type of guest room. For the interior designer, the ambience is especially important and involves many elements ranging from style of furniture, guest linens, color schemes for rooms, and types of accessories, to name just a few.

SUSTAINABLE DESIGN

As with many other types of commercial facilities, the owner's and developer's interests in sustainable design focus on the building and infrastructure. Yet some owners see the feasibility of creating inviting and interesting green interiors as a means to market to that segment of the population interested in sustainable issues.

A hotel must do more than include motion sensors for lighting in places like exercise rooms that receive less traffic, cutting back on noxious sprays and cleaning products in guest rooms, and placing cards on beds related to limiting changing sheets and towels. A truly sustainable hotel must also do more than provide energy-efficient lighting. It must encourage and accept the specification of interior and architectural products that have actual green characteristics.

Architectural finishes and, if possible, construction materials that do not emit VOCs or certainly limit them are a key factor. The designer's selection of materials that are carefully estimated to reduce waste upon installation—and can be easily replaced—is another important factor in creating a green hotel. Reclaimed wood, natural stone, ceramic tiles, engineered wood, and natural materials for wall surfaces and countertops are only a few of the possibilities. Specification of furniture items that are from sustainable sources is another key design element that the designer and owner must embrace. Specification of lighting products that effectively use LED or other energy-efficient lightbulbs is certainly something easily managed by the interior designer.

Green design is especially adaptable to higher-end luxury properties. The guests at these types of lodging are more aware of sustainable and environmental issues and might, in fact, seek out a hotel with a strong environmental design. According to Singh and Houdré (2012, 65), guests at luxury properties are even willing to pay more for their accommodations.

Another type of hotel that can be designed with greater emphasis on sustainable design is that which caters to business travelers and conventions (Figure 7-5). Since many corporations are increasingly adapting sustainable design initiatives to their offices and other facilities, they want to bring their employees to hotels that emphasize sustainable design.



Figure 7-5 The upper lobby of the Lied Lodge & Conference Center in Nebraska City, Nebraska, is a beautiful example of a sustainably designed hotel. *Photography: Tom Kessler Photography.*

A key to sustainable design specification in lodging facilities of any size is the designer having an understanding of the cost issues of products. As has been previously discussed in Chapter 2, although a "green" product may have a higher initial cost, the life cost of that product compared to a non-green product can be significant. The interior designer must understand and show this evidence to the hotel owner/developer.

Manufacturers of products for hotels have many choices that can meet sustainable goals. The designer must be willing to research these sources and utilize them as much as the budget will allow. One resource for the designer and facility owner/manager is the Green Hotels Association. This group provides many kinds of resources to help the hotel owner and assist interior designers.

SAFETY AND SECURITY

Guests expect to be safe and secure while staying at the hotel. Yet, guests do not want to feel that they are in a guarded fortress. Many security measures are transparent, meaning that they exist but are not visible. Luxury hotels and resorts will have extensive security plans and devices to ensure the safety of the property and guests. However, even a small bed and breakfast must provide a safe, secure environment for its guests.

A clear sight line from the front desk to the entrance and to major traffic paths is one line of safety provided by the registration staff. In hotels where the registration desk is set back from the entry points, security or hotel staff may be stationed near the doors to direct guests and observe them for threats.

Hotels use many hidden security cameras or closed-circuit television systems in the public areas and grounds. These are monitored in a security office at a large hotel or from the front desk in a smaller property. Closed-circuit television monitoring of public areas can be set up to operate continuously or when triggered by motion or a door

opening. Of course, smoke detectors and fire sprinklers are required by code throughout the facility.

Card-access entry to guest rooms and to the pool or other recreational facilities is so common that we think of it as transparent. Security bolts, when thrown, make it difficult for a burglar to enter a guest's room. The reader may have noticed a layer of privacy in a high-rise hotel when riding the elevator. Certain floors can be accessed from the elevator only with the guest's room card. Card-access systems can also be programmed to record each time a card is used to further monitor access to guest rooms and other areas.

Here are a few other security measures that may be incorporated into a lodging facility's design:

- RFID (radio frequency identification) door locks
- In-room safes for guest use
- Security guards at the elevators after hours to ensure that only guests enter
- Card access to exterior doors after hours
- Security staff to walk the property and halls
- Guest use of safe deposit boxes at front desk

The design team and hotel management will discuss these security systems during programming. The interior designer, architect, or the client may include a security consultant to help with the overall plans for the security systems.

CODE REQUIREMENTS

In the building codes, hotels and other lodging facilities are considered to be a type of residential occupancy specified as transient. Specifically in the International Building Code, hotels and most other lodging facilities are considered transient residential occupancies and will be R-1 or possibly R-2. For the Life Safety Code they are also considered a type of residential occupancy, and those designations are R-A and R-C. This does not mean that space planning and product specifications are the same as for private residence.

The ADA guidelines also define hotels, motels, inns, resorts, and other places where someone temporarily uses sleeping accommodations as transient lodging. The term "transient lodging" should be kept in mind when designing any type of lodging facility.

It should be remembered that all but the smallest lodging facilities are actually mixed occupancies. A lodging property can include a combination of residential, assembly, business, and mercantile occupancies. Code requirements for this mixed-use space must be carefully reviewed in order to properly plan the interiors of the different spaces. A brief discussion about mixed-occupancy code issues is presented in Chapter 2.

Code and regulations application concerning paths of travel, materials, and accessibility are vital to the design of lodging. There are numerous dangers and serious consequences when building and life safety codes are not strictly applied. Accessibility guidelines will impact design decisions in many spaces of this type of facility. For example, the registration desk must accommodate an accessible-height counter area,

as would a cash desk in a gift shop. The designer can meet this requirement by either designing a section of the counter no higher than 36″ (914 mm) above the floor, providing an auxiliary counter nearby, or by designing a folding shelf into the counter to facilitate registration and business transactions.

A portion of each different guest room configuration, not just one type of room, must be designed to meet accessibility standards. It is vital that the lodging facility meet the guidelines for ADA accommodations in the specified number of rooms. Hotels with 50 or more sleeping rooms are required to have a percentage of those rooms designed with roll-in showers. Additional details about accessible guest rooms are provided in the "Design Applications" section later in this chapter.

Let's look at a few factors concerning traffic paths and the codes. Corridors that are considered exit access corridors will have more stringent requirements related to their width as well as their architectural finishes. Widths of corridors and aisles are based largely on the occupancy load in the specific areas and on uses of spaces. Because of accessibility requirements, corridors and aisles are generally required to be a minimum of 36″ (914 mm) wide, with some situations requiring a minimum of 44″ (1118 mm). There are limited exceptions to this standard, and the appropriate code should be reviewed for potential applications. Corridor widths will also vary depending on location, so that the corridor in a guest room wing will likely be different from corridors around function spaces and elevators. Because of the number of people expected to travel through these corridors, their widths are likely required to be greater than 44″ (1118 mm). The architect and interior designer will verify this requirement.

A combination of the applicable building, fire, and life safety codes will also impact the design decisions related to the materials and, in some cases, the products specified for a lodging facility. As always, the applicable codes are those for the location of the property and may vary from location to location even within the same urban area, state, or province.

Code requirements also vary on materials and furniture, depending on the use of specific spaces within the facility. For example, carpet specified for exit access corridors needs a higher fire safety classification than carpet in guest rooms and hotel offices. This is also the case for other architectural finishes. Although most jurisdictions only regulate the architectural finishes in hotels, some jurisdictions have specific restrictions on furniture items and fabrics used in this type of facility. California Technical Bulletins CAL 117 and CAL 133 apply to upholstered furniture used in spaces where more than 10 seating units are located. These codes have been adopted by several states. The designer must determine if this code requirement or other local code requirements affect the specification of furniture items—especially seating—or design furnishings elements for the project. Additional information concerning codes is presented in the "Design Applications" section of this chapter.

The larger the lodging property, the greater the responsibility of the interior designer and design team for meeting all types of codes. If the interior designer will be involved in remodeling an older structure, he or she must be sure that any design recommendations made to the client meet the current codes. A renovation can have a significant impact on the design in order to meet codes. What the client considers a simple refurbishing is likely to be interpreted by code officials as a major renovation requiring

multiple code modifications in the design. As always, it is the interior designer's responsibility to know how the law affects the project.

SPACE ALLOCATION AND CIRCULATION

The stakeholders with primary control over the space allocation of a hotel will be the owner, the architect, and, to a lesser degree, the interior designer. This team will determine how much of the total space will be devoted to guest rooms and how much to other service areas. The key to earning revenue for the hotel is guest room spaces. Thus, the allocation of space to guest rooms versus all other function and support spaces is a critical issue.

As can be seen in Table 7-2, the amount of guest space can vary from around 90 percent for motels to around 55 percent for mega resorts. Space allocation for the actual guest rooms typically ranges from 350 square feet (32.5 square meters) for a standard room with two double beds to 1400 square feet (130 square meters) and up for deluxe presidential suites. In some types of hotels, larger portions of the total structure will be devoted to such things as food and beverage facilities, banquet or meeting rooms, and recreational spaces. It is easy to see that a bed and breakfast inn will have only a small amount of space for non–guest rooms, while a casino hotel will have a significant amount of space devoted to non–guest room facilities.

Table 7-3 represents a variety of typical guest room space allowances. Allowance includes space for the bathroom.

The greatest number of rooms in the smallest gross square footage is achieved with the double-loaded slab. As can be seen in Figure 7-6, a central corridor provides for a large number of rooms on either side. A second common configuration is the tower plan. In this case, a central core with elevators and other service spaces is surrounded by the guest rooms. The tower plan can take the shape of a circle, triangle, or square. In

Table 7-2 Guest Space for Different Types of Lodging Properties

Lodging Type	No. of Rooms	Service Level	Space Devoted to Guest Rooms (% of total)*
Motel	100	Economy to mid-price	85–95
Motor inn	100–200	Mid-price	75–85
Commercial hotel	200–400	Mid-price to luxury	75–85
All-suite hotel	150–300	Mid-price to first class	75–85
Suburban hotel	150–300	Mid-price to first class	75–85
Convention hotel	200—2000	First class	65–75
Resort	varies	Mid-price to luxury	65–75
Mega-resort	>1000	First class	55–65
Conference center	100–300	Mid-price to first class	55–65

* Includes guest room corridors, stairs, elevators, and linen storage.

Source: Stipanuk and Roffman 1992, 365.

Table 7-3 Typical Space Allowances for Guest Rooms

Type of Room	Space Allowance (SF)*
King bed	312–450
Double-double	375–475
One-bedroom suite	950
Resort room	465
Luxury room	450–650
Budget room	275–325
Accessible king	351–416
Standard two-bedroom suite	1200
Luxury two-bedroom suite	1480
Conference suite	725–950

*Allowances are approximate and will vary with hotel management.

Source: After Binggeli 2012, 386–387; DeChiara, Panero, and Zelnik 2001, 374–379.

atrium plans, the central core becomes an open atrium expanding the interior space. Guest rooms are arranged on the perimeter, with room entrances along the corridors that overlook the lobby atrium. Glass elevators in atrium plans take advantage of the view that allows guests to see the atrium space from ground level to some upper-floor level. Service functions for atrium hotels are placed away from the atrium itself.

Planning for guest room locations involves careful application of the room mix determined during the feasibility study and concept development. The *room mix* is the configuration of different types of rooms required based primarily on the size and number of beds in the room. Two other terms that are used in discussions about the number of guest rooms are *key,* which refers to a rentable unit, and *guest room bay*, which is the space equivalent to a guest room (Rutes, Penner, and Adams 2001, 263).

It is important for the management stakeholders and design team to work together to determine estimated space needs for all the functions of the hotel property. Allocations must be categorized into the amounts of space needed for front-of-house and back-of-house activities using standards that might be available from the property developer or overall industry standards. The interior designer assists in this process by applying his or her knowledge of the space standards needed for layouts of furniture for different functions.

Moving guests, visitors, and staff smoothly through the hotel is important for safety, guest enjoyment, and overall functional effectiveness. These traffic patterns are the responsibility of the architect through his or her organization of all hotel spaces. The footprint layout of guest accommodations influences the traffic patterns of the entire facility.

The interior designer will be more concerned with the secondary traffic patterns within spaces such as the lobby and various function rooms and guest rooms. Traffic aisles in function spaces and around furniture items must adhere to codes as well as provide sufficient space for occupants to flow through the spaces. The number of

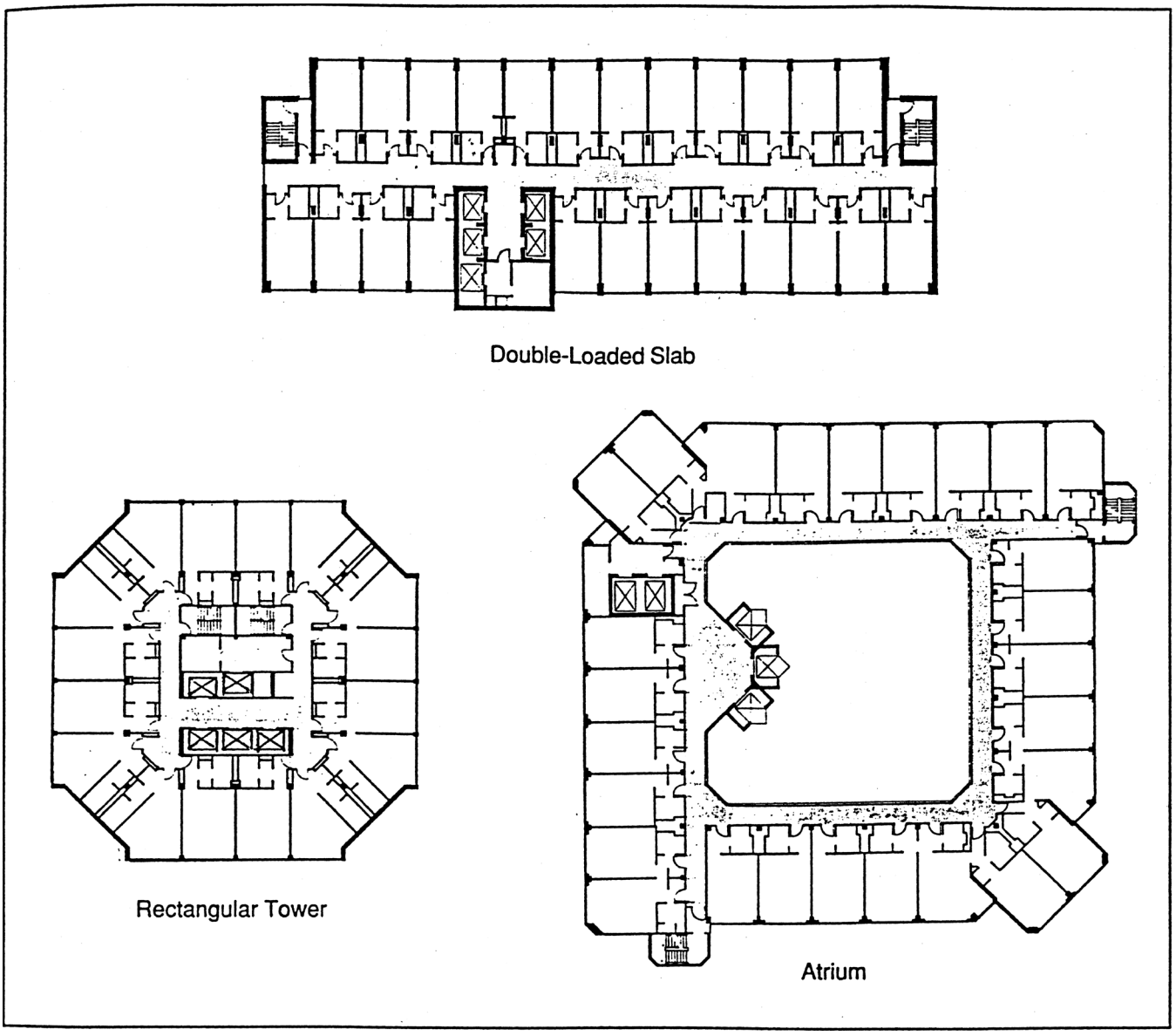


Figure 7-6 Layouts of guest room configurations.
From Stipanuk and Roffman 1992.

occupants of the various spaces will determine criteria for the layout of furnishings and needed traffic aisles and corridors within the different types of functional spaces in a hotel. Since a hotel is a public space, the interior designer will also have to ensure that the traffic paths around furniture in public spaces meet applicable accessibility standards.

WAYFINDING

It is easy to become confused in a hotel or any large commercial structure. Corridors are long, and the numbering system does not always make sense. Hotels and other large facilities must include cues to help guests, employees, and other users safely find their way around the facility. This is accomplished with a planning concept called wayfinding. "Wayfinding refers to the way people orient themselves in a given environment and find their destination" (Binggeli 2012, 11). *Wayfinding* uses signs, maps, graphics, and

directional arrows to help individuals find their way around complex properties and building interiors. The goal is to help visitors find their way from point A to point B as easily as possible.

Wayfinding is enhanced with properly planned and designed signage. In a hotel, that begins with signage in the lobby. Prominent signs are needed to identify the registration desk, concierge station, bell desk, and cashier. Other signage will be needed to direct guests to the elevators, restaurants, cocktail lounges, gift shops, and other stores. Signs are required at the elevator banks and to direct guests to rooms on each floor. Additional signage may be necessary to direct visitors to function spaces such as ballrooms that may be utilized by non–hotel guest visitors, and to other spaces in the hotel.

Signs might be on the wall, overhead, or placed in stands on the floor. They should be placed in strategic locations in order to help people find their way. Remember that signs placed on doors and walls must meet ADA standards including text, Braille, and pictograms as required. Directional and informational signs do not need to include Braille lettering. Your best source of information for these criteria is the "Requirements for Interior Signs from the New ADA," available online from the website www.apcosigns.com or directly from the ADA.

Wayfinding can also be accomplished by changes in flooring materials. The main traffic path can be in one material, with other areas in another. For example, it is common for the main traffic path in the lobby to be finished as carpet or hard-surface material while the flooring for an adjoining lobby seating area is in another type of material. The area in front of the elevator bank is frequently a different material than what is used in the corridors, and, of course, wayfinding assistance can also be achieved with changes in wall colors.

Several books and Internet resources are listed at the end of the chapter to provide specific guidance on signage for hotels.

FURNITURE

Furniture and finishes define the concept and character of a lodging facility and must be congruent with the concept of the hotel. The products and colors used throughout the public spaces and guest rooms are as varied as the types of facilities. The lobby and other public spaces must make a statement consistent with the overall concept and goals of the facility. In this section, we will provide brief comments on furniture. Materials and finishes follow, and each is discussed in more specific detail in the "Design Applications" section.

Generally, the highest-quality furnishings will be reserved for the lobby and the guest rooms. These spaces are the primary places that influence the guest and, therefore, must be given the most careful consideration. The lobby sets the mood for the entire facility and must be specified to strike the right impression. Use of beautifully designed custom millwork on the registration desk may not directly be noticed by customers, but poor quality in the design of the registration desk will be noticed.

The styles of lobby furniture should be selected in keeping with the overall design concept (Figure 7-7). Traditionally styled furniture in a modern envelope will send mixed messages to the guest. Lobby furniture must withstand the abuse of numerous users, suitcases, and guests slightly "abusing" seating. Regular maintenance is a must, so textile and other finishes must be easy to maintain.



Figure 7-7 Clubhouse lobby at the Boulders Resort hotel. Notice the variety of seating styles in this lobby.
Interior design by Studio4. Photographer: Paul Krucko.

Interior designers must be careful in their specification of items for the guest rooms. Guest rooms are designed with multiple templates of furniture, and these templates must be carefully considered. It is easy to break the budget with the design of guest rooms, as hundreds of rooms may be involved. Adding even one more item to a guest room template might involve many thousands of dollars.

Green is not just a color for hotel spaces. Consumers are looking for hotels to consider sustainable design tactics in the selection of furniture and finishes. Although some guests treat a hotel not as their home but as a place to let their hair down, the applications of sustainable design tactics in product specifications in the guest rooms and throughout are important to many.

Thus, selecting FF&E that creates the mood and concept without increasing the cost for each space and guest room is a delicate balancing act. The challenge to the interior designer is to specify products that will be aesthetically appropriate for the concept and allow easy maintenance while standing up to the abuse of heavy use.

MATERIALS, FINISHES, AND COLOR

Materials on architectural surfaces and upholstery throughout the facility must be durable and easy to maintain. They must be in keeping with the concept and, naturally, meet local fire safety codes. Quality finish products for architectural surfaces and upholstery as well as quality accessories are some of the ways the interior designer creates the appropriate ambiance. The quality level of the materials and finishes will depend on the type of lodging. It is reasonable to assume that high-end hotels will utilize finer-quality finish materials and furniture products than budget lodging along the freeway. Rougher textures are expected in many resorts, but not in a luxury urban hotel.

Textiles for seating in public spaces and guest rooms must be specified considering the cost of maintenance as well as aesthetics. Care must be taken not to use fabrics with floating threads on seating, as these will catch on pants and shoes. Guest room textiles must be easy to maintain and hold up to frequent laundering—especially those for duvets and window treatments. Depending on the facility and concept, textiles can have a wow factor or provide a background. Larger patterns are most often reserved for draperies and perhaps wall treatments.

Architectural finishes must also be easy to maintain while taking a lot of abuse and use. Wood surfaces on case goods certainly have a nicer aesthetic, but can be easily damaged and look worn before owners can replace them. Yet plastic laminate tops in the guest rooms of a luxury hotel will not be pleasing to the type of guest expecting something more in terms of design. Walls can be treated with many materials that will meet appropriate codes. Textured vinyl wallcoverings, grasscloth, and even painted surfaces serve as wall treatment options. Faux finishes are used sparingly and only in some luxury properties due to their high cost. Wallpapers are less often used in guest rooms other than the bathroom area due to the abuse from suitcases. If they are used, they must be commercial grade, not residential. They are sometimes found on the wall with the headboards because this area gets less abuse from suitcases. Custom wall treatments might also be used behind headboards to add a creative touch. Textures on walls can have a strong impact, especially in the lobby (Figure 7-8). Luxury hotels are one of the few types of facilities that can effectively use a limited amount of non-commercial-grade materials for wallcoverings in guest rooms.

There are several factors to keep in mind when specifying flooring materials. When carpeting is used, most designers use patterned carpet in large areas such as the lobby to help hide traffic paths and spills. Commercial-grade carpeting and hard-surface flooring are a must, as are commercial-grade wall coverings. In guest rooms, flooring in the bed area is usually carpeting over padding in solids, tone-on-tone patterns, or small patterns. Various slip-resistant floor materials such as ceramic tile are most common in the bathroom and dressing area.

In most facilities, there will be no window treatments in the lobby and many of the public areas. Window treatments are, of course, needed in the guest rooms. In this case, it is common to include both an overdrape of some decorative fabric or pattern and a blackout drape to provide privacy and light control.



Figure 7-8 Lobby space of the MGM Macau hotel showing materials features. Note the location of the reception/registration desk on the right and the stunning feature wall behind the desk.
Reproduced by permission of Wilson Associates.

Bathroom spaces require hard surfaces for all items. Exactly what is used will be determined by the overall concept. In many hotels, the bathrooms have become luxurious getaways even if the hotel is not a luxury property. For a guest not used to luxury at home, bathrooms that are finished in quality materials and products help create a home away from home.

Colors and patterns of fabrics should be selected to help hide spills and dirt. Bright, rich colors are trending not only as accents, but also as primary surface colors. However, care must be taken to keep in mind the size of the room where those bright colors are placed. Be mindful of designing using color schemes that are very trendy, as it is common that changing color schemes could be a ten-year proposition.

MECHANICAL SYSTEMS

The primary responsibilities that the interior designer will have concerning mechanical systems are lighting design and locating interfaces for technology connections. Lighting design and the fixtures selected to carry out the lighting design play a very important part in creating the excitement and ambiance of the interior spaces in a lodging facility. Think of the exciting lighting that is provided in the gaming areas of casino hotels. Then consider the subdued lighting in the lobby of luxury hotels.

Functional lighting and aesthetic lighting are needed in lobbies, meeting rooms, and all other public areas as well as the guest rooms. Creative details in wall treatments, materials, and furniture products will be lost or ignored if the lighting is poor. The interior designer and lighting designer must work together to avoid over-lighting in their desire to create a dramatic space or under-lighting an area by forgetting the tasks and functions of the space.

Energy conservation measures may limit the designer in specifying fixtures to achieve needed lighting levels. However, there are so many energy-efficient lamps (remember that the "bulb" is actually called a "lamp") in today's marketplace that achieving these goals should be easier. In addition to the goals expressed by the owners, jurisdictional restrictions may impact the specification of fixtures, light levels, and lighting design.

As with many kinds of commercial interiors, three kinds of lighting effects are used in a lodging facility. *General lighting* is needed for general traffic movement and safety within any interior space. *Accent lighting* is used to call attention to specific areas or elements of the space—for example, the lobby bar in a large hotel. In some areas, a third type of lighting called *sparkle lighting* is used to create special effects and give atmosphere to a room. Food and beverage facilities frequently use sparkle lighting to add excitement to the space. An example of sparkle lighting in a lobby is the use of very low wattage strip lighting along the underside of the nose of stair treads. Figure 7-8 is a beautiful example of lighting design.

Certain areas in a hotel, as well as hotel restaurants, often require a fourth type of lighting called *performance lighting*. Meeting rooms, ballrooms, and other function rooms, as well as large restaurants that have live entertainment, require lighting systems that can spotlight a speaker or performer. "Performance lighting systems are often simple, employing track lighting and separate dimming channels to permit dramatic illumination of a solo performer, small group, or keynote speakers" (Karlen and Benya 2004).

Meeting rooms, ballrooms, and other public spaces also require lighting solutions that are adaptable to accommodate varied activities that can go on in these spaces.

General lighting should be flexible so that light levels can be lowered for meals or if slides or movies are presented as part of a conference. Ballrooms frequently use chandeliers to provide general lighting as well as serve as a design accent. Sconces to create accent lighting can only be used on the hard walls in function spaces. An on-site restaurant, for example, will require bright lighting for breakfast and lunch service and more subdued lighting in the evening for dinner service.

Guest room lighting design also has factors for consideration. Like the specification of the furniture and finish items, the lighting design of the guest room has a strong relationship to residential design. Small fixtures on bedside tables or wall sconces provide task lighting at the bedside for reading. High-quality task lighting is necessary for shaving and applying makeup in the bathroom and dressing area. Switches that control general lighting—usually via a floor lamp in the guest room or a ceiling fixture at the door—provide safe lighting when the guest enters the room. Additional lighting for reading or working is necessary at a desk or table area.

Technology is another mechanical systems challenge for the designer. For the most part, the interior designer's responsibility in this matter is the location of equipment based on space plans and furniture layout. Computerized registration and operations systems will be located at and near the registration desk. This may include the location of kiosks that guests can use for printing out boarding passes, making reservations at restaurants, buying tickets to events, or other interface options provided by the hotel.

In whatever manner the business center is provided, the designer needs to specify locations for equipment that will be included in this area. Wi-Fi is, of course, essentially invisible to the guest, but the hardware will be included in the overall planning of the hotel. The designer will work with telephone, data, and computer consultants for this service planning.

Telecommunications design will include the phone systems in guest rooms, including fire safety information and voice messaging for guests. Locations for Ethernet connections and sufficient extra outlets to accommodate powering laptops and other technology items must be specified in guest rooms. Guest rooms are provided with a phone at the bedside, as well as on the desk. In luxury properties, it is common to specify a phone in the bathroom as well.

Point-of-sale (POS) computers will be located in the gift shops, restaurant, bars, and anywhere else that sales might occur. Point-of-sale refers to the cash register, specialty computer, or sales area of any kind of business where the purchase is made by a customer or entered on behalf of a customer. The POS units also help maintain inventory in gift shops and speed up ordering in food and beverage facilities. In a hotel, the POS computers automatically charge the guest's room for meals or other purchases, assuming the guest signs the charge slip, making checkout bills more accurate.

The interior designer will be required to consult with the architect, various engineers, and contractors when special treatments such as fountains and live plant displays are planned for any area of the facility. A wide variety of consultant work on specialized mechanical needs will be required in the design of food and beverage facilities and their commercial kitchens. Should recreational facilities be included in the program, the designer may coordinate and consult with the architect and others on specialized needs related to these activities.

Design Applications

One of my first projects in commercial interior design as a professional was assisting with the interiors for a small resort. It was exciting and challenging, to say the least. And while it was exciting, it also showed me that there is a lot involved in the design of a lodging facility.

Involvement in this type of facility is complex and carries with it many responsibilities. This does not change for a small bed and breakfast versus a mega hotel—but naturally, the scope and complexity changes. Because lodging properties come in many sizes and price points, the type of property will affect the interior design of the public spaces and guest rooms as well as the back-of-house areas. Understandably, a guest room in a luxury hotel will be larger than that commonly found in a convention hotel. The design and specification of seating for the "lobby" of a bed and breakfast will be significantly different from those in a resort hotel. Conference spaces will be larger in business and conference hotels than in suburban facilities. These all sound very logical, but it is important for the designer to understand the differences.

Lodging facilities have many specific functional needs that must be addressed. General ambiance and concepts must attract and, occasionally, positively astonish guests so that they will want to return. Guest comfort and safety are aspects of the interior design that impact every project. The interior design for function spaces, recreational facilities, and food and beverage spaces is also critical to the overall satisfaction of guests that brings them back again and again.

GENERIC FULL-SERVICE HOTEL

This chapter focuses on specific design and planning issues for the lobby, guest rooms, and function spaces in a generic full-service hotel. Brief comments are included concerning recreation spaces. The spaces discussed are those that would most likely be the responsibility of an interior designer and are often presented to challenge students in design studio projects. This section also includes a brief discussion of the planning of food and beverage facilities as part of a lodging property. Chapter 8 deals specifically with food and beverage facilities in more depth. An excellent reference on the design of lodging facilities is Rutes, Penner, and Adams (2001).

The Lobby and Front Desk

A critical design statement for any type of lodging facility will be that of the lobby design. It might be intimate and well appointed in a boutique hotel, or large, bustling, and dramatic to handle the crowds for a convention. To attract the younger traveler, it must be modern, open, and comfortable. Whatever its size and design, it creates a visual impression, must serve to welcome the guest, and must accommodate many important functions related to the guest. The planning of both the functional elements and the design aesthetics requires careful attention to detail and concern for the hotel's operational and thematic goals (Figure 7-9).

Hotels generally did not have lobbies until the nineteenth century. In those early years, only the luxury hotels—and, interestingly, hotels in national parks—had large lobbies designed to be statement-producing gathering places. As more and more travelers took to the roads after World War II, that situation gradually changed. The first atrium lobby at the Hyatt Regency Atlanta (designed by John Portman in the 1960s)



Figure 7-9 The design of the Ayres Hotel Orange lobby blends contemporary design with elements from Indonesia.
Interior design by SJVD Design.

showed that a lobby could be a prominent feature of a hotel property. Large and multistory lobbies became popular as the number of guest rooms grew. The smaller, intimate lobby remained the norm for many types of hotels to create the intimacy of the older grand hotels. Now lobbies are generally larger, providing meeting and socializing places. The lobby must convey the service and design concept desired by the owner, regardless of the size, scope of the space, and the multifunctional needs of this space.

The lobby is a busy place with guests and visitors coming and going, sometimes at a frantic pace and in great numbers. Not only does it serve for check-in and checkout, it is the main circulation space moving guests to the guest rooms and to public spaces such as restaurants, recreation areas, and conference spaces. The lobby serves as a place for guests to meet other guests and visitors, and perhaps to relax away from guest rooms, thus becoming a gathering place as well (Figure 7-10).

Traffic patterns and circulation space planning are essential when planning a lobby. New guests checking in will want to find the registration desk. Sometimes the amount of this traffic alone can cause congestion in the lobby when several large groups check in at the same time. These important primary traffic spaces must adequately handle expected peak volumes of traffic and easily handle traffic moving to various areas of the hotel. Secondary circulation spaces also move guests to seating provided in the lobby.

The main functional component of the lobby is the registration area, sometimes called the *front desk*. Space must be planned for guests to register, check out, and obtain general guest information. Queuing space for those waiting to speak to staff is needed, along with the actual space for the front desk. Of course, the larger the hotel, the more space will be needed for these functions. It is suggested that a minimum desk space of 6′ (1829 mm) each be allowed for registration, checkout, and cashier stations; that two stations be allowed for the first 150 rooms; and that one additional station be planned for each 100 additional rooms (Rutes, Penner, and Adams 2001, 284).

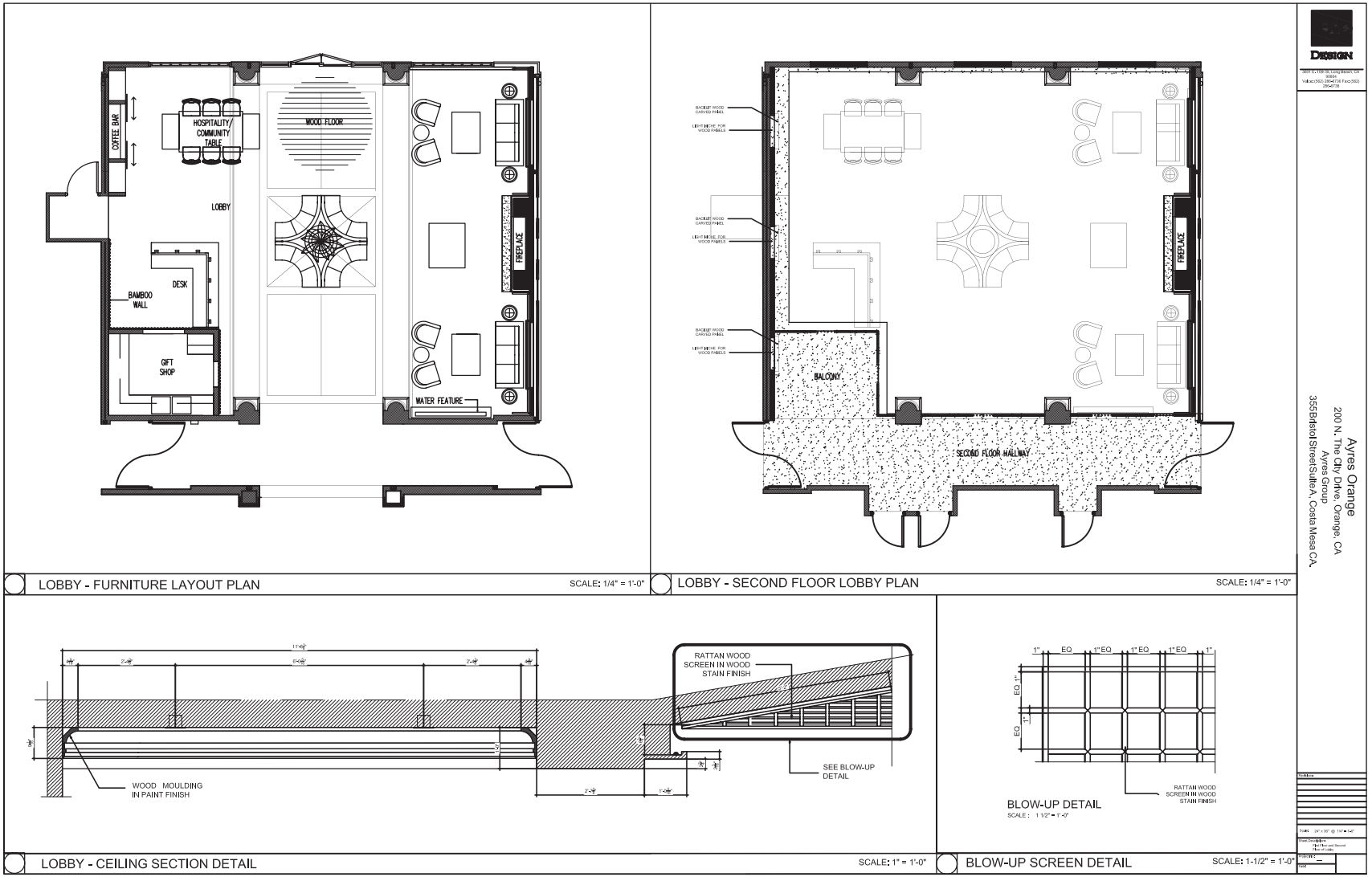


Figure 7-10 Furniture floor plan of the Ayers Hotel Orange.
Drawing courtesy of SVJB Design.

Calculations must be made about how many guests will be arriving at peak times to determine the amount of circulation space needed for queuing. Space will be needed for such functional items as:

- Computer monitors and keyboards
- Cash drawers and credit card authorization machines
- Printers
- Keycard machines to reauthorize room keys
- Various sizes of drawers and shelves for storage
- Easy access to back offices as well as the lobby

In some smaller boutique hotels and resorts, the front desk, as described in this section, has given way to smaller desks where the guest is given individual attention at check-in and checkout. The functional design of the desk from the staff's point of view is very specific to the hotel and should be researched carefully. Interface with electrical and data needs are integral parts of this design.

In a small facility, it is especially important that the front desk staff have visual control over the entrance and lobby area. The desk clerk must be able to see and greet arriving guests quickly to help create that all-important good first impression. In larger hotels, bell staff or even a host or hostess can guide an arriving guest to the front desk. It is also common to locate some seating near the front desk (Figure 7-11). This seating is

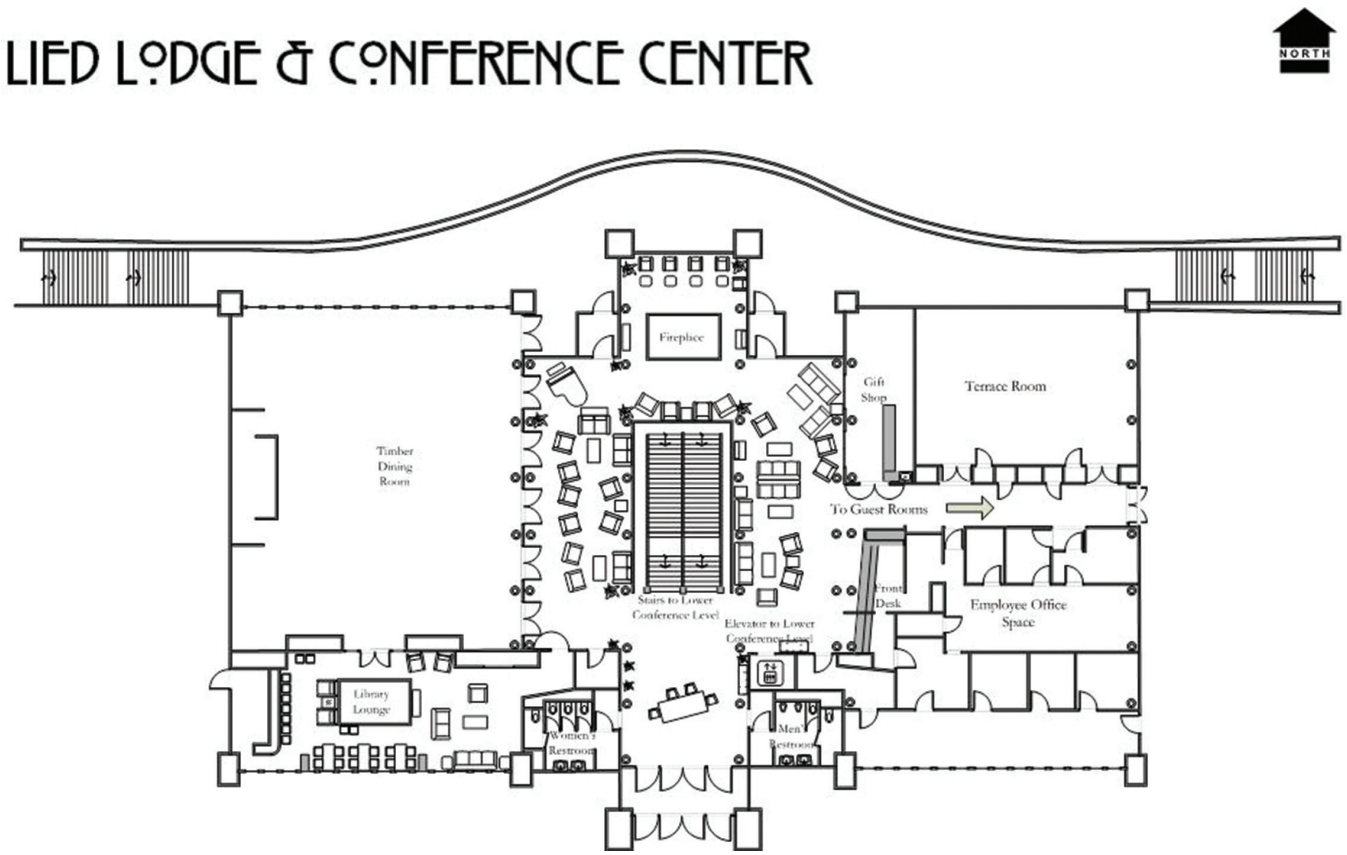


Figure 7-11 Floor plan of the upper-level lobby and registration, Lied Lodge & Conference Center. *Drawing courtesy of Lied Lodge & Conference Center.*

provided for those accompanying the person registering or checking out. The registration area must meet applicable accessibility standards. This requires a sit-down registration station when most registration is handled at a stand-up counter.

Check-in and checkout are not the only functions that occur in the lobby at the front desk. An important function for all but the smallest facilities is the concierge station. A *concierge* is a staff member who provides information about the local area, helps with reservations for dinner at local off-site restaurants, assists in obtaining tickets for plays or sporting events, and provides other aid to make the guest's stay more enjoyable and trouble-free.

Other services that are generally located at or near the front desk are

- Guest mail and messages
- Key boxes (in more traditionally designed facilities)
- Space for assistant manager
- Space for reservations clerks
- House phones
- Events directory
- Bellman station and carts storage (nearby)
- Luggage storage (nearby)
- Public restrooms (may be located off the lobby)

Space allowances for the lobby are tied to the overall concept and overall size of the facility. For a small facility such as a bed and breakfast or suburban hotel, the lobby will be generally be small, providing some soft seating to perhaps watch TV. A large convention hotel's lobby needs to be quite large and will have numerous sofas and soft seating units arranged in conversation groups. A common hotel trend for lobby designs is to provide small desks to accommodate guests who want to work on their laptops in the lobby. Resort hotels often have large lobby seating areas so that guests have a gathering place or a place to enjoy a view. Luxury and super-luxury hotel lobbies remain small and private, and very elegant, or large and statement-making.

The concept and theme of the hotel will establish the design treatments and ambience of the lobby and hotel in general. Styles of furniture and fabric choices, architectural millwork and architectural treatments and finishes, accessories, and, of course, the color scheme will be driven by the concept developed in the early planning of the facility (Figure 7-12). Use of dramatic treatments and consideration for green design are also trends for the lobby. It is common for major traffic paths to be defined by some type of hard-surface flooring, while carpeting is used in seating areas.

Most of the lighting design decisions for the lobby involve determining general lighting. Of course, accent, task, and even sparkle lighting are also used to help accentuate the design concept and provide needed lighting solutions for the particular space. Ten foot-candles of general lighting are sufficient for guests and staff to move safely through the spaces. Where seating is grouped, decorative and task light can be provided by tabletop fixtures or downlights. Tabletop fixtures can provide a residential feeling



Figure 7-12 Lobby of the InterContinental Hotel in New York City.
Design by Kenneth E. Hurd and Associates.

if that is part of the concept. Accent lighting to call attention to artwork, signage, and display features is often required. Visual punch and interest can be added, depending on the concept, by the use of sparkle lighting.

Do not forget that signage is needed to help direct guests to the registration desk and other areas of the lobby. Additional signage today is often included as digital screens with the day's agenda, perhaps weather information, and other information a guest will want. Digital screens can be located in strategic places where guests will congregate or on major paths of travel.

Guest Rooms

Guest rooms are the primary revenue-producing component of a lodging facility. Each guest room has a cost to furnish and maintain. One challenge is to furnish the guest rooms at the lowest expense relative to the type of lodging facility and the target market of expected guests. Adding one item to a room may not seem like much, but since that item could be multiplied by hundreds, as it will likely be repeated in each room, that extra item or upgrade in product can be quite costly. Each item and each finish specified for the guest rooms must be done with careful consideration for expense, aesthetics, and function.

Guests are often hoping for or expecting a space that is more luxurious and aesthetically interesting than what they have at home. The interior designer and all of the stakeholders in the project strive to fulfill this expectation in the planning and design of guest rooms. From an interior design point of view, the aesthetics involve the important attempt to make uninteresting rectangles interesting and exciting—on a budget (Figure 7-13).



Figure 7-13 A guest room with two beds. This room in a sustainably designed hotel features natural materials and earth tones. *The Lied Lodge & Conference Center. Photography: Tom Kessler Photography.*

We cannot discuss all the different types and layouts of rooms that might be possible in various types of hotels. The focus is on the most typical guest rooms with two queens or two double beds (often called a double-double since the standard had been two double beds) or a room with a king-sized bed. These are common design projects students might encounter and for which a professional may be hired. Brief comments are included regarding generic suites and club floors.

The building configuration or footprint and rooms layouts go hand in hand. The design team's planning goals for guest rooms will be to provide as many of the different room sizes as possible, based on the type of hotel being developed. With 55 to 85 percent of all the space in a hotel devoted to guest rooms (Stipanuk and Roffman 1992, 365), the actual cost of floor space, as well as the specification of FF&E in guest rooms, can become quite high if this consideration is ignored by the designer.

The first consideration in planning the guest room areas is the overall guest room floor configuration. Although this is a decision of the architect, it is important for interior designers to understand the basic concepts. Guest rooms and suites on each floor are combined with space for guest and service elevators, stairs, and service areas such as linen rooms, vending areas, and circulation space. Depending on the type of hotel, other areas may be planned for each floor. For example, small sitting areas may be included to break up long corridors, and premium suite floors may include a small lounge where afternoon beverages are available for guests only on that floor. Conference hotels may provide a business communications area on certain guest floors in addition to a general business center on the main level.

The three most common configurations are shown in Figure 7-6. Most hotels are a variation of one of these. Within these configurations, the architect will plan for a variety of room sizes and types based on the feasibility study, concept, and owner's goals. Thus, any one floor of the hotel will likely have a variety of room sizes.

The two most typical arrangements of rooms are the room with two double or queen-size beds and the room with a king-size bed. Figure 7-14 and Figure 7-15 illustrate these common guest room layouts. There will be many variations in the size, items of furniture, and arrangements of these two common plans based on size of the room and overall design goals of the hotel. Other room plans include small suites with a sleeping area separate from a sitting room and luxury suites with large living room spaces and separate bedrooms. The number of connecting rooms required, the size of the bathrooms, and the overall size of the rooms will also affect the room mix.

Many readers have possibly been in a hotel where the room had a king-sized bed and barely enough room between the edge of the bed and the dresser to open the dresser drawers. Yet, another hotel provides generous space with essentially the same pieces of furniture. Guests have high expectations concerning the interior design of their hotel

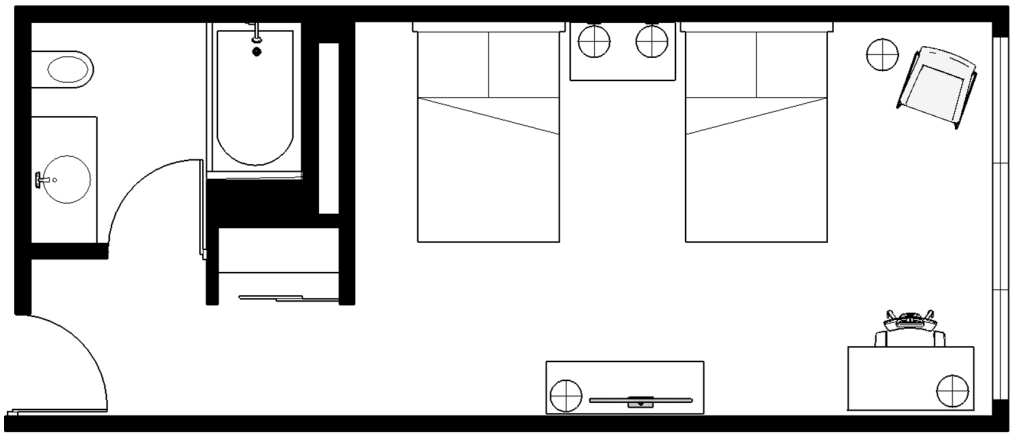
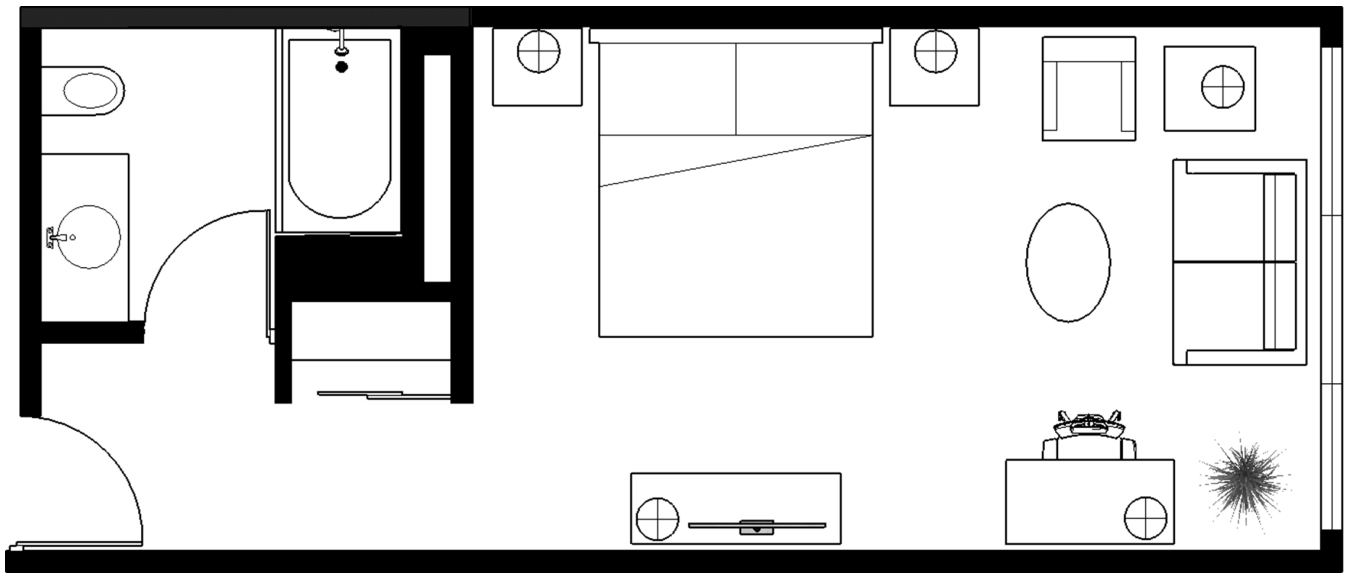


Figure 7-14 Floor plan for a common double-bed guest room. *Drawing by Esther Gonzalez, ASID.*

Figure 7-15 Floor plan for a typical king-bed guest room. *Drawing by Esther Gonzalez, ASID.*



guest rooms and the guest does not appreciate these small, tight rooms. Thus, hotels compete for guests by offering larger guest rooms, exciting guest room décor, interesting art and accessories, comfortable desk chairs, and, oh yes, feather beds! Of course, the design of the room and the quality of the products used will vary with the type of the hotel and price point of the room charges (Figure 7-16).

Many decisions concerning the layout of guest rooms are beyond the interior designer's control unless he or she is an integral, early stakeholder in the project. Locations and sizes of bathrooms, doors, and windows do impact what can be done with the interior. The interior designer's primary responsibility is to provide the appropriate amount of furniture and accessories to achieve the goals of the hotel and the target market of expected guests.

Guest rooms are compact spaces; in a sense, they are mini-homes with distinct functional zones whose space needs to be planned. These zones include sleeping, lounging, working, and bathroom/dressing. These zones are easily identified in the floor plans of Figure 7-14 and Figure 7-15.

Guest Room Sleeping, Lounging, and Working Zones

The largest zone of the hotel guest room includes space for sleeping, lounging, and working, unless the room is a suite. In a generic non-suite room, the guest gets his or her first impression of the design aesthetics and features when entering this zone. The guest commonly enters through a small vestibule that normally includes access to a closet and to the bathroom. Some hotels provide a small counter area in the vestibule to locate the room refrigerator and coffeemaker, as well as provide a place to apply makeup.



Figure 7-16 A luxurious suite bedroom with king bed in the French style.
Reproduced by permission of Wilson Associates.

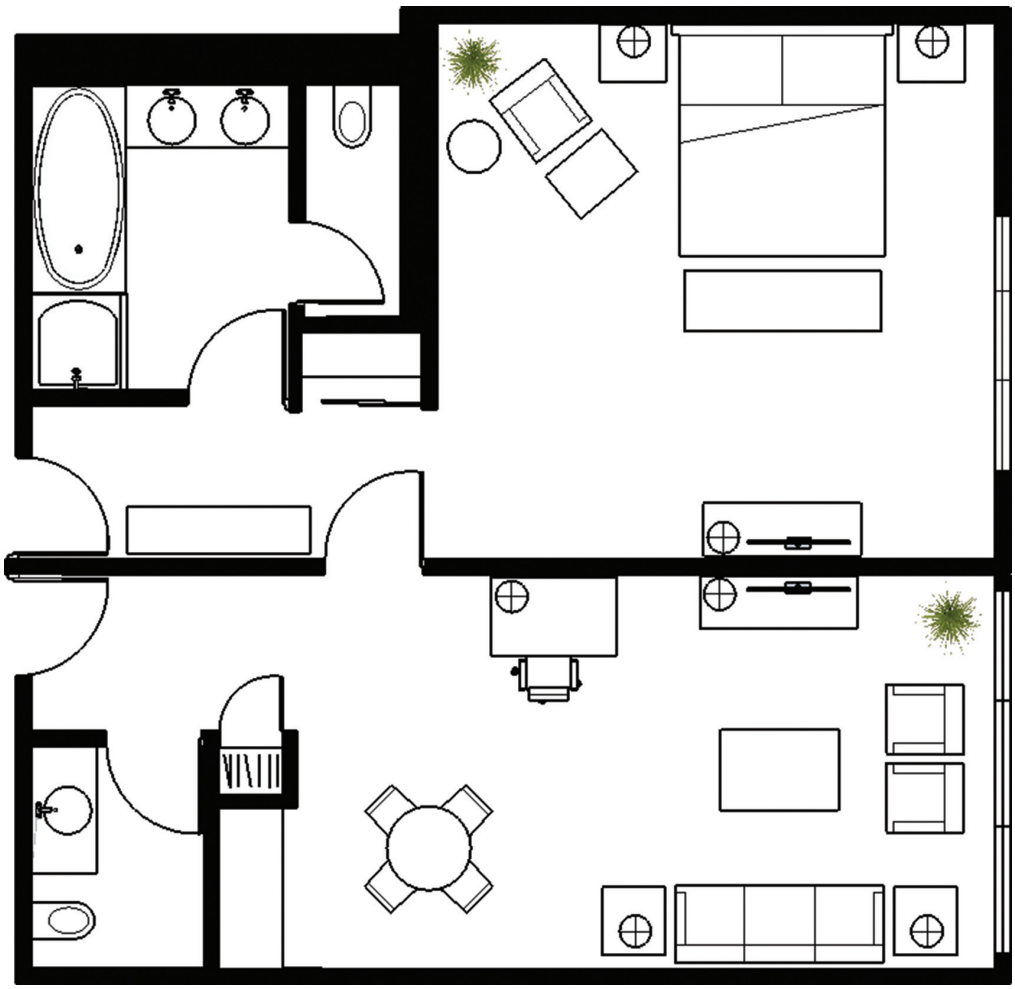


Figure 7-17 This floor plan shows one typical way to plan a guest room suite in a mid-priced facility. *Drawing by Esther Gonzalez, ASID.*

Depending on the size of the room and the type of facility, there are several common planning concepts for this zone. The interior designer must consider and plan for criteria and concepts such as the following:

- Provide a bedside table with lamps or wall sconces in a room with a king-size bed and one bedside table with a lamp between two queens or two double beds. A small clock radio or radio/phone charger is also included.
- Soft seating, either a comfortable club chair or loveseat positioned for easy viewing of the television. Floor or table lamps are also required in this location.
- Determine if a sofa/sleeper unit is required in the room.
- A cabinet 36″ (914 mm) high to accommodate a television, as well as dresser drawers. Armoires are still an option in many hotels.
- Desk with or without drawers along with one or more chairs, depending on concept. Some designs require a dining-room-style table and chairs. Business class and higher-priced hotels use office desk chairs in the work area.
- A small refrigerator with a chargeable bar and snack service, as well as a coffeemaker. This might be part of the dresser unit or provided with other arrangements.

- A suite hotel provides a small kitchen—which could be as simple as a sink and a microwave oven or a true small kitchen with full-size appliances—plus a small dining table and chairs.
- Appropriate accessories such as wall mirrors and framed graphics, selected to enhance the design concept of the rooms.
- Provide sufficient space on all sides of all beds for housekeeping services.

Competition and guest demands also mean that the hotel property owner has to increase the quality of the furniture items and materials on the seating pieces in the room while carefully considering price economies. Headboards, mattresses, chairs, dressers, desks, and other furniture and millwork must be commercial-grade products to take abuse but look like something the guest might have at home. Plastic laminate finishes on furniture items are most commonly selected for tables, dressers, and headboards. Luxury and higher-value properties utilize wood-veneered case goods. Fabrics for duvets (bedspreads are less often used in hotels today due to the additional maintenance costs) and soft seating should be selected with maintenance and fire safety in mind, even though the building and fire codes generally do not regulate those materials.

Guest Room Bathroom and Dressing Zone

The bathroom/dressing zone is most commonly located adjacent to the entrance to the guest room, off the entry vestibule with the closet located in that same area. In high-priced hotels and those that cater to the business and convention guest, guest room bath areas are designed with more space. Guest demands for more space, nice fixtures, and enhanced overall design challenge the interior designer to create pleasing bathrooms that are more than utilitarian spaces with three fixtures (Figure 7-19).



Figure 7-18 A contemporary and elegant suite at the Sofitel Nusa Dua Beach resort showing bedroom with views to rest of suite and pool. *Reproduced by permission of Wilson Associates.*



Figure 7-19 Luxury suite bathroom in a French style at Caesar's Octavius Tower.
Reproduced by permission of Wilson Associates.

One common ploy is to separate the lavatories from the tub and water-closet space. Resorts and luxury properties add a shower to the bathroom along with the tub, and perhaps a whirlpool tub rather than a standard bathtub. Larger spaces, elegantly designed fixtures, quality materials, and extra amenities are used to compete for the discerning guest. The hotel's target market will have a great influence on the space allowances and materials specifications in these zones.

Considered part of the dressing zone but generally located across from the beds are the dressers or armoires. Dressing areas require a dresser, closet, mirror, and space to accommodate luggage. How much room is allowed for these areas will vary with the type of hotel. Hotels where guest will be staying for several days or possibly even a few weeks will have more dresser space, larger closets, and storage space for luggage.

Additional Guest Room Features and Criteria

Artwork and other accessories are necessary to complete the design concept, but they must be chosen with economy as well as appearance in mind. Reproduction paintings, prints, and photographs are most common. Small bookshelves and books are supplied in many resort and vacation hotels.

Theft is an issue in a hotel. It is common to have wall accessories physically attached by screws, rather than being hung as in a home. Small accessories on dressers and tables are seen only in luxury properties—if at all. In many hotels, even lighting fixtures are fixed to the walls or tables to make it difficult for them to be stolen.

A television and a video game controller are expected accessories in guest rooms. Some upscale lodging includes a DVD player in the room. The placement of the TV must be planned for viewing from the bed as well as the lounge area. The TV is most often located on a credenza or a low dresser unit that can be rotated, or wall hung on a movable mount.

General and safety lighting via a ceiling fixture at the entrance door or a floor lamp on a switch at the entrance door is a must. Sconces or bedside table fixtures provide additional general lighting and serve as task lights for reading in bed. Task lights are also needed at the desk and soft seating locations. If the room is large, coved lighting may be employed for general lighting. High-quality lighting is needed in the bathroom and the dressing area. Most hotels have changed to fixtures using CFL lamps or even LED lamps to provide better energy economy.

Code requirements for guest rooms and suites need to be verified with local jurisdictions. Depending on the jurisdiction and the size of the facility, architectural finishes for walls within guest rooms could be required to meet Class A, B, or C standards. Flooring materials must meet Class II standards as a minimum. Draperies and other vertical textile hangings are required to pass the vertical flame test. Mattresses must meet local code restrictions, which might exceed the standard U.S. federal DOC FF4-72 test requirement.

A portion of guest rooms and bathroom facilities must be designed and specified to meet accessibility standards. These standards were discussed in the "Code Requirements" section earlier in this chapter. Because this is so important in the design of hospitality facilities, a brief discussion is included at the end of the "Guest Room" section. An example is displayed later in the chapter.

Fire sprinklers and visual and auditory warning systems are also necessary in all new and remodeled lodging facilities. Regulations for all these materials, products, and systems reflecting the greater concern for guest safety has also meant more concern for the materials used on the floors, tub, and shower floors, and the addition of safety grab bars even in rooms not designated to be accessible.

Suites and Club Floors

Hotels have always included a number of suites to accommodate guests who want private sleeping areas away from soft seating and work areas. The all-suites hotels became popular with business travelers and families in the last quarter of the twentieth century. Suites are also common in upscale and luxury hotels. For that matter, suite options are common for many price points and types of lodging. They provide all the function areas discussed above in a more residential setting, separating the sleeping area from the living room and eating areas. Larger suites have multiple bedrooms and bathrooms, conference rooms or dining rooms, and separate lounge areas.

Suite rooms might be located on the upper floors of the hotel, providing better views, quiet, and privacy. Suites may have private balconies or patios whenever the hotel has feature views of the city or area. Some hotels place suites at the corners of the floors, where it is sometimes difficult to create regular-sized rooms. There will be different configurations and design amenities for suites, from the relatively simple concept of a separate sleeping area from "living room" area to the presidential suite. A portion of suite accommodations will also have to be designed to meet the ADA requirements.

The designer will upgrade the quality of materials, furniture, and accessories in the suites, making these rooms worth their higher prices. They are also designed and specified to be more residential in appearance than basic hotel guest rooms. That is not to say that residential-quality products are appropriate, as code requirements still must be met.



Figure 7-20 Suite space showing eating area and bedroom area. Ritz Carlton Dorado Beach Resort. *Reproduced by permission of Wilson Associates.*

Club floors and lounges are popular at many upscale hotels. Club floors have access restricted to guests on those floors and provide small lounges where special amenities or extra services are offered. A larger club lounge might be located on a lower level rather than on a guest room floor. The club lounge might include continental breakfast, and beverages may be offered in the afternoon. A concierge and other personalized services for guests willing to pay premium prices are common in club lounges.

Club lounge space planning and furniture specification will vary based on the services offered. However, club lounges often provide soft-seating groups, two-top and four-top tables and chairs, a service bar for food and beverages, and wide-screen televisions. A business area might be incorporated off the main club lounge, and in family-oriented hotels a small game room is becoming an option in the plan. The materials and products in the club lounge will be similar to the more expensive products specified for the guest rooms on these floors.

Code requirements for suites and a club lounge need to be verified with local jurisdictions. They will be very similar to the codes discussed in the generic "Guest Room" section. However, the club lounge, depending on size and location, will be impacted by additional code restrictions related to exit access and door locations.

Designing Accessible Guest Rooms

ADA regulations require that at least one of each type of guest room in a lodging property be designed following accessible guidelines. This includes rooms with a single king bed, rooms with two queen-size beds, rooms with views, and both smoking, and non-smoking accommodations. Figure 7-21 is a sample of an accessible guest room.

The number of accessible guest rooms is related to the total number of rooms in the facility. For example, a facility with 25 or fewer rooms will only be required to have one accessible guest room and will not be required to have a roll-in shower.

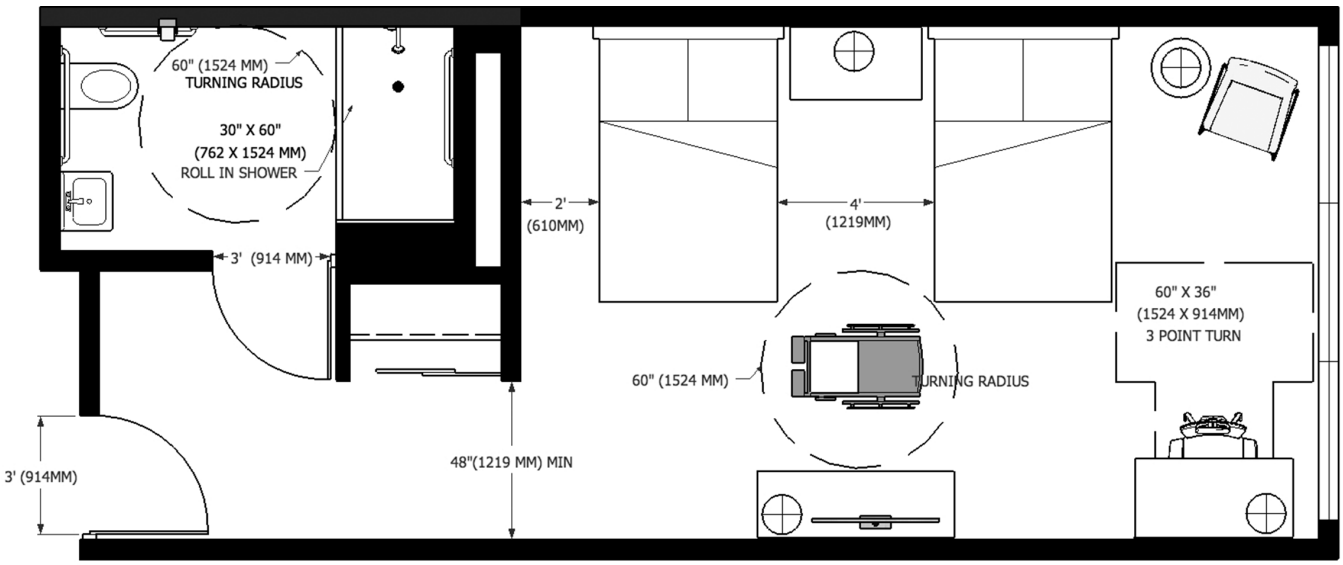


Figure 7-21 Accessible guest room floor plan. Note the required turnaround space in sleeping, entry, and bathroom areas. Also note the roll-in shower.
Drawing by Ester Gonzalez, ASID.

According to the ADA guidelines, a facility with 100 guest rooms will be required to have four accessible rooms, one of which must have a roll-in shower. Other specific requirements for other sizes of hotels can be obtained from the ADA Accessible Guidelines. Look for the document "ADA Checklist for New Lodging Facilities" on the ADA website.

Not all accessible guest rooms are alike, but they have similar elements. According to the ADA Accessible Guidelines, here are some key design elements:

- There must be a minimum of 3′ between beds and between the side of the bed and a wall if only one bed is used. When two beds are in the room, then the 36″ (914 mm) width between beds is required, and 22″ (559 mm) between the wall and the bed.
- The 60″ (1524 mm) turnaround is required in the bathroom
- A fully accessible bathroom must have a roll-in shower rather than just a tub.
- Entry doors to rooms and to the bathroom must be 3′ wide. In a suite, the door between the rooms of the suite must also be 3′ wide.
- The door swing into the room alcove and bathroom cannot impede into the 60″ (1524 mm) turnaround space.
- Grab bars are required in the bathroom.
- Roll-in shower stalls must have a folding seat in accordance with ADA guidelines.
- If storage facilities such as cabinets, shelves, and drawers are provided in the guest room, they must comply with section 4.25.
- Visual and auditory emergency signals are also required in guest rooms and other areas. There are other requirements related to alarms, telephones, and notification devices that must be planned into an accessible-lodging guest room. Section 9.3 of the ADA guidelines calls out these specific requirements.

■ Additional design specifications and limitations may impact a guest room's accessibility. The best source for this information is the current ADA Guidelines.

Function Spaces

Spaces that can be used for meetings, parties, presentations, and banquets are called *function spaces*. They are important specialized spaces in almost all lodging facilities. Even a bed and breakfast could be reserved for a small corporate meeting and need a function space. Hotels began adding function spaces to their properties in the late nineteenth century to accommodate civic meetings (Rutes, Penner, and Adams 2001, 296). Function spaces help produce additional revenue via the room rental as well as additional food service, guest rooms for exhibitors, and extra money spent at the hotel by participants.

Hotels generally have a mixture of function room sizes to accommodate the varying needs of users. They are generally multipurpose rooms that can house the variety of uses guests may demand. A large ballroom, variously sized meeting rooms, and smaller breakout rooms generally make up the function spaces.

Flexibility of these spaces is very important. It might be necessary to set up a space with individual chairs in either a classroom style using narrow tables or a theater style, using all chairs for a business meeting or presentation in the morning; convert the space for a luncheon for the afternoon; and set up for a trade show display over a weekend. A hotel may require a ballroom that can be used for a large function and that can be broken into smaller meeting rooms by partitioning the ballroom with full-height movable walls. A small hotel may only have a ballroom that can accommodate wedding receptions or be divided into small conference rooms.

Large hotels that target conventions and business travelers might have a special wing for the meeting rooms and a banquet room with exterior access. In most other cases, function spaces are located near the lobby for easy access by guests and outside visitors.

Secondary lobbies are often part of the planning for large banquet spaces or where multiple function rooms are located. These secondary lobbies, also called *prefunction* spaces, provide a gathering space and room to set up registration desks or even required food service. Prefunction spaces might be furnished with small, soft-seating groups on the perimeter. For a function, the hotel may place standup tables for patrons. It is important to have restrooms, public phones, and coatrooms nearby.

The space allotted to the function areas will depend on the type of hotel, the guest target market, and the number of guest rooms. For example, a convention will plan the ballroom to be two to four times the number of guest rooms, while a resort hotel's ballroom may be only one times the number of guest rooms. In other words, a large hotel will allow 60–100 square feet (5.6–9.3 square meters) per guest room for function areas, while a small hotel might allow only 10–20 square feet (.90–1.86 square meters) per guest room (Stipanuk and Roffmann 1992, 378). Direct access from the kitchen for food service is also necessary. Food is often moved from the kitchen on wheeled carts through back-of-house corridors behind the ballroom and other function rooms, and then the plates are carried on trays to the function space by waitstaff.

Furniture arrangements in the function spaces fall into three basic categories. For meetings and seminars, the room can be set up in theater style—also called auditorium

style—with individual chairs. An alternative to this arrangement, called classroom seating, uses small tables and chairs that can be arranged in numerous configurations (Figure 7-22).

The third arrangement is banquet seating using round tables 54–72″ (1370–1829 mm) in diameter that can accommodate 6 to 10 diners. To handle the flexible use of the spaces, back-of-house hallways and storage areas are planned to store extra chairs and tables. Furniture and furnishings in function spaces must be specified to sustain the heavy traffic, spills, and movement of furniture. Chairs are small, usually only 18″ (457 mm) wide by 24″ (610 mm) deep, and must be stackable. They are stackable so that the room can easily be changed from one type of function to another. Chair upholstery fabrics are generally textured vinyl, commercial-grade nylon fabrics, and other textiles that can take considerable wear and tear. These simple armless chairs can be dressed up with slipcovers when the event is a wedding or formal banquet. Patterns and colors of materials will be selected in keeping with the overall themes or concept of the hotel. Tables must also be foldable and stackable.

Architectural finishes and treatments must be selected to meet code requirements. They should be selected to serve as backgrounds, not statements. However, patterned

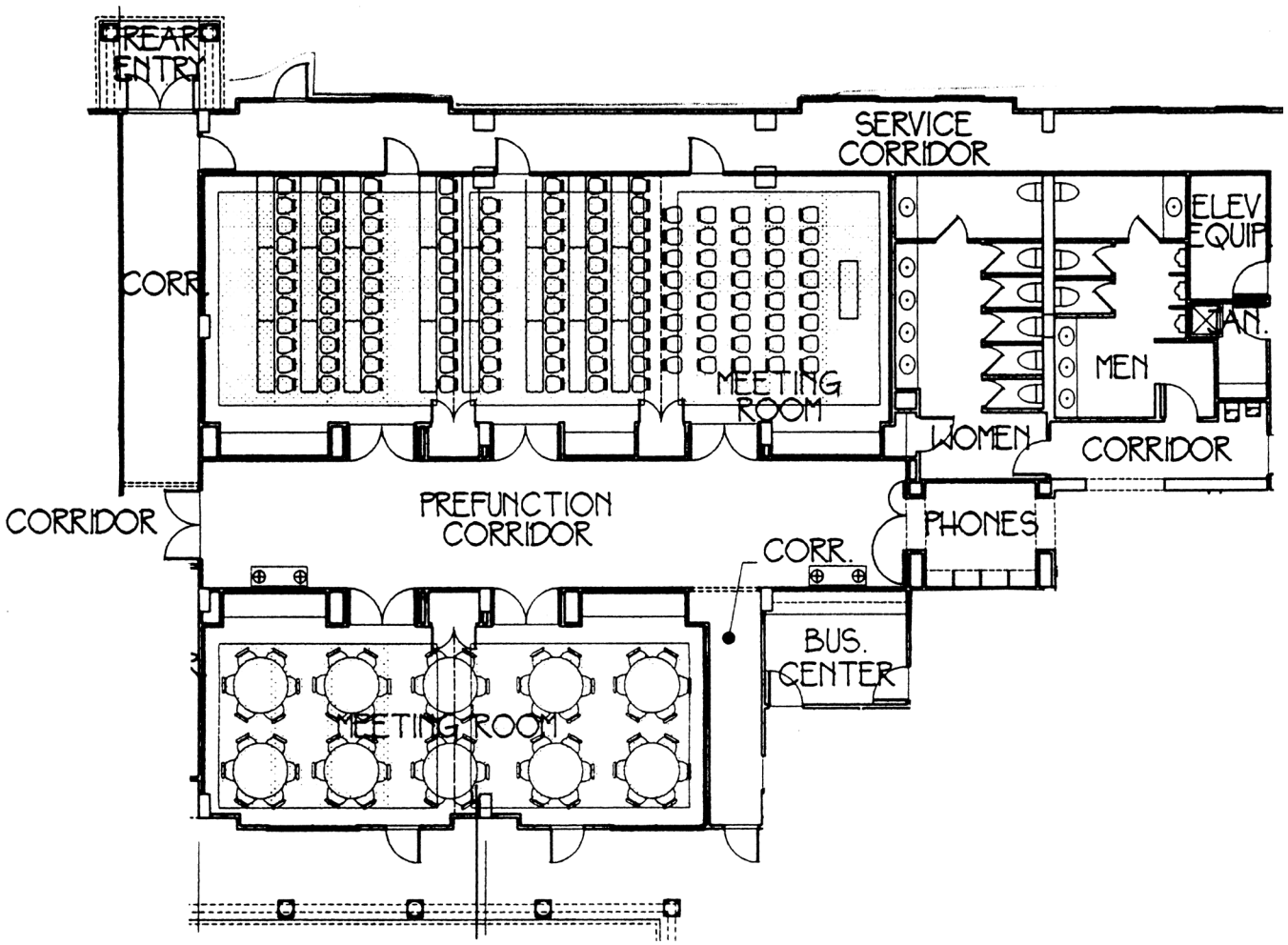


Figure 7-22 Floor plan shows the prefunction corridor and common plans for the arrangement of seating or tables in function rooms. The prefunction corridor leads to the main hotel lobby. The service corridor allows for the delivery of food service.
Plan courtesy of Holiday Inns.

carpets are often specified to help disguise spills and traffic patterns. It is not unusual for borders to be used along the walls and in the large function rooms to help divide the space visually and functionally. Wall finishes need to be very durable. In some spaces, chair rails are used to decrease the possibility of chairs scuffing the walls. It is also suggested that fabric wall panels be used to control acoustics. Should one or more walls in a function room include windows, the designer must specify full blackout drapes or blinds. This allows for better viewing of visual aids that might be needed in the room.

Much thought is given to the design of the ceiling surfaces, selection of fixtures, and lighting design possibilities in function spaces. Fixtures for general, accent, functional lighting, and spotlighting might be required in any one functional space. Large ballrooms may have chandeliers as well as elaborate built-in ceiling lighting systems. The design of the ceiling and the incorporation of the lighting fixtures into the ceiling often make the most dramatic design statement in function spaces. These large spaces require high ceilings, which can range from 12 to over 30′ (3.65–9.1 meters). Ceiling design will also include selection and spacing of smoke detectors, sprinkler heads, emergency lighting, speakers, and mechanical grilles for heating/air conditioning. The ceiling is a complex design element in a function room of any size.

Lighting specification in the prefunction spaces must be done to help set the ambiance for the function. Since the rooms must be designed with flexible use in mind, so should the lighting specification and fixture selection. The various function rooms should utilize fixtures that can provide adjustable lighting levels. When a room is used for a meeting or a speaker, lighting needs to be dimmed so that various audiovisual methodologies used can be seen while the audience can still see to take notes. Usually lower light levels are appropriate for meals, especially in the ballroom for a formal dinner. If the space is used for exhibition displays, a higher light level will be needed.

Function spaces are assembly occupancies in the mixed occupancy of a hotel. Carpet and flooring materials should be specified to meet local fire codes as well as accessibility standards. Upholstery on seating units and even the seating unit itself can also be impacted by code restrictions. Code requirements for upholstery, flooring, and other architectural finishes are discussed in the "Code Requirements" section earlier in this chapter.

The architect and interior designer must carefully space-plan the initial room sizes and furniture layouts to ensure that traffic aisles and pathways will meet exit access requirements. Almost all of these rooms will require two exits, and some will require additional exits. Exit signage, sprinklers, and emergency warning systems are also important components of function spaces. Electrical and communication services must be planned so that extension cords that might be needed to use the speaker's projector do not interfere with safe access from the space.

Signage is another issue in the planning of function spaces. Each room will have signage at the entrance doors. Floor-standing signs are used to supplement individual room signs to help direct visitors to the appropriate meeting room. Often the rooms have names in common with the theme or location of the hotel. For example, function rooms in many hotels in Phoenix, Arizona, have rooms with names such as Grand Canyon, Camelback, and Sedona in keeping with the Arizona landscape and localities.

Finally, accessories in these spaces will be a designer's responsibility. In most function rooms themselves, there will be no wall hanging accessories because many walls are movable partitions. In the corridors and prefunction lobby, wall-hung accessories, plants,

sculptures, and other accessories are often specified. In large prefunction lobbies, soft seating may also be necessary based on the size of the space and desires of the hotel management. Accessories should not be so easily moved that they can be stolen, however.

Back of House

The back of house consists of areas that support the public spaces, restaurants, and guest rooms of the hotel. Those areas referred to as *front of house* are the areas where the guest will go or use. The *back-of-house* areas are those where the guest will infrequently go or use. Many designers of hotels feel these areas do not get much design consideration or budget because they are not viewed as revenue-producing square footage. However, specification of furniture, finishes, and other design elements are still needed for them. Functions considered part of the back of house include:

- Management offices
- Reservations and telephone operators
- Kitchen and support services for food services offered
- Housekeeping facilities for laundry and general cleaning
- Engineering and mechanical
- Maintenance facilities for repair of property
- Loading dock for receiving, trash areas, and general storage
- Employee areas for lockers, changing, and eating

The offices of hotel management are part of the back of house. A guest might visit the offices of the banquet manager if the guest is planning a conference or wedding or other event. That being the case, the office areas are given a certain emphasis of design specification in order to help attract an excellent staff. Offices might be enclosed spaces or a combination of some closed spaces for managers and open office planning for other staff. Exact furniture needs in the office areas will be determined with discussions between the interior designer and the hotel contact and/or owner. Equipment and planning of other back-of-house areas are beyond the scope of this book.

Recreational Facilities

Few types of lodging facilities can exist without some recreational facilities. At a bed and breakfast, it might be an outdoor Jacuzzi or a sauna. Numerous kinds of lodging properties provide a swimming pool in a landscaped courtyard. Large hotels may have more than one pool so that families can use one and the other is restricted to adults. Hotels that cater to families have added game rooms with video games for the children.

Health clubs and workout rooms are also very common in almost all types of lodging facilities. Other facilities provide on-site tennis courts and perhaps volleyball courts. If the hotel is not adjacent to a golf course, arrangements are made for guests to golf at nearby courses. Resort hotels often include spa services with quiet, relaxing areas for a massage, steam bath, saunas, and other specialized services. The list of recreational facilities available to guests is varied (Figure 7-23).



Figure 7-23 Spa with a view into the massage room.
Courtesy of Jim Postell, architect and designer. Photographer: Scott Hisey Photography.

It is very important for the recreational facilities to be easily accessed by guests. Many guests do not like walking through the lobby to get to the swimming pool, spa, or health club areas. In golf and tennis resorts, separate clubhouses are common so that guests can change their clothes, take a shower, and visit a pro shop away from the main hotel. Hotels in smaller markets and even many luxury resorts often make some of their recreational facilities available to local residents. When this is the case, one entrance to the recreation area or spa is provided from the parking lot.

There are some basic considerations for workout rooms. Many hotels locate a check-in counter where a guest will show a room key in order to use the facility and obtain towels. A workout room requires open floor space for the variety of exercise equipment provided by the hotel. The designer should check with the manufacturer of each piece of workout equipment to ensure that safe spacing has been provided. References such as Binggeli (2009) provide some of these sizes. It is also common for at least one strategically located television to be in the space.

Materials here should be easy to maintain and resistant to water and spills. Depending on overall design, the guest can move from the workout room to the pool or spa area. When this is the case, they may request changing rooms and showers so that exercisers can shower before going to the pool.

Important building code issues will also affect the design and specification of workout areas and recreational spaces. Stringent code requirements govern locations of outlets, lighting fixtures, and switches in wet areas. Remember that a spa or health club area will also have to meet accessibility guidelines.

Facilities that market to sport-specific recreation may need spaces for rental, repair, and sale of equipment. What comes most readily to mind is the golf pro shop at resorts with golf courses on the property. A hotel in a snow location will likely require facilities for ski and snowboarding equipment. These are mentioned to encourage the designer to fully understand the full complement of recreational activities that the lodging facility will offer or market to its guests.

Many hotels have spas where a guest can obtain massages and other treatments. The information related to the design of a spa and fitness centers has been relocated in this edition to Chapter 12.

FOOD AND BEVERAGE FACILITIES IN LODGING

The opportunity to enjoy great food is a common experience for hotel guests as well as local residents who go to hotels for special occasions. Many local residents visit resorts and hotels for Sunday and holiday brunches and buffets. The breakfast served at many bed and breakfast inns is a special treat for guests. Smaller hotels located near a highway might lease space to a chain restaurant providing convenient food service for guests weary from travel. Almost all lodging facilities provide some food service, including continental breakfast choices at even the smallest facilities.

A *food service facility*—most commonly thought of as a restaurant—is any retail establishment that provides cooked or prepared foods to consumers. *Beverage facilities*—commonly called *lounges* and also referred to as cocktail lounges or bars—are defined as those providing alcoholic beverage service. Of course, there are some kinds of restaurants that do not serve alcoholic beverages—notably fast food restaurants—and most establishments that serve alcoholic beverages also offer some food service. However, the two definitions are common in the industry. In this section, we discuss general considerations and business distinctions for these facilities. Specific design concepts and applications for generic food and beverage facilities are presented in the next chapter.

Food and beverage services in hotels and other lodging facilities have been part of the mix of service since the inns centuries ago provided food for the weary traveler. Except for luxury hotels, food service in hotels was generally not known for high quality until the early twentieth century. Most hotel restaurants only served breakfast, as travelers did not have a reason to stay for lunch or dinner. Thus, there was no incentive to create a good kitchen. Competition from freestanding restaurants where good-quality food was served reduced guest visits to hotel restaurants. In the second half of the twentieth century, fast food and chain restaurants changed the eating habits of many people. This competition forced hotels to consider food and beverage service as an additional marketing tactic and a revenue stream resulting in a dramatic increase in the quality and types of food and beverage service found in lodging facilities today.

Food service is a costly endeavor to a hotel. Management will carefully weigh dedicating space to any kind of food and/or beverage service. The restaurant or lounge must produce a profitable level of revenue. Along with the food quality, the ambiance and theme will help that facility prosper. In an urban area, a hotel guest has many choices for all of his or her meals beyond what is available in the hotel. For a suburban hotel, guests will want breakfast while lunch has a minimal customer demand. Luxury hotels and urban resorts will also attract local residents for special-occasion dinners or business

lunches. Thus, the type of service, type of hotel, and attention to the guest's attitude toward food service needs are all parts of the decision package.

Design and business concepts for the restaurants and other hotel food-service options will be developed along with the concept for the whole property. Themes may be based on the overall theme of the hotel or driven by marketing concepts for the non-hotel guest diners the hotel wants to attract. Design themes will also be impacted by the type of service, such as full service with a maître d' versus casual dining. All of these considerations—and these are only the primary issues—will impact the interior designer's responsibilities for the layouts and for aesthetics and product specifications.

Restaurants and lounges are generally located in the vicinity of the lobby. Of course, the architect, property owner, and designer may also choose to locate these facilities to take advantage of views (consider the rooftop facility), near recreational areas, or off the parking lot. Small hotels offering only continental breakfast may design counter areas in the lobby for the set-up of that food service. Large hotels and resorts commonly include a beverage facility as part of the overall lobby concept (Figure 7-24).

Since lounges serving alcoholic beverages are often located adjacent to the lobby, it is common for them to be in enclosed spaces or at least visually separated from the main lobby to reduce noise filtering into the lobby or nearby restaurants. The theme may follow the adjacent restaurant or may be individualized. For example, in a downtown hotel near a sports facility, the lounge may have a sports theme; in a luxury hotel, there may be a cigar lounge in an enclosed area where guests who want to smoke are welcomed (Figure 7-25).

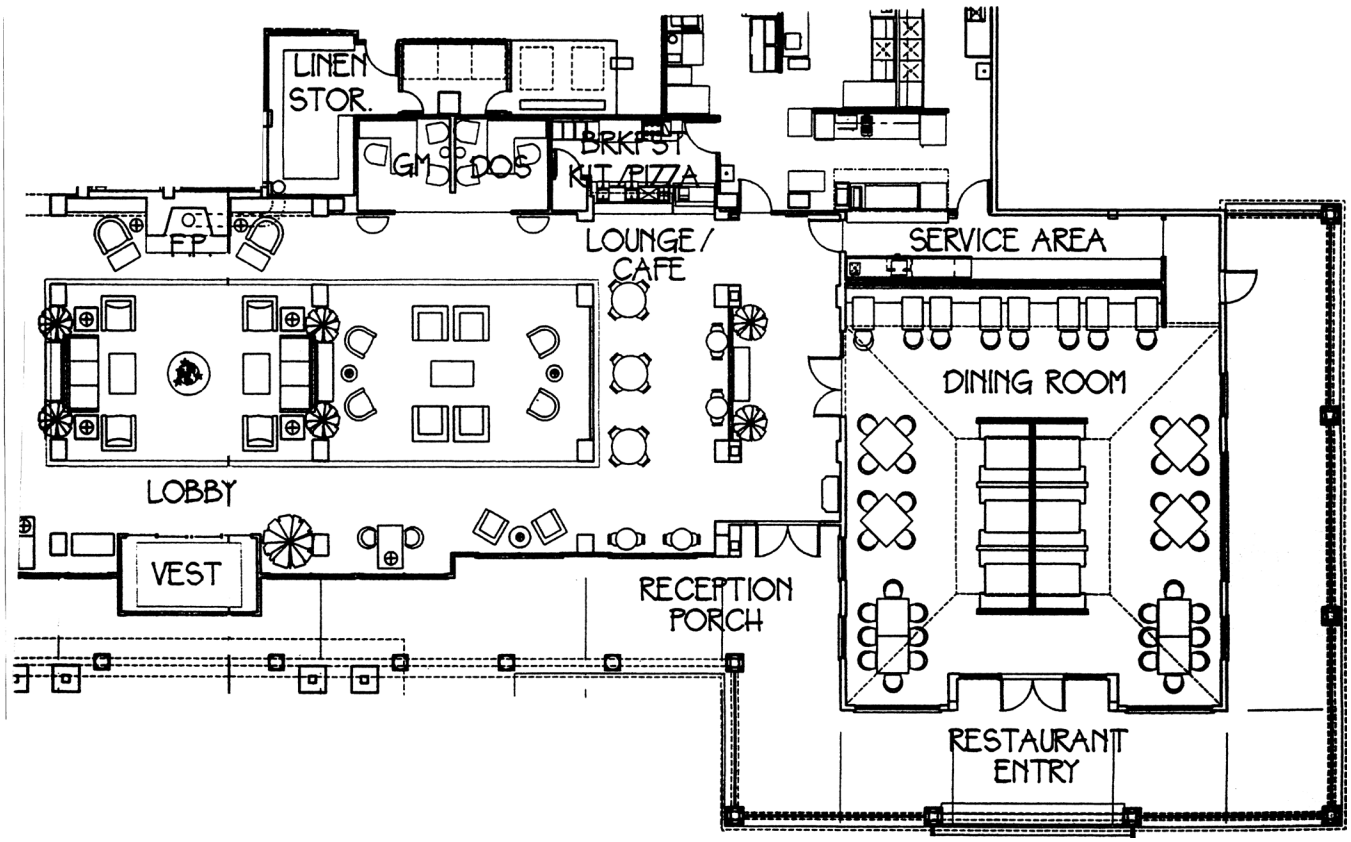


Figure 7-24 Floor plan of a restaurant in a hotel showing its relationship to the lobby. *Plan courtesy of Holiday Inns.*



Figure 7-25 Elegant lobby bar and seating area at the JW Marriott, New Delhi.
Reproduced with permission of Wilson Associates.

Lobby bars were created to give guests and visitors something interesting to do in the atrium lobbies designed in the 1960s and 1970s. Large properties have embraced the lobby bar because it is a great revenue generator, as guests and visitors use the area to meet before or after dinner or meetings. A slight physical barrier to separate the lobby bar from the hotel lobby is often created to prevent underage individuals from using the space. Comfortable seating with sofas and soft seating around small tables are the primary furniture items along with the bar. Easy access to the kitchen by staff is necessary because appetizers, snacks, and even light meals are available in most lobby bars. In the morning, this area is where departing guests might find coffee service available as they wait for a shuttle bus or taxi.

Of course, there will be the bar area itself. The design of the bar is a great creative challenge for the interior designer, as the bar is a focal point in the room. There must be easy access for staff because food service space for appetizers is essential. Service spaces, as well as storage and work areas, are some of the factors that must be considered in the design of the bar. Design concept elements for the bar area itself are detailed in the next chapter.

Hotel lounges and lobby bars are specified with small tables with a height of 25–27″ (635–686 mm) rather than the normal restaurant table height of 29″ (737 mm). Chairs at these tables are usually smaller-scale lounge chairs on casters. Seating is also provided using sofas, loveseats, and club chairs arranged in small groupings. The seating units selected in a hotel lounge are generally movable, since guests will invariably rearrange furniture to bring larger groups together than are normally accommodated in the furniture plan.

Here are several key elements in the design of a hotel beverage facility:

- Access and set-up space is needed for serving appetizers.
- Table heights are 25–27″ (635–686 mm) rather than normal dining height.

- Chairs are often small in scale, although comfortable lounge chairs on casters are also specified.
- Soft-seating groups are also options to accommodate groups.
- Televisions are a common entertainment provision. Seating arrangements need to consider this option.
- Lower light levels are very common.
- Nearly 70 percent of the total square footage should be devoted to lounge seating or a combination of lounge seating and the entertainment area. This is especially important if a dance floor or small stage is part of the lounge.

The design of food and beverage facilities in hotels is an exciting specialty that often gives the interior designer more creative license than the design of other areas of the hotel. Designers should become familiar with all aspects of food and beverage operations and have some knowledge of hotel operations as well. The reader who wants to become involved in the design of a food and beverage space in a hotel is urged to begin by reading the next chapter.

BED AND BREAKFAST INNS

Perhaps it can be argued that the bed and breakfast inn of the last 50 years or so harkens back to when travelers stayed at small inns and taverns before motels and hotels came into existence. The bed and breakfast or B&B of the twenty-first century can be an interesting and delightful change of pace for guests, providing a homier environment than that of generic hotels owned by large corporations. The name comes in part from the fact that they offer breakfast service but no other meals. They are also a challenging project for interior designers. They are known by many names, such as country inns, cottages, B&Bs, and host homes.

Independent hospitality entrepreneurs commonly own bed and breakfast inns. It is uncommon for the owner or management of a B&B to be associated with a branded corporate hotel chain. These smaller and more intimate lodging facilities often previously served as private residences. They can be found in big cities and small towns throughout the world. They are often thought of as a budget option to a hotel, but because some can be housed in classic buildings, they can also be on the high end of pricing and even thought of as boutique facilities.

Bed and breakfast inns are often established in historic districts or older residential areas that have been rezoned for commercial businesses. For this reason, the interior designer and client must pay special attention to the costs and expectations of bringing the building up to local codes from a residential R-3 to a R-1 classification—depending on size—for lodging use. Much structural work is often required, as guest rooms require private bathrooms in many concepts where a bathroom did not exist. Adequately planning a commercial kitchen in a residential kitchen or building that had an entirely different use can also be a challenge for the designers.

This type of facility will have a lobby and a reception desk to welcome guests. The reception desk might be a window into the office or a small counter or table desk. Of course, even the bed and breakfast inn uses computerized reservation and management

systems. The lobby often functions as a living room rather than as a formal lobby, as in hotels. Comfortable furniture in keeping with the theme of the facility is provided, along with possibly a television and a place to write cards and notes or play table games. Storage shelves may be needed for books ands DVDs that guests can check out. A cozy fireplace is also common in the lobby. Although the "B" in B&B does not stand for "beverage," these facilities often offer evening cocktails or wine service to guests. Some have small bars as well, either as part of the lobby or in a separate room, depending on the size of the overall facility.

Interior design budgets for these facilities are smaller than those for a hotel. This is due in part to the added cost of construction changes needed to meet code. The price point for these facilities can be medium to high-end and even luxury rates. Most bed and breakfast establishments combine high-quality interior design and personalized service with guest amenities not found in most hotels—unless the hotel room is a suite. An in-room Jacuzzi, perhaps a front porch, and a fireplace in the room are all welcome amenities. Bed and breakfast inns offer a full breakfast or a substantial continental breakfast as part of the room rate.

Guest rooms require the same basic furniture items specified for any hotel guest room. The rooms are often designed around themes, perhaps with each room having a different theme. In smaller facilities, no two rooms will be alike. This variety challenges the interior designer to find fabrics, furniture items, and accessories for the many different themes. For example, for an inn in a mountainous small town near a lake, one room might have fishing as a theme, another skiing, and so on (Figure 7-26).

Architectural finishes and textiles will have to adhere to current local codes. Properties that have been established in historic structures may have some leeway with codes, but the interior designer should always ensure guest and property safety. The designer does have to remember that a bed and breakfast inn is still a commercial property and that the



Figure 7-26 Suite space with a winter sports theme at The Cottage Inn.
Photo courtesy of the Cottage Inn, Tahoe, City, CA.



Figure 7-27 Themed guest room at The Cottage Inn.
Photo courtesy of the Cottage Inn, Tahoe City, CA.

products selected should meet the maintenance and wear criteria that would be applied to any other lodging property. Accessibility requirements must also be met. The local jurisdiction is likely to require that at least one unit be designed to accommodate the ADA or other applicable regulations in line with the "reasonable accommodation" guideline.

Only larger B&Bs will serve more than the breakfast meal. Meals are served in appealingly designed dining rooms often providing tables and chairs set for two or four guests. This requires planning for at least a small commercial kitchen. Guests are also directed to nearby restaurants to suit the guest's desire for other meals. If the property is made up of individual cabins, guests may also have small kitchens. In this case, guests may have the option of preparing their own meals or having meals served in the room as part of the room rate.

Depending on the size of the facility and its location, the bed and breakfast inn might provide limited recreational amenities. There may be common area amenities such as a sauna, spa, or pool. Guests might choose to hike, horseback ride, play golf, ski, or pursue any number of other activities available either on the property or in conjunction with nearby facilities. Some inns also cater to small conferences, providing the dining room or other spaces for meetings.

A bed and breakfast inn has many variations, and interior design opportunities are as unlimited as the owner's wishes. The interior designer, however, must remember to design with budget, concept, the target market, and applicable codes in mind, just as he or she would in designing a mega hotel.

Summary

The American Hotel and Lodging Association reported that in 2012, $155.5 billion in sales occurred at hotels and other lodging facilities. Lodging facilities were certainly hurt during the recession, as many individuals, families, and business curtailed

travel. Yet this is also a resilient industry and the above figure shows that they are back.

Lodging is an exciting and challenging specialty in commercial interior design. It is also an international industry with projects available all over the globe. Budgets may not always be grand unless a new facility is being built, but budgets exist for remodeling on a consistent level to challenge the designer who specializes in this type of commercial facility.

The interior designer's work must support the concepts and goals of the owner and must coordinate with the architect and other stakeholders. Attention to detail, thoughtful budget deliberations, and careful working habits are necessary for the designer engaged in interior design of lodging facilities. This is also an area of design in which the ability to work with a team is of the utmost importance.

The purpose, goals, and operational objectives of lodging facilities have been discussed in this chapter. Interior design elements and concepts focusing on a generic hotel property with special emphasis on the lobby, guest rooms, function spaces, and recreational spaces such as spas have been provided to explain basic design-planning issues in these areas. A "Design Applications" section was included to discuss a bed and breakfast facility.

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INTERNET RESOURCES

ADA Accessibility Guidelines (ADAAG): www.access-board.gov/guidelines-and-standards

Americans with Disabilities Act (ADA): www.ada.gov

American Hotel & Lodging Association (AHLA): www.ahla.com

APCO Architectural Signs: www.apcosigns.com

Architectural Barriers Act (ABA): www.access-board.gov

Canada Green Building Council (CAGBC): www.cagbc.org

Green Hotels Association: www.greenhotels.com

International Code Council (ICC): www.iccsafe.org

International Hotel and Restaurant Association (IHRA): www.ih-ra.org

Leadership in Energy and Environmental Design (LEED): www.usgbc.org/leed

National Fire Protection Association (NFPA) and Life Safety Code: www.nfpa.org

U.S. Green Building Council (USGBC): www.usgbc.org

CHAPTER 8

Food and Beverage Facilities

Food and beverage facilities serve many purposes for guests. The first is to provide somewhere for them to eat or drink. Patrons also go for socializing, celebrating, conducting business, romance, and even to give the primary meal preparer a break. From the simplest neighborhood restaurant to the most prestigious gourmet facility, interior design plays an important part in the facility's success. The atmosphere desired by the owners is also undeniably important. The following still rings true:

> Restaurant design has become as compelling an element as menu, food, wine and staffing in determining a restaurant's success. . . . To be effective, restaurant design must strike a nearly impossible balance between three competing agendas: that of the guest, who must feel welcome, aroused and transported; that of the staff, which must be able to complete its tasks in a smooth, stress-free flow that allows for maximum hospitality; and that of the restaurant's owner, for in providing all this comfort for guests and staff, there must still remain the proper ratio of selling area to manufacturing space to allow for maximum profit.[1]

Food service facilities provide prepared foods for immediate consumption, either on or off the premises. The beverage portion of the industry provides alcoholic beverages for on-site consumption. Of course, beverage service can also apply to nonalcoholic beverages. This chapter focuses on the establishment that offers both food and beverage service. The beverage section focuses on alcoholic beverage service.

To provide context to the food and beverage industry, a brief review of key historical points begins the chapter. This is followed by an overview of the business operations of restaurants to provide a context to the business of the business. We take a brief look at various types of these facilities, followed by a discussion of the planning and design of a generic restaurant. The "Design Applications" section further describes the design of a full-service restaurant and provides information on the kitchen. A design application discussion of generic coffee shops and a section concerning the design of quick-service

1 Danny Meyer, foreword to Mount 1995, 9. Reprinted with permission of PBC International.

facilities has been added. The chapter concludes with detailed information about the design of beverage facilities.

Historical Overview

In the movie *Shakespeare in Love* (1996), set in the sixteenth century, one scene found the actors in what we would now call a tavern. One of the many spoofs in the film was the board with the special of the day. Until the eighteenth century, citizens who sought food and beverage service went to inns, taverns, and roadhouses like the one portrayed in the movie. Food quality at these early establishments was generally poor.

In the sixteenth century, *bouillon*—a simple soup—was one of the foods considered to be a restorative, or *restaurant*. This French word gradually became associated with establishments that provided food service. In Paris in the 1760s, a man named Boulanger opened a shop to sell food to city dwellers. One of the popular items he sold was bouillon, thus becoming an early restaurateur (Dorf 1992, 12–13).

According to Dorf (1992), cafés, which predated restaurants, first only sold coffee from coffee stalls, and then small shops sprang up in the late sixteenth century. Europeans enjoyed the camaraderie of the cafés, and they became fashionable places to meet friends. Today's coffee shops meet this same consumer demand. The bistro was also a French invention—a place for working men and struggling artists in the late nineteenth century to gather (Figure 8-1). From these humble beginnings, all the various types of food and beverage facilities have developed, from quick, slick fast food eateries to elegant restaurants offering carefully prepared gourmet food in beautiful surroundings.

Many centuries ago, abbeys and monasteries also operated breweries for their own use. The monasteries provided resting places for travelers, offering their beverages to

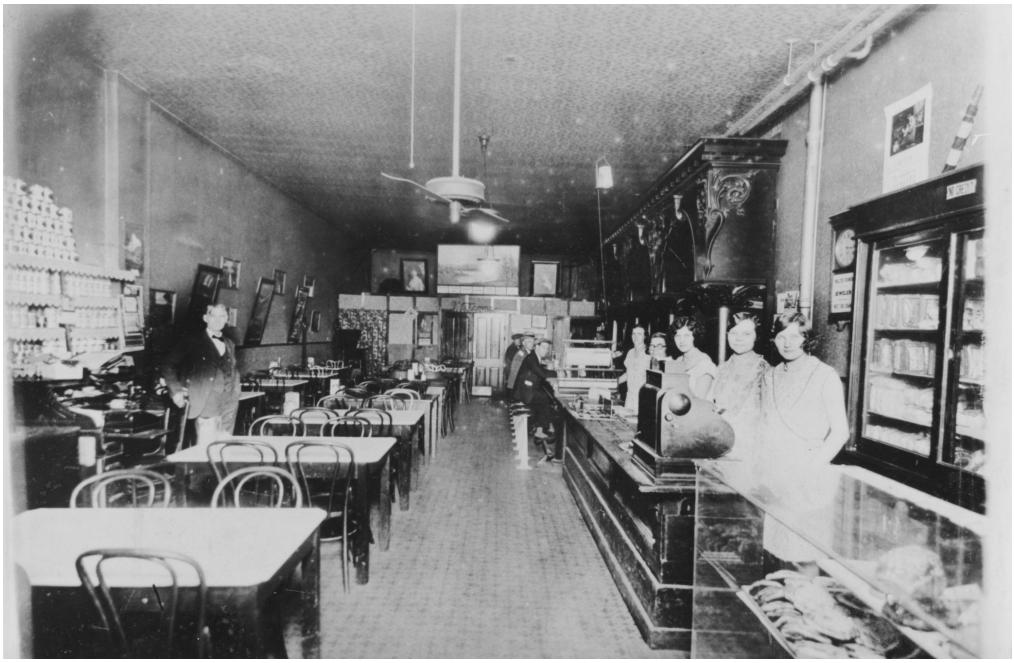


Figure 8-1 Restaurant and home bakery first constructed in the late 1800s and used as a restaurant until the 1940s.
Photograph courtesy of the Nodaway Valley Historical Museum.

their guests. Later, taverns provided beverage service, with food also being served. The serving of alcoholic beverages in inns, hotels, and restaurants spread over time.

In the 1920s in the United States, federal Prohibition laws forbade the consumption of alcohol. However, secret clubs, called *speakeasies,* were established so that customers could still purchase their now illegal alcoholic beverages. After Prohibition ended in the 1930s, the beverage portion of the hospitality industry expanded as people increasingly went out to eat—and drink. Beverage service continues to be part of the hospitality industry as more and more consumers go out for meals, entertainment, and socializing. Inns and taverns where travelers and locals could find prepared food were common in the American colonies and the young United States. Food service in urban areas gradually found its way into hotels as the population centered in the cities in the nineteenth century. As people moved from rural areas to the cities, the demand for increased numbers and kinds of food service facilities during the Industrial Revolution was created.

In the cities, different types and styles of food service developed. City workers required quick meals, and speed of service often took precedence over the quality of food. Horse-drawn carts or pushcarts referred to as lunch wagons were the first attempt to appeal to this market. In the 1880s, these carts—often called diners—became large enough to provide indoor sit-down service of sandwiches, soups, and beverages. Soda shops where ice cream creations were sold, lunchrooms, and cafeterias with a focus on efficiency of production and service were other restaurant ideas created to meet demands in the later years of the nineteenth century and into the early twentieth century.

One solution designed to meet the demands of consumers for fast food during the early twentieth century was the automat, invented by Joseph Horn and Frank Hardart of Philadelphia. The automat restaurant displayed precooked food behind small glass windows (Dorf 1992, 20). Patrons would walk up to the service line where the food was displayed, insert the proper change into slots, and instantly receive their food choice. About the only place one can see an automat today is in the Museum of American History in Washington, DC. Unfortunately, it is not in operation. The reader can also see an automat in operation in the movie *That Touch of Mink*, staring Doris Day and Cary Grant.

The upper classes, however, demanded higher-quality food and an elegant atmosphere. At the fancier restaurants, evening dinners were formal affairs with gloved waiters serving multiple courses. An evening meal at one of these restaurants, like Delmonico's in New York City or the Willard Room within the Willard Hotel in Washington, DC, might take hours to enjoy. Although fine dining was available in the larger cities of the United States, this was rarely true in smaller towns until the mid-twentieth century.

As travel by train and road became more prevalent, travelers also demanded good food at restaurants. Harvey House restaurants, along the routes of the Atchison, Topeka, and Santa Fe Railroad, provided early rail travelers with good food served quickly. Roadside restaurants opened with every kind of food and quality to meet the demands of these travelers. The Howard Johnson chain, with its turquoise and orange color scheme, offered "home-cooked" meals where consistent food quality could be counted on all over the United States.



Figure 8-2 The Windows on the World Restaurant (1976–2001) was located at the top of the World Trade Center in New York City until 2001. Dedicated to all those who lost their lives on September 11, 2001.
Photograph courtesy of Windows on the World.

Other restaurant types developed as the economy, demographics, and demands of the growing baby boomers influenced the industry. Drive-in restaurants, fast food chains, and franchise restaurants became very popular in the 1950s and remain so today. Chains and franchises were created to meet the demand of guests who ate away from home and wanted to count on a specific quality in the food and atmosphere of the restaurant. Patrons knew that no matter where they were, their expectations would be met at the chain restaurants. According to Dittmer and Griffin (1993, 99), the first fast food chain was not McDonald's, which started in the 1950s, but White Castle Hamburgers, which opened in Kansas in 1921.

Tastes in food, preparation styles, and demands of the public continued to change restaurant offerings and design. Today, every conceivable type of food, service style, and design atmosphere exists to satisfy the preferences of the public. Interior designers who choose to specialize in hospitality design and restaurants are challenged to create interiors that set the background for the type of service and food offerings that the owners and chef provide so as to entice consumers to return.

Overview of Food and Beverage Business Operations

Restaurants come and go. It's not unusual to see one of your favorites suddenly closed even after many years of operation. You probably don't even know why. Then again, new ones seem to open monthly. Many of these new ones may be a new franchise location or perhaps a budding entrepreneur trying his or her hand at ownership. Popular ones are full at lunch and dinner, demonstrating the highly competitive nature of this industry. Others are quiet at least some days of the week.

It is a highly competitive business regardless of the state of the economy. In an online article in 2013, the National Restaurant Association reported that there are over 990,000 restaurants in the United States, which did approximately $683 billion worth of business.

A food and beverage facility, or simply restaurant, is also a challenging specialty in commercial design. Restaurants provide some of the most interesting and exciting design work for interior designers. The interior design can be just as important to guests as the name or reputation of the chef. But, of course, the quality of the food is essential to the success of a restaurant.

Before continuing the discussion of the overview, it is important to provide several terms associated with the food and beverage industry:

- *Back of house*: Areas of the facility that are generally not visited or used by guests, such as the kitchen.
- *Banquette*: Booth-type seating built along a wall, configured with a freestanding table and chairs.
- *Beverage facilities*: Those sections of a restaurant or freestanding facility that primarily serve alcoholic beverages.
- *Concept*: The ideas brought together by the owner that serve as the basis of all planning and design decisions for the facility.
- *Deuce*: Term for tables that seat two guests, also called two-tops.
- *Four-tops*: Term for tables that seat four guests.
- *Franchise restaurant*: A restaurant operated under the guidance and requirements of the company that holds the rights to the original concept.
- *Front of house*: Those areas of the facility that are regularly visited and/or used by guests, such as the dining room and bar.
- *Independent restaurants*: Those owned and managed by an individual or investment group and created by the owners' imagination and creativity.
- *Maître d'*: The headwaiter in a restaurant.
- *Seat turnover rate*: The estimated number of times a table will be used in any one day. This will vary greatly based on the type of restaurant and the type of service offered.
- *Single-unit restaurant*: A restaurant that exists in only one location.

The principal goal of a restaurant or beverage facility is to provide food and a level of service in an atmosphere that satisfies guests and encourages them to come back. Concept development and good planning are essential. The owner must decide what level of food, service, and atmosphere he or she desires. The goals for the restaurant are based largely on the guest target market he or she hopes to attract. The interior designer must understand these goals in order to design an atmosphere that supports the intended concept.



Figure 8-3 Main dining room at the Adrift restaurant at Marina Bay Sands.
Reproduced with permission of Wilson Associates.

Goals for restaurants will vary. Of course, all restaurants start with a goal of preparing and serving good food that will be enjoyed by the target customer so that the customer will come back. That food product will be quite different for a fast-service facility versus a full-service gourmet restaurant. Although customers understand that service at a mid-priced family restaurant may be somewhat different than that experienced at an expensive restaurant, the customer still expects good service and good food. Ownership and management must set the concept and tone for these customer expectations.

As customers, we rarely think of the manager of a restaurant—unless we want to make a complaint. As designers, we must work with the manager or management group that will set the policies and make overall operational decisions for the restaurant. To be clear about the business of the restaurant, the manager is responsible for carrying out policies and hiring and training the waitstaff, as well as hiring and working with the chef and kitchen staff. Depending on the restaurant, the manager may also work with the chef to ensure that the proper amount of food is available each day. Sometimes this task is solely the responsibility of the chef.

An employee that guests will likely interact with is the *host* or *maître d'*. This individual greets the guests and shows them to their tables. The host is also responsible for taking reservations and maintaining the appearance of the dining room. In a smaller facility, the host is often the owner or manager (not all managers are owners and not all owners involve themselves in the daily operation of the facility).

Servers or *waitstaff* work directly with the customer, taking orders and serving meals. They frequently are also responsible for the preparation of some food items, such as salads, beverages, and perhaps desserts. As we all understand, the quality of the servers is an important factor in whether a guest returns. Some restaurants also have *busing staff* to clean and reset tables. In a beverage facility, there will also be a bartender and cocktail servers, who will have direct contact with the customer. All of these employees are considered front-of-house staff.

The back of house is the section of the restaurant that the customer generally does not enter. Employees who are primarily back-of-house staff are the kitchen staff and the manager. The kitchen staff includes the chef, specialty chefs, and cooks. There are also support employees, including prep cooks, dishwashers, and, in larger restaurants, pantry workers who assist in pulling foods from storage areas.

Not all the many layers of employees in a food and beverage facility are involved in the decision making for the design of a new facility or a remodeling project. The owner has ultimate decision-making and financial responsibility for the resulting planning and design. Some restaurant owners are entrepreneurs who are very involved in the project from beginning to opening. Other owners are investors rather than day-to-day workers. The on-duty manager may also have some say in the design of the facility. The chef is another important stakeholder. Although the chef is generally more concerned with the kitchen layout, the menu planned by the chef can directly affect the interior design. The design team stakeholders include:

- An architect, who will be involved in the structure and exterior design and may provide interior design services
- The interior designer, who may work for the architect or be an independent designer
- A food service consultant or commercial kitchen designer to work with and plan the back-of-house functions
- Consulting engineers, who provide design guidance in terms of electrical, plumbing, and other functional elements

As you can easily see, a food and beverage facility, regardless of size, is not a project that is executed solely by an interior designer. It is a collaborative project with the owner, architect, and others.

Types of Food and Beverage Facilities

Many in the hospitality business disagree on how to classify the different types of food and beverage facilities. One factor that makes it difficult to classify these facilities is that some fall into more than one category. However, there are several classifications of food and beverage facilities that stand out. The first is by ownership. They are generally either independently owned or exist as a chain or franchise. Another common way to type food and beverage facilities is by style of service:

- Full service
- Fine dining
- Casual dining
- Fast food or quick-service
- Cafés
- Cafeterias
- Food courts

- Buffet restaurants
- Coffeehouses
- Beverage facilities
- Bars and taverns

They can be further classified due to some specialty or emphasis such as a theme, ethnic food focus, or emphasis on the family. There can be other classifications as well.

Beverage facilities are those that primarily serve alcoholic beverages. Some common terms are bar, tavern, lounge, and cocktail lounge. Of course, many food service facilities also serve alcoholic beverages or include a bar as part of the facility.

Ownership is important when determining with whom the interior designer will interact, so let's briefly discuss this point. An *independent facility* is owned and managed by an individual or a partnership that creates the facility on his or her own. Most often it exists at a single location and is sometimes referred to as a single-unit restaurant. The owner or partners generally play an integral part in the operations and activities of the facility. When the independently owned facility becomes successful, the owner may open a similar facility in another location.

Another type of ownership that classifies restaurants is the *chain restaurant*. A chain involves multiple locations of one restaurant concept. It might remain under the control of a small group of owners, like the independent facility, with the original creator and ownership group running each remote location. A multilocation facility can also be a franchise. In a *franchise*, the owners purchase a license to operate the facility under the guidance and requirements of the company that holds the rights to the original concept. The person who buys the franchise—the franchisee—benefits by owning a restaurant that has an established reputation.

The type of service provided is another important factor in the interior design of a food and beverage facility. As you no doubt know, a full-service restaurant has dining seating for customers and waitstaff to serve the meal. A host or hostess will seat customers. This type of restaurant started in the nineteenth century when restaurants began offering meals served by waiters. Full-service restaurants have many themes, which might affect the service style. A *full-service restaurant* can be at any menu price, providing table service to suit anyone's taste and budget. It can also focus on serving families or be more formal and less family oriented.

A *fine-dining* or high-end restaurant is another type of full-service restaurant. These facilities have an increased level of service, superb food, and higher prices. The ambiance of these restaurants also usually reflects higher design or is in some way special compared to many other restaurants. These restaurants have a maître d' to greet guests, captains, and perhaps two levels of waitstaff to take customers' orders and serve meals, busing staff to clean tables, and perhaps even a *sommelier* (a wine steward). Gourmet or *haute cuisine* (meaning "high food") brings customers back. Restaurants such as the Four Seasons in New York City and T. Cook's at the Royal Palms Resort in Phoenix are examples of this type of restaurant.

The *fast food* or *quick-service* restaurant is one with which we are all familiar. Fast food restaurants began as food carts on street corners. Most readers, however, associate fast food with restaurants like McDonald's, Kentucky Fried Chicken (KFC),

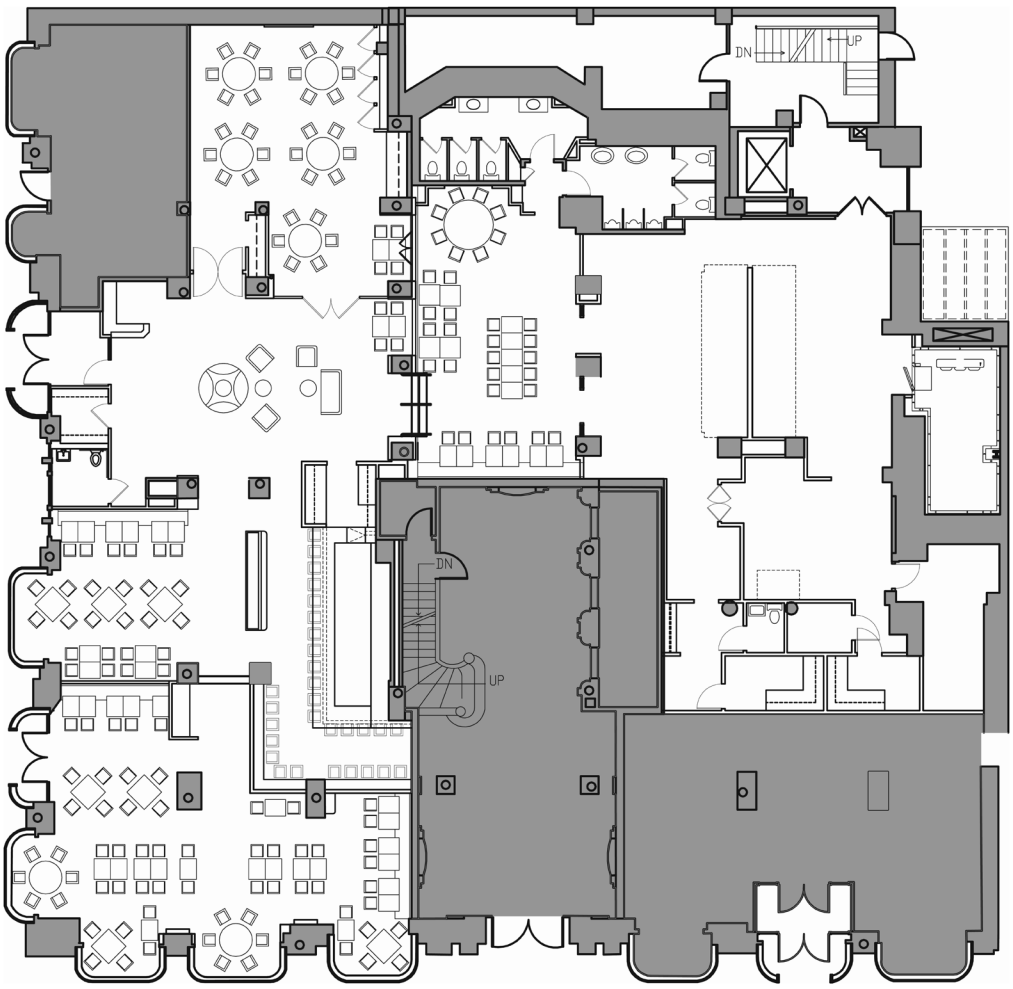


Figure 8-4 Floor plan of the Ceiba Restaurant, Washington, DC. *Drawing courtesy of Interior Architect: IA Interior Architects. Interior designer: Walter Gagliano, ASID.*



Figure 8-5 View of the Ceiba Restaurant, Washington, DC, showing tables set for service. *Photograph courtesy of Interior Architect: IA Interior Architects. Interior designer: Walter Gagliano, ASID. Photographer Ron Solomon © 2004 ron@ronsolomonphoto.com.*



Figure 8-6 A relaxing design for the Garden Café at Sentara Northern Virginia Medical Center, Woodbridge, VA.
Interior design by Huelat Parimucha. Photography by Joseph Parimucha, AIA.

Taco Bell, and scores of others. The interior designer of a fast food restaurant recognizes that the customer will eat quickly and leave after a short time. It must be well organized and, with the chains, the design concept has strong similarities from one location to another. Food courts at shopping malls offer a variety of fast food items, providing shoppers with many options for a quick meal while spending time at the mall. These are technically a combination of a fast food restaurant and cafeteria-style service.

Between fast food and full-service restaurants are those that combine some aspects of both types of specialty service. Cafeterias, buffet restaurants, and family-style restaurants fall into this category. *Cafeterias* are generally those facilities where guests walk along a service line viewing and choosing from a variety of food items displayed in premeasured portions. They take their tray to a table and might be served beverages by a waitstaff employee (Figure 8-6). At a *buffet-style* restaurant, guests serve themselves unlimited portions from the display of food items featured for the day. Again, a waitstaff employee will bring beverages to the guest's table. The third version of this combination service is the family-style restaurant. In this situation, guests serve themselves from platters and bowls of selected items brought to the table by waitstaff.

Planning and Interior Design Elements

The interior design of a food and beverage facility can be divided into two general areas. The front of house includes those spaces the guests will utilize—the entry, waiting area, dining room, restrooms, and bar if there is one. The back of house includes those spaces that the staff uses—kitchen, food storage area, office, and other service areas. Each is critical to the successful design of this type of facility.

Not all interior designers are qualified to plan a restaurant's back of house—especially the complex space planning and equipment specification of the kitchen. Commercial-kitchen design consultants are generally brought into the project as part of the planning team. It is very important that the interior designer and the kitchen designer coordinate space planning, design concepts, and general communication right from the beginning of the project. "If the front of the house is not designed to support the back of the house, or the back of the house is not designed to carry out the concept expressed in the front of the house, then the operation suffers" (Baraban and Durocher 2001, 1).

This overview of interior design elements focuses on the entry/waiting area and dining room. Additional information on each of these elements, as well as on these components in relation to the kitchen and the beverage space in a restaurant, is presented in the "Design Applications" section later in the chapter.

RESTAURANT EXTERIOR DESIGN

The exterior design, signage, and entrance facade can bring instant recognition to a restaurant. The use of signage and a logo in the exterior design can help the guest identify the establishment. The idea of what will be found inside is important to communicate on the outside. The golden arches of McDonald's, the iconic oversized guitar at Hard Rock Café restaurants, and the simple black, yellow, and white exterior of California Pizza Kitchen bring instant recognition and an expectation of food quality and service. Even the price of the food can be conveyed with the signage; it seems that the more expensive the restaurant, the smaller the sign!

Vernacular architecture and symbols have been used to call attention to restaurants. Over time, giant root beer barrels, teapots, igloos, and castles helped owners create identities for their restaurants and helped the customer find a particular place among the competition. In more recent decades, neon lighting and signage have beckoned the guest to the restaurant. The design of the exterior must attract customers and draw their attention away from competing facilities in the same vicinity.

The exterior design has a direct relationship to customer perception and to ultimate success from the customers' point of view. Restaurants along highways will need larger signs than those located along streets with pedestrian traffic. In an urban area, a choice location is on the corner of any building or intersection. Being on the corner provides immediate visibility by pedestrians and motorists from two directions. Exterior lighting helps set the mood for what will be found inside. Bright neon lighting or colored spotlights usually indicate a casual atmosphere.

The entrance facade and door can be key design elements. Canopies call attention to the entrance, providing the needed focal point. The entrance area and door design must help identify the restaurant, distinguishing it from all the others. Door specification must also be done in keeping with applicable accessibility and building codes. The doors need to swing out into the exterior and have a weight that does not exceed any applicable limits in the jurisdiction. Because of building code requirements, revolving doors should not be used unless an additional leafed door or doors are provided. Once guests have gone through the entrance doors, they are ready to enjoy the interior design and the food within!

FEASIBILITY STUDY, CONCEPT, AND MENU DEVELOPMENT

Successful restaurant owners know that in this highly competitive industry, they must first look at the feasibility of their idea. A feasibility study must be done on the market, competition, financial issues, menu, pricing of menu items, style of service, and other factors. All these factors are combined to create the concept—the idea—behind the facility. This concept is very important for the success of a food and beverage facility.

The business concept and menu are critical items in the development of a new foodservice business. The business concept is the responsibility of the owner. "The concept for a foodservice operation is the overall plan for how it will meet the needs and expectations of its intended market" (Birchfield and Sparrowe 2003, 4). The design concept is prepared in conjunction with the business concept or detailed after the business concept has been prepared. The concept is important regardless of the size and complexity of the facility. Obviously, the more complex the restaurant, the more important the concept becomes.

To understand the business of the business, it is important to briefly discuss the concept research generally prepared by the facility owner. The market analysis prepared by the owner or a consultant on business analysis is a very important part of overall concept development. A restaurant idea without a market of potential guests willing to patronize the facility might mean that a great design or menu goes unnoticed, resulting in failure. A thorough market analysis will look at the demographic and descriptive makeup of targeted customers. Demographic factors such as age and income level in the vicinity of the target market are particularly important to research as part of the concept and feasibility study. Another important part of the market analysis is the competition. This research will also tell the owner if there are too many restaurants of a similar kind in the vicinity to support one more.

A part of the market analysis will be research on location. The area demographics will help the owner understand if the type of restaurant he or she wishes to open will be supported by the local population or if patrons must travel to reach it. A restaurant that can be highly successful in one location can be a dismal failure in another.

Food and service style will also be impacted by the location of the facility. Restaurants in the business district and in shopping areas of urban places, for example, find that much of their business will be generated during the lunch period. Shopping malls have eating facilities at many price points, from fast food outlets to full-service lunch and dinner restaurants. Restaurants could provide breakfast, lunch, and dinner service or might focus only on lunch and dinner service.

The style of service naturally has an impact on the concept and subsequent design. A fine restaurant will have the most intense service, as the guests take a long time to enjoy their meal. Any table service facility will mean slower turnover of the guests, and this will impact the revenue of the restaurant. Quick-service or fast food facilities have the greatest turnover. Service style differences will influence the interior design and space planning of the facility.

Another important factor in the concept is the menu. "Food may not be what brings people to a restaurant the first time…. However, food is, in large measure, what keeps people coming back" (Baraban and Durocher 2001, 10). The menu also helps provide the direction of the interior design. "The menu tends to reflect the character and mood of the establishment, not only by which items are being presented but also how those items are represented, the typeface used, the layout of the menu itself, and the colors employed" (Lundberg 1985, 55).

Concepts become stale as new ones emerge, with a common remodeling threshold occurring at about five years. In this highly competitive industry, today's hot concept could be a vacant space in the future if owners do not constantly refine the concept and offerings to remain current and keep customers coming back. Of course, good food is also important! This obviously creates repeat business for the interior designer specializing in food and beverage facilities.

All of these business concepts and research information items will have an impact on the design portion of the overall concept. The design portion of the concept must describe what the total impression or idea for the facility will be to help the owner attract the target market. The overall concept must look at all the factors that will impact the operations of the restaurant, including the location, architectural design, mood (formal or informal), and style of service, pricing, basic ideas on interior design, colors, uniforms, and many other factors. The owners will suggest some of these items, as the designer would not be responsible for setting prices, for example.

The inspiration for the interior and exterior designs might come from several sources. A common starting point is a theme, such as a nautical theme for a seafood restaurant. The concept might reflect a particular region or be inspired by a particular ethnic cuisine. It might be a gourmet restaurant to cater to the luxury dinner guest or a hot dog vendor in a strip shopping center. Whatever the design concept, it must be developed carefully and must be based on a clear idea of what the owner wants to achieve and the kinds of guests the restaurant will most likely attract.

The interior designer and the rest of the design team must be sure that they understand the business concept as the design and ambiance of the facility are planned and specified.

SUSTAINABLE DESIGN

Not all restaurant owners will be concerned about sustainable design as they plan their new or remodeled facility. For some, managing the business for financial success will overtake their thought processes concerning sustainable design issues. Others, however, will have a keen interest and will encourage the designer to plan and specify products to help create an environmentally satisfying facility. The Lied Lodge & Conference Center in Nebraska has made sustainable design and practice a focus of their facility (Figure 8-7).

For a lot of owners, energy conservation and waste reduction are keys to sustainable efforts. Restaurants are huge energy users. Think of all the cooking products needed in the kitchen and the heat they generate. Many use gas for cooking, and this heat adds to the overall energy consumption as the air conditioning systems must compensate for the heat created in the kitchen. Large dining room spaces can necessitate the use of a large amount of lighting to provide the appropriate atmosphere. Not everyone is yet convinced of LED lamps in place of existing lamps.

The interior designer can impact the green environment for food and beverage facilities that are concerned about this issue. Here is just a partial list of green concepts:

- Utilizing furniture that evidences recyclable materials (like reclaimed wood tables)
- Using chairs that are refinished and reupholstered rather than buying new



Figure 8-7 The Timber dining room at Lied Lodge & Conference Center. *Photograph by Tom Kessler Photography, courtesy of the Lied Lodge & Conference Center.*

- Using exposed brick and block walls
- Using exposed overhead HVAC components (no dropped ceilings)
- Choosing colors and finishes that are less likely to mimic the home environment
- Using low-VOC paints and other finishes when possible
- Limiting the use of synthetic materials for furniture and finishes
- Specifying products that require cleaning/maintenance with less toxic cleaners

Many of the Internet sites you find concerning sustainable design in restaurants will relate to basic operations such as waste and energy conservation. Resources such as the Sustainable Restaurant Association, the Green Restaurant Association (GRA), and the National Restaurant Association (NRA) can provide information related to environmental initiatives in the food and beverage industry. Baraban and Durocher (2010) also provide useful design concepts for a green food and beverage facility.

SAFETY AND SECURITY

Safety and security planning in a food and beverage facility relies on many considerations in addition to adherence to the building and life safety code requirements. Guest safety is an issue with the specification of flooring materials. Many flooring materials are beautiful but hazardous. Polished, slick, and glossy floorings should not be used because guests and staff can easily slip on them. Nonslip floorings and carpets are used frequently, though. However, the ease of cleaning must be considered when specifying carpet. Nonslip flooring also needs to be specified behind the bar and around beverage dispensing areas.

Decorative textile and wood treatments on walls need to be treated with fire-retardant chemicals. Wall treatments should also be selected with a thought to cleanliness. Treatments that can collect dust and even airborne grease from the kitchen will make guests wonder about food safety.

Lighting, to be discussed in detail later in the chapter, is another important safety consideration. An atmosphere created with low light levels may be a difficult environment for many guests. Older guests may not be comfortable walking into the dining area and may have trouble reading the menu. Bright lighting levels will encourage louder talking and more gregarious behavior. Thus, the lighting design is not only a design question, but a safety question.

The biggest place for potential dangers in the restaurant is the kitchen. Proper flooring is needed so that staff members do not slip on slick floors. Rubber floor mats or commercial-grade, slip-resistant, hard-surface flooring materials are necessary in the kitchen. Preventing employee injury from the equipment and tools used to prepare foods is another issue. This can be dealt with, in part, by proper planning of the equipment and flow of the production of foods in the kitchen.

A growing trend in food and beverage facilities is the inclusion of security cameras. Management may ask the architect to include cameras that can record sections of the facility—especially those having to do with cash registers and storage—to help prevent theft by employees.

Here are a few other design points the interior designer can easily include to increase security.

- If incremental sales displays, such as wine storage and shelves for souvenirs, are included in the entry, these areas need to be planned to ensure security of these items.
- The manager's office will require a safe so that cash and credit card slips can be transferred to the manager's office.
- The storerooms for alcoholic beverages and foodstuffs should not have windows to avoid a break-in.
- Storage areas should also be away from the employee locker rooms, where pilfered foodstuffs can be easily hidden in lockers.

CODE REQUIREMENTS

The interior designer is responsible for designing the facility using the applicable codes. Remember that the codes that apply will be those accepted where the facility is located, not where the designer works or where the headquarters (of a multilocation facility) are located. The International Building Code classifies food and beverage facilities as Assembly occupancies (A-2). The Life Safety Code also classifies these facilities as assembly occupancies. Additional restrictions may apply depending on whether the facility is a freestanding building or within another structure such as a hotel, shopping center, or office building. Another factor that can impact the layout and design is whether seating used will be chairs, booths, or be otherwise fixed.

Codes will impact the spacing of traffic patterns, space between tables, and what materials can be used on upholstered goods, walls, and flooring, to name just a few

things. For example, there are greater restrictions related to traffic paths of dining areas with fixed seating than areas with movable seating. It is the interior designer's responsibility to understand which model codes are in effect for the specific location and type of facility, and make planning and specification decisions in accordance with those codes.

Codes will also affect the amount of square footage required. Remember that the allowances mentioned are used to calculate load factors for the number of occupants, not the actual square footage required for the dining room or kitchen. Most codes allow an occupant load factor of 15 square feet (1.39 square meters [sq m]) or less per person for seating areas, depending on the exact application and use of the space. This provides space for aisles and small wait stations, but not for restrooms, beverage areas, the entry, and the waiting area. This seating allowance may be satisfactory for a small restaurant with casual service, but it may be very low for a high-end facility. Restaurants with fixed seating will have other requirements. Commercial kitchens require a minimum of 200 square feet (18.6 sq m) per kitchen staff member.

The building and life safety codes affecting assembly occupancies will also vary according to whether the facility is new construction or a renovation of an existing building, and whether it is a single occupancy or part of a mixed occupancy. Flooring materials and wall finishes—especially in exit access corridors or other exit areas—are also regulated.

Restaurants must be designed with health department regulations in mind. The majority of these regulations affect the kitchen and food preparation areas, and some may impact the specification of materials in the dining room as well. Display kitchens, salad bars, or buffet bars in the dining room will impact other design decisions in the dining room.

Several accessibility regulations will also potentially impact the design of the restaurant and beverage facility. People wanting to enter the restaurant must be able to do so unimpeded. Traffic paths must be wide enough (generally 36″ [914 mm]) to allow passage into and through the restaurant. A portion of the tables or other seating, generally 5 percent, must be made accessible when booths and other fixed seating are included. The traffic paths to the restrooms must also be readily accessible. Care must be taken by the designer and owners not to include too many tables, making it difficult, if not impossible, for someone in a wheelchair to move through the dining room. Explanations of other specific regulations can be obtained from ADA.gov.

Codes require that restroom facilities be provided in all food service and beverage facilities. The size and number of these spaces will be determined by the occupant load and called out in the appropriate building code. The building codes will also determine the number of fixtures in toilet facilities for the public and employees. The building code and ADA guidelines will determine how many stalls and lavatories will have to meet accessibility standards. Design application information on toilet facilities is provided in Chapter 2.

SPACE ALLOCATION AND CIRCULATION

Is your client's project a neighborhood family-style ethnic restaurant with a small lounge as well as a dining room? Perhaps you have been hired to design the interior of a coffee shop offering small bakery items. Or does your restaurant project, located near an upscale resort, have the potential to be a four-star, gourmet full-service restaurant featuring an elegant interior with a cigar lounge? The type of restaurant, style of service,

menu, and location will all impact the space allocation of the facility. That is because each situation will require different amounts of space for the functional areas.

The revenue-producing areas of the restaurant are, of course, the dining room and the beverage facility. The space allocation of these areas and the impact of the related codes are critical for revenue success. The bottom line is not solely based on a terrific concept or theme. It is also a well-planned service structure in the ideal location and an appropriate menu. The bottom line relates to filling the restaurant, and that means providing sufficient table seating in the dining room and lounge to generate revenue.

Restaurants have essentially the same space needs, regardless of their type. An entry and possibly a waiting area, the dining space with wait stations, public restrooms, the kitchen, and other back-of-house spaces are needed whether the facility is a fast food outlet or a gourmet restaurant (Figure 8-8). Additional spaces—such as a lounge where alcoholic beverages are served, room for a salad bar or display kitchen, and possibly other spaces to meet the business concept of a specific facility—may be part of the space distribution.

The space allocation for entry and waiting areas varies widely. Depending on the climate, a vestibule may be needed and must be planned to meet accessibility standards. The host or maître d' podium must be easy to find, and designers often use it to create a focal point in the entry/waiting area. In order to use as much space as possible for dining room seating, some restaurants do not provide an actual waiting area. An upscale restaurant will rarely provide seats for waiting guests, expecting them to wait in the bar. In a chain restaurant, there is commonly a waiting area with chairs or benches for guests waiting for a table. A quick-service facility will have no actual waiting area. Instead, it will provide queuing space for the lines to form before the cash registers. Thus, it is difficult to provide a rule of thumb on space allowances for this area. However, approximately 8–10 square feet (.7–.9 sq m) are allocated for each wait-seating space.

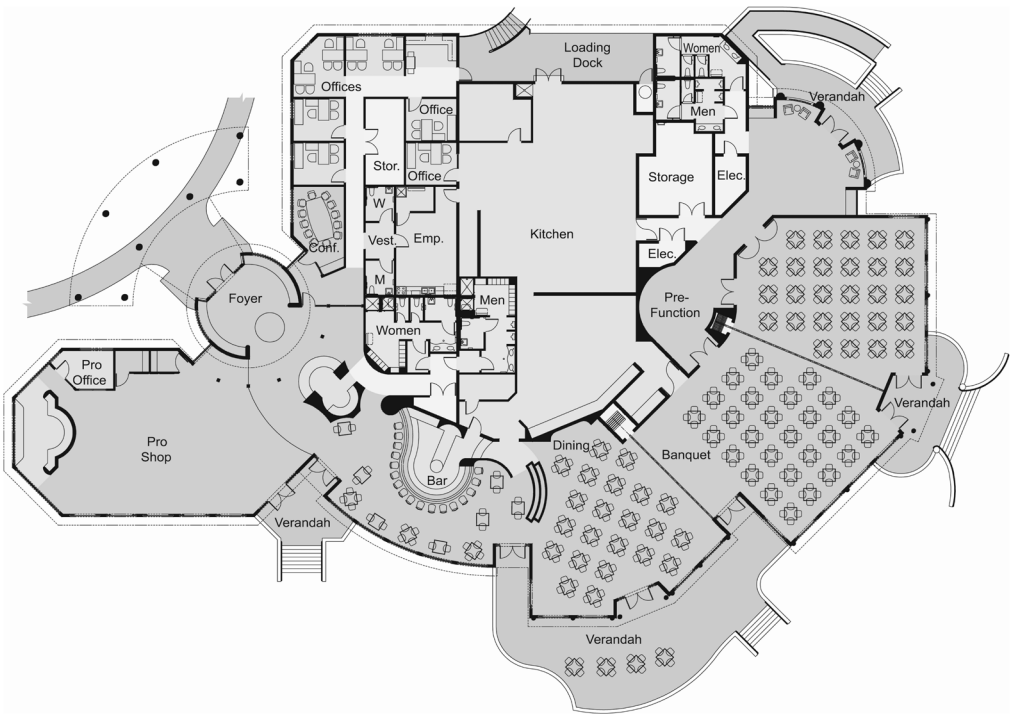


Figure 8-8 Floor plan of the Mystic Dunes Restaurant and food facilities. *Plan courtesy of Burke, Hogue & Mills.*

The dining room space allowance is defined by the business concept and is planned based on the combination of table sizes, shapes, and even the chairs themselves. Tables can be closely spaced and very open in a noisy quick-service facility, or intimate with tables spaced farther apart than even code requires. The dining area will also need space for wait stations and traffic paths. The allowance for the bar and lounge seating area obviously impacts the dining room space. However, because bars generate more revenue per square foot than dining space, the trade-off is an important consideration. All these factors will impact the number of seats, which impacts potential revenue.

Baraban and Durocher (2010, 110) recommend the following square footage (sq m) allowances for dining areas per seat: 16–20 (1.5–1.9) for full service, 13–16 (1.2–1.5) for family style, 10–14 (.9–1.3) for quick service, 12–18 (1.1–1.7) for buffet, and 12–15 (1.1–1.4) for cafeterias. An upscale restaurant will allow a little more per seat unit than the full-service allowance.

Depending on the type, service style, and concept of the restaurant, the main circulation space should be 3–5′ (914–1524 mm) wide. Circulation space between tables will vary, depending on the arrangement of the tables. Figure 8-9 shows standard allowances. In addition to circulation space, the designer must plan for activity space—that is, space that allows the wait person to stand at a table and not in the circulation space. The allowance for this space is 18–30″ (457–762 mm). Mid-priced table service and upscale restaurants in particular place tables and other seating arrangements with more generous spacing between them to give the feeling of privacy.

The size and shape of tables will impact the number of seats and total space allocation of the dining room. Tables that seat four people—called *four-tops*—are commonly 30″ by 30″ (762 mm by 762 mm) or 36″ by 36″ (914 mm by 914 mm). Tables that seat two guests—called *deuces* or *two-tops*—can be different sizes and are generally rectangular

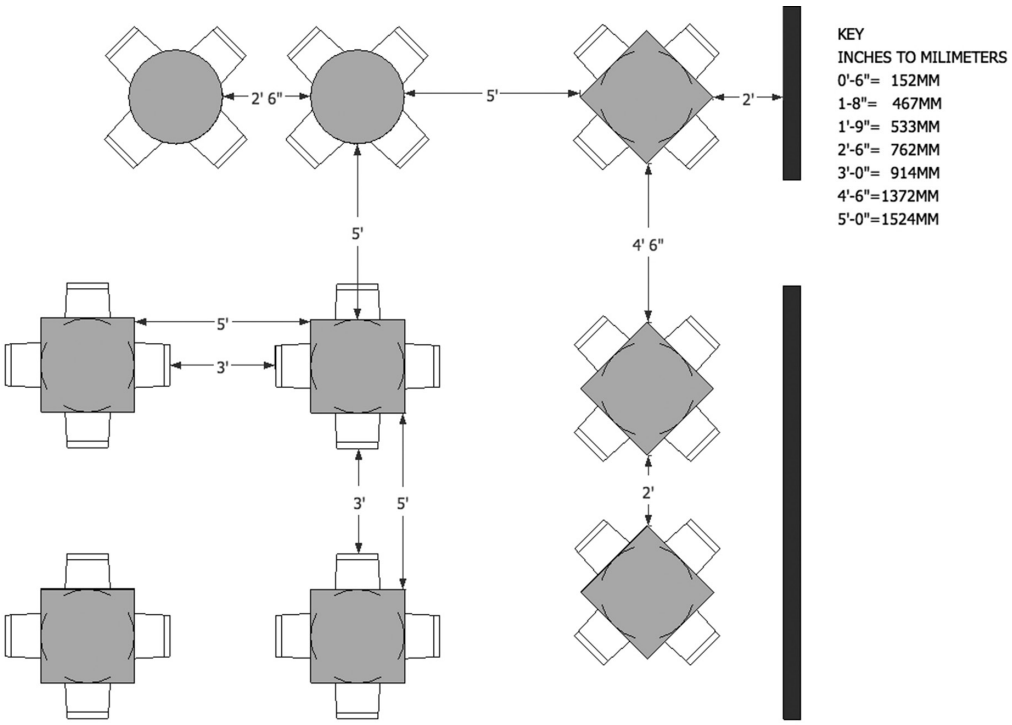


Figure 8-9 Dining room layout indicating typical traffic aisle spacing between tables. *Drawing by Esther Gonzalez, ASID.*

tables that are 24″ by 30″ (610 mm by 762 mm) or 30″ by 36″ (914 mm by 914 mm). Some restaurants use large round tables for big groups or purchase tables with a foldup section that converts a square table to a round one. Square tables placed diagonally offer more efficient arrangements than tables placed at right angles. Table and chair seating in the dining room takes up more room than banquette seating, which is less private and more appropriate for conversation and people watching.

The use of booths and banquettes also affects seating and space allocation. Many customers prefer booths because of their "psychological" privacy. Booths are usually designed to seat four or more people and, from a business standpoint, are economically inefficient when used by only one or two people. Banquettes have an advantage in that they can be a series of two-tops and can be combined to accommodate larger parties. Building codes restrict minimum square footage allowances on fixed seating units that include fixed tables in food and beverage facilities. The interior designer needs to check the applicable codes when planning to utilize any kind of fixed seating. The space allowance for booth and banquette seating is shown in Figure 8-10. Approximately 1′ (.34 meter) is a comfortable distance between tables at a banquette—a continuous bench along a wall with tables and chairs across from it.

Another space allocation consideration in the dining room is for wait stations. Also called a service station, *wait station* is the term for the area required for storing clean and dirty dishes, glasses, coffee service, and other items. On average, one small wait station of approximately 2′ by 2′ (610 mm by 610 mm) is recommended for every 20 seats, and one large station of approximately 8′ by 30″ (2438 mm by 762 mm) for every 50 seats. Point-of-sale (POS) computers can be added to the wait stations or planned in other dining room locations.

If the restaurant has a bar or lounge, different space allocation criteria will be necessary. Beverage areas include the bar itself, the back bar, room for seating at the bar, and

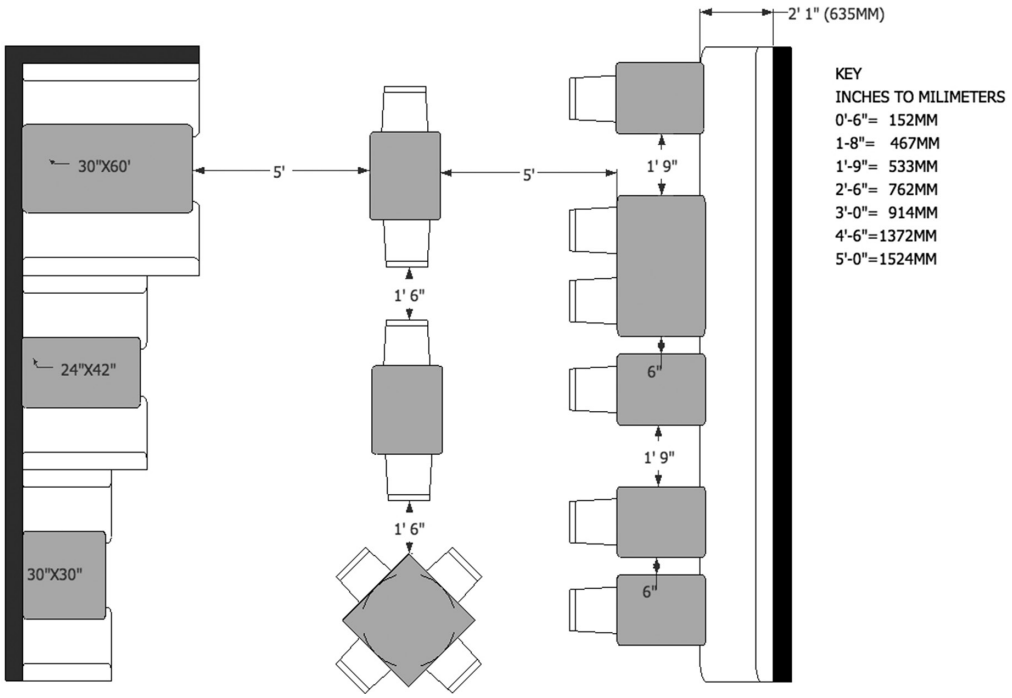


Figure 8-10 Typical spacing when planning booth and banquette seating.
Drawing by Esther Gonzalez, ASID.

any other seating or activity space, such as a dance floor in the beverage area. Beverage areas usually require 8–10 square feet (.7–.92 sq m) per person, plus the space for the bar and back bar, plus traffic space along bar stools. The standard allowance for seating at the bar is 28″ (711 mm) per stool horizontally along the bar. There is no rule of thumb for the bar and back bar because they can be designed in so many ways. According to McGowan, the front bar can be 28–38″ (711–965 mm) deep, the work activity zone between the front and back bars can be 30–36″ (762–914 mm), and the back bar can be 24–30″ (610–762 mm) deep (McGowan 2004, 388).

The designer must work with the owner and bar manager to determine the kind and size of equipment, amount of bar seating, and amount of storage at the bar to determine the estimated space allowance for this part of the beverage facility. Finally, an allowance of approximately 10–15 square feet (.9–1.4 sq m) per person for lounge seating will be needed, depending on the size of the table and the style and size of chairs.

Because of the variations in the type of service and the complexity of any establishment's menu, there is no standard rule for the size of the kitchen as a percentage of the overall size of the facility. A fact of life is that most commercial kitchens are designed in minimal square footage so as to maximize dining room space. The amount of space required for the kitchen areas depends on the type of facility, the menu, the number of seats desired in the dining room, and the expected number of meals in a day. One rule of thumb is that the kitchen area should be about one third the size of the dining room (Baraban and Durocher 2010, 43). This ratio will vary based on the experience of the kitchen planner and the needs of the restaurant. Other experts say that the rule is 40 percent kitchen to 60 percent dining room (Birchfield and Sparrowe 2003, 91). When the menu items are primarily fresh food—meaning that the restaurant is receiving each day's food in the morning—more space will be needed for the kitchen. Restaurants using more processed foods may be planned with smaller kitchens. Table 8-1 provides space estimates for the kitchen's functional areas. Additional information on planning all of these areas in a food and beverage facility is provided in the "Design Applications" section later in the chapter.

Table 8-1 Space Estimates for Kitchen Functional Areas

Functional Area	Space Allowed (%)
Receiving	5
Food storage	20
Preparation	14
Cooking	8
Baking	10
Warewashing	5
Traffic aisles	16
Trash storage	5
Employee facilities	15
Miscellaneous	2

Source: From Kazarian 1989, 243. Reprinted with permission of John Wiley & Sons, Inc.



Figure 8-11 Restaurant seating area at the Decatur Country Club. The wood chairs provide a casual appearance to this facility. *Interior design by Phyllis Moore, FASID, RID.*

FURNITURE

Let's begin with a few comments about furniture in the entry and waiting area. A common solution for any seating furniture in the waiting area will be to use benches. Benches are more common than chairs, as they provide more seating in the same amount of space. Also, they can't be moved, cutting down on the labor necessary to keep the waiting area neat. As the price point of the restaurant goes up, the likelihood of the benches being upholstered also increases. If chairs are used, they will be the same as or very similar to those used in the dining room. A stationary furniture item in the waiting area is a counter or podium for the host or maître d'. This is often a custom-designed unit large enough to accommodate the seating chart of the dining room and lounge, a telephone, and space for the wait list or reservations book.

In a full-service restaurant, guests like to have their choice of seating in the dining room. Combinations of tables, chairs, booths, and/or banquettes are used to provide these options and still meet the seating goals established by the business and design concepts. There are many choices available to the interior designer in the specification of furniture items to meet the design concept. Interior designers also have the option of designing custom tabletops with the use of resin coatings.

Tables are square, rectangular, and round, and they can seat anywhere from 2 people to groups of 8 to 10. Table sizes, commonly referred to as tops, refer to the number of people who can be accommodated at the table (Figure 8-11). Tables should also be sturdy, with bases that are easy to keep in balance and sufficient leg room for the diners. Tables are typically 30″ (762 mm) high, whether at a freestanding table setup, a banquette, or a booth. Squares and rectangles are best; they can be arranged to accommodate a large group that wants to sit together. Common table sizes are

For One or Two Guests

- 24″ by 30″ (610 mm by 762 mm) rectangular table
- 24″ by 36″ (610 mm by 914 mm) rectangular table
- 42″ by 48″ (1067 mm by 1219 mm) rectangular table
- 30″ to 36″ (762 mm to 914 mm) round table

For Three or Four Guests

- 36″ by 36″ (914 mm by 914 mm) square table
- 40″ by 40″ (1016 mm by 1016 mm) square table
- 30″ by 48″ (762 mm by 1219 mm) rectangular table
- 36″ by 48″ (914 mm by 1219 mm) rectangular table
- 42″ to 48″ (1067 mm to 1219 mm) round table

For Five or More Guests

- Restaurants will generally combine smaller tables to accommodate larger groups, rather than use large tables.

Seating in a restaurant is planned with the comfort level and ambience defined in the concept. The style and type of seating will be influenced by the style of service and price point of the menu. For example, in a luxury or upscale restaurant, comfort should be considered along with style, as diners will linger over dinner longer. It is also a major investment, and only good to high-quality commercial-grade seating should be specified. Chairs, even in high-end restaurants, are usually armless—although there are exceptions. Armchairs provide more comfort, but they take up more space, which should be considered. Simple fixed stools or movable hard-surface pieces are used in a fast food or casual-dining restaurant. Chairs should have a height from the floor to the top of the back of no more than 34″ (864 mm), and a seat height of 18″ (457 mm).

Banquettes and booths are other seating options. This seating usually involves a custom design. The seat and often the back of the banquette are upholstered (Figure 8-3). Tables in the banquette area can be combined to create seating for larger groups. Booths take up less space than the same number of seats at a table but are more difficult to maintain. They were once used primarily in lower-priced restaurants, but they have become quite popular in upscale facilities since they seem to provide more privacy. Much can be done with the design of the booth, giving the interior designer additional options.

Custom millwork and cabinets are designed for screens or dividers, wall treatments, wait stations in the dining room, and the bar in the beverage space. Other custom cabinetry may be required, depending on the concept and theme. For example, counters and cabinets to hold displays of food are used in some restaurants. Cabinets may also be needed for the display of souvenir T-shirts or other items in the entry.

Most restaurants today utilize point-of-sale (POS) computers or handheld wireless terminals for order entry. The POS computers require a counter space of approximately 24″ by 24″ (610 mm by 610 mm) and should be placed at a stand-up height. A touch-screen rather than a keyboard is part of the special design of these computer terminals. They can be programmed to provide not only ordering information to the kitchen, but also useful data for the manager and owners. Computer ordering allows precise inventory control, as well as reports on the types of food most commonly ordered by customers.

MATERIALS, FINISHES, AND COLOR

Materials and finishes in the front-of-house areas will naturally express and complement the design concept. Let us first look at some design considerations for furniture items and then architectural finishes.

Seating units have multiple materials and finish options. Chair frames can be obtained in wood, metal, or even plastic and can be finished in many colors and finishes. Fabrics for seating units also vary with the style and type of restaurant. Easy-to-maintain vinyl and hard-surface materials are common in fast food and lower-priced full-service restaurants, whereas higher-end restaurants will use textiles. Whatever textile is used on seating, the designer must keep in mind soiling, food spillage, ease of maintenance, abrasion resistance, snagging, and pilling. Seating takes a lot of use and abuse (so the owner hopes), so the type of material used on the seating unit must not only work aesthetically but be able to handle the expected upkeep. Fabrics with loose or floating threads may appear elegant but are easy to snag and should be avoided. Tightly woven fabrics come in many textures and patterns to meet the needs of the design concept. Only commercial-grade vinyl upholstery should be used when this type of material is needed for cleanliness.

Upholstery fabrics on seating units are regulated by local codes. Specific fire-resistant materials may have to be used on seating units in dining and beverage areas depending on the local codes. Some states require the whole seating unit to meet CAL 133 or similar fire-safety regulations.

There are many choices for tables as well. Wood tabletops without lines are warmer than those finished in plastic laminates. However, wood is harder to maintain and subject to damage by wet glassware and food spills. Plastic laminate tops are easy to maintain and take a lot of abuse. Resin-coated tops are one way to have a wood table finish without the problems of abuse and high maintenance. Many designs can be incorporated into resin tops, although this is an older style that some find to be too busy. Table bases can have wood or metal legs, a pronged pedestal, or a bell pedestal. Interior designs combining tabletop choices with the bases are a functional as well as an aesthetic specification.

There are numerous choices for architectural finishes. These choices have limiting factors such as initial cost, meeting code requirements, and ease of maintenance. The designer will need to decide if the wall treatments are to be a focal point of the interior design or a backdrop. Paneling and moldings can add a traditional touch to the interior. Textile wallcoverings should be selected with care, as they will require a higher standard for fire safety. Wallpapers and other wall finishes should be commercial grade to hold up to the wear and tear. Painted surfaces should be semigloss or high gloss for

easier cleaning. Many designs in full-service restaurants include chair rails to help to protect the walls from the backs of chairs. Whatever material or type of finish is applied to the walls, ease of cleaning and resistance to damage are important factors in their specification. All of these hard-surface materials for the walls increase the sound level of the restaurant, so other surfaces or treatments might be needed to cut down on the noise.

Wall finishes will also be required to meet Class A, B, or C standards based on the location of the wall areas and the building classification. As always, textile wallcoverings must meet Class A standards if the jurisdiction will allow them at all.

There are many options for flooring materials in the dining room. Materials will be specified to meet the overall concept as well as provide easy maintenance. Here are a few tips about flooring materials:

- Changes in flooring surfaces can help the traffic flow and direction.
- The main traffic aisles in a large dining room might be finished in a material different from table area.
- Use medium-sized or multicolored patterns to add interest and hide traffic paths when using carpet.
- Carefully consider the specifications for carpeting in dining rooms because soiling and spotting can look distressing to customers.
- Carpets need to be tightly tufted with a short pile to allow easy movement of chairs and possibly carts.
- Nylon and nylon-wool blends are especially good for restaurant carpets, since they stand up to frequent cleaning.
- Hard-surface and resilient materials will be noisier. If they are used, they should be slip resistant.
- Extra maintenance will be required for wood flooring because chair and table legs and general traffic can scratch it.
- Commercial-grade vinyl and composite tiles are appropriate in lower-priced facilities.

Color is an easy way to convey themes and concepts in a restaurant's design. Yet neutrals provide a good background for textiles and accessories. When designing a restaurant, Baraban and Durocher (2010, 80) report that "color cycles literally move around the color wheel, gradually shifting from the cool colors to the warm colors and back again, with each trend enjoying a lifespan of about eight years." Unexpected color choices can be very exciting for some restaurants, and they can provide a more formal feeling in others. For example, consider mauve and gold in a Chinese restaurant. This interior combination creates a more formal feeling, which may bring a different client to the restaurant. However, bright primary colors in a formal restaurant will seem out of place because they encourage fast turnover—something not expected in this type of restaurant. "Color influences the length of stay along the lines of contrast, particularly value: the higher the contrast, the shorter the average length of stay" (Kopacz 2004, 236).

Remember that color specification and lighting design go hand in hand in a restaurant, as well as many other types of facilities. Lighting specification can make a great color scheme a success or failure, as the variations in lamps and fixtures will affect the perception of colors. Because colors are perceived differently under different lighting conditions, the successful restaurant must be designed with these two elements in unison. This concept provides the transition to discussing lighting design, the main mechanical system often under the prevue of the interior designer.

MECHANICAL SYSTEMS

Lighting design combines the aesthetic selection of fixtures with the light levels those fixtures produce. Lighting in a restaurant can be complex, and most interior designers do not have the in-depth knowledge of lighting technology to plan the lighting design. Thus, it is common for a designer who has specialized in lighting design to be part of the design team for many restaurant projects. The lighting designer might work for the architectural or interior design firm or might be an outside consultant specializing in this highly technical area. Of course, interior designers who may be retained to design a food and beverage facility should have some understanding of the importance of lighting design in this application.

Appropriate lighting is a very important part of the overall design of any type of food service facility. In fact, many experts consider lighting to be the single most important element in the interior design of a successful food and beverage facility. Consider how you might react in the following facilities: a brightly lit fast food restaurant versus a formal restaurant with reduced light levels via wall sconces and low-watt spotlights where you have had a special dinner. Two different restaurants with two different lighting treatments create environments that put you, as a guest, in a different mood and may even affect your behavior.

Lighting design plays many important roles in a restaurant. It must provide sufficient light for safety and function. For example, guests should be able to read the menu without needing a flashlight, and although this may seem facetious, it sometimes seems literally true for older diners. Lighting design must help set the appropriate mood. For instance, high levels of light (think fast food restaurant) set the wrong mood for a high-end adult-oriented facility—and vice versa. Lighting design also affects the appearance of food. Finally, good lighting enhances the appearance of the guests. "When people feel attractive, they not only enjoy the environment more but also tend to return for repeat visits" (Baraban and Durocher 2010, 78–79).

Three types of lighting are commonly used in the design of dining areas: indirect ambient, accent, and sparkle lighting. *Indirect ambient lighting* provides overall lighting to permit comfortable movement and functioning in the space. Cove lighting, direct and indirect fixtures, and spotlights can all be used together to achieve the overall lighting required by a specific design concept. *Accent lighting*, such as provided by wall sconces, can highlight accessories and add interest to the space. *Sparkle lighting* is produced by a variety of light sources that create special effects both in providing true lighting and in setting the general mood. Pinpoint lights, light reflected off mirrors and glass, and low-watt fiber-optic lights can produce sparkle. A few types of restaurants will also need some type of *performance lighting*. Refer back to Chapter 7 for comments on performance lighting.

Lighting levels will be based on the activity in any area of the restaurant. The minimum recommended light level in the dining area of high-end, intimate-dining, full-service restaurants is 5 to 15 foot-candles. This would increase to 75 to 100 foot-candles in a fast food restaurant. Table 8-2 indicates the lighting levels in other areas of the restaurant. The dining room, entry, and bar should be on a dimming system to allow changes in lighting levels throughout the day.

Numerous types of lighting fixtures can be used in this type of facility. Pendant fixtures have been very popular. Pendant fixtures over tables can be hazardous and are often placed high or replaced with ceiling downlights. Another issue with pendant fixtures is that tables may have to be rearranged for large groups, and then pendant fixtures may end up in awkward places. In many full-service and intimate-dining restaurants, fixtures that use various kinds of incandescent lamps remain popular.

Incandescent lamps are very flattering to both people and food. With the elimination of incandescent lamps, facilities will need to change to light-emitting diode (LED) lighting in existing fixtures or replace the fixtures. LED lighting comes in many colors, gives off more light than an incandescent lamp, and costs less to operate. Many other new types of lighting fixtures can be used to provide functional and aesthetic lighting of a food service establishment. Note the interesting lighting designs in Figure 8-3, Figure 8-13, and Figure 8-14.

Energy efficiency is an issue in the design and specification of lighting for restaurants that want to use sustainable practices. In some jurisdictions, the restaurant may be limited in the number of watts per square foot that the fixtures can produce. This may call for some extra planning to meet the design concept needs. Energy efficiency can also be affected by the need to limit the use of incandescent lighting—which is warmer in color—due to the fact that it is also warmer in temperature and uses more power than compact fluorescent lamps. An incandescent lamp produces more heat than a fluorescent lamp, which, as mentioned above, could mean an increase in HVAC needs. However, fluorescent lamps are not particularly attractive light sources in restaurants that have a subdued atmosphere. Of course, incandescent lamps are being phased out.

Table 8-2 Restaurant Lighting Levels in Foot-Candles (FC), by Area

Area	Minimum FC
Receiving	25–45
Storage	15–20
Pre-preparation	20–30
Preparation/production	30–50
Warewashing	70–100
POS/cashier	35–50
Intimate dining	5–15
Fast food dining	75–100
Dining room cleaning	30–50

Source: Baraban and Durocher 2001, 119. Reprinted with permission of John Wiley & Sons, Inc.

Each country has different standards in this regard. These are the factors that influence the lighting designer in the specification of lighting for a food and beverage facility.

Noise or acoustics level is another issue related to mechanical systems that can be impacted by the interior designer. Restaurants can be very noisy places. A lot of noise is expected in fast food restaurants, but many other types of full-service facilities are also noisy. Almost everything that goes on in a restaurant adds to the noise level of the facility. Guest traffic, chairs moving, servers taking orders and delivering food to the guests, kitchen noise, and even the background music or entertainment provided all add to the acoustical potpourri of the environment. Ceiling treatments that absorb sound and carpet on the floor can provide the most acoustical control. Space planning that divides the dining room into smaller sections with the use of partitions can reduce noise to some degree. However, to be most effective as an acoustical treatment, the dividers must reach the ceiling. This can detrimentally affect the visual impression of a facility. Choosing fabric rather than vinyl or hard surfaces for seating units and using tablecloths to reduce the sounds of dishware and utensils are other techniques that will help reduce overall noise levels.

Other design elements that can also reduce noise from the large expanses of wall surfaces include acoustical panels and baffles made of sound-absorbing acoustical materials covered with fabrics that meet code requirements. High-quality acoustical ceiling treatments and low-volume sound systems are also useful in masking the unpleasant noises that can occur in a restaurant. Careful consideration of where the service islands are located, where dirty dishes are stacked, the location and baffling of kitchen doors, and even the use of electronic ordering systems rather than waitstaff shouting orders will help reduce noise.

Design Applications

Successful restaurants are developed and designed utilizing a complete concept package. The exterior design is eye-catching, the interior is inviting and pleasant for the type of restaurant and style of service, and the menu offers a delicious variety of food. The establishment is also located to attract guests, and the price of the food is in line with the qualities already mentioned.

The interior obviously plays a key role in the success of the restaurant. However, a great interior with terrible service and disappointing food will not bring back a guest. The design concept establishes the elements that will be used and sets up a progression from the exterior through the interior. The design concept elements must coordinate with the exterior design and flow from the front entry through all the public areas of the facility.

Generic design-application information will now be presented for a full-service restaurant. There will also be a brief discussion of design applications for a coffee shop and a quick-service facility, both of which are popular food and beverage facilities today. A design application section will also be presented later in the chapter on a generic beverage facility, often referred to as a bar.

GENERIC FULL-SERVICE RESTAURANT

This section discusses a generic full-service restaurant that caters to adult dining guests. It is outlined to take the reader from the entrance, through the dining room, and back

into the kitchen. Interior design elements of space allocation, furniture specifications, colors and materials, mechanical interface, and codes are all discussed.

Entry and Waiting Areas

The entry provides the first impression to guests of the restaurant. Whether the entry is a large space with room for waiting and an easy-to-find maître d' station, or a crowded small space, the entry conveys a message to the guest. The design of the entry will impact the guest's expectations for the restaurant and will be tied carefully to the concept of style of service. The entry also provides an important transition from the outside to the interior environment and serves as a transition space to the dining area.

There are many activities that commonly occur in the entry:

- Arrival and departure of guests
- Access to restrooms that might be positioned off the entry
- A coat check in some upscale facilities
- Seating for waiting guests
- Host or maître d' podium or desk
- Payment area, depending on style of service

There are some other functions that might be housed in the entry and waiting area. Many restaurants have turned waiting areas into incremental sales areas. The sale of T-shirts and other restaurant souvenirs is popular at many theme restaurants. Upscale restaurants may make a wine display part of the waiting area design.

Materials and colors selected for the entry set the stage for what the patron will experience in the dining room and beverage area. Architectural surfaces are selected with maintenance in mind. Slip-resistant flooring or walk-off mats are needed at the entry doors. Hard-surface materials are generally used in the other parts of the entry and waiting area. The materials and finishes used in the entry must meet the same code requirements as those in the dining room and beverage area.

Restaurant designers commonly state that restaurant lighting is similar to theater lighting. The lighting specification and design in the entry set the stage for what is to come. Thus, the lighting in the entry will add to the first impression of the design of the dining room. Ambient lighting will provide the overall lighting needed in the entry. Spotlights or task lights are added at the host podium.

Dining Areas

The planning and design of the dining room is an exciting challenge for hospitality designers. The design concept and business concept will drive the final design, but the design options are numerous regardless of the necessary limitations. The interior designer will likely start the schematic design process with the space plan of the dining room and adjacent activity areas.

The number of seats required by the owner is the starting point for this planning. However, the maximum number of seats will be impacted by codes based on the square footage and footprint of the restaurant. Remember that the number of seats impacts the potential income of the facility so that the space plan of the dining area is critical.

Interior designers often use full-height or partial-height walls to create smaller "dining rooms in a dining room." These smaller spaces can create a more intimate dining room and provide some acoustic control in a large facility (Figure 8-12 and Figure 8-13). Incorporating banquettes along curved walls also creates secluded spaces for guests in some restaurant concepts, providing semiprivate dining spaces that are not really private dining rooms. These techniques, however, can reduce the total number of seats.

Raised or sunken areas are another way to subdivide the space. Accessibility regulations such as those of the ADA require that all portions of dining areas be accessible. Should the designer plan raised or sunken areas, even second-floor areas, seating areas must be made accessible. Ramps take up a lot of room, and designing the space with fewer than three steps can cause tripping. Rather than using sunken areas, the designer might decide to change ceiling heights to create intimacy. When there are smoking and nonsmoking areas in the restaurant, the ADA also requires that accessible seating be provided in each section.

Traffic flow of guests from the entry and waiting area and throughout the dining room is a critical design assessment. Another traffic flow consideration is that of the waitstaff into and out of the kitchen with heavy trays of food and dirty dishes. Maneuvering trays through a maze of passageways from the kitchen to the farthest dining areas can be cumbersome as well as dangerous.

Sometimes the design of the restaurant may create prime locations by accident, although few interior designers admit to that! Prime tables are the best tables in the house, requested by good customers and VIPs. The designer's plan and overall design should attempt to make all tables seem like the prime table. However, not all tables can be at the window with an unobstructed view of the ocean. Dining room plans should consider the location of tables in relation to sight lines from the seating areas into the kitchen or wait areas and avoid that location if at all possible. If necessary, partial walls can be used to hide wait stations and the entry to the kitchen.

Wait stations are functional areas needed in the dining room. Let's look at some design factors concerning wait stations:

- They are noisy and rarely attractive.
- In a large facility, some wait stations will be remote from the kitchen.
- They should be screened to hide the mess in this service area.
- Space will be needed for various items, depending on the restaurant. Common service items include glassware, coffee service, backup flatware and napkins, pitchers or other containers for water, iced tea, and coffee, and perhaps a small ice bin.
- Wait stations may also store condiments and take-home containers.
- The POS station may be included here.

From a design standpoint, surfaces for the wait stations must resist moisture and be easy to clean. Flooring must be slip-resistant, and lighting should be glare-free. If the wait stations are located in the dining room, the design of the cabinetry and finishes should match with the overall design concept of the dining room. When located more privately so that they are essentially unseen by the guest, they can be more utilitarian in finish and design.

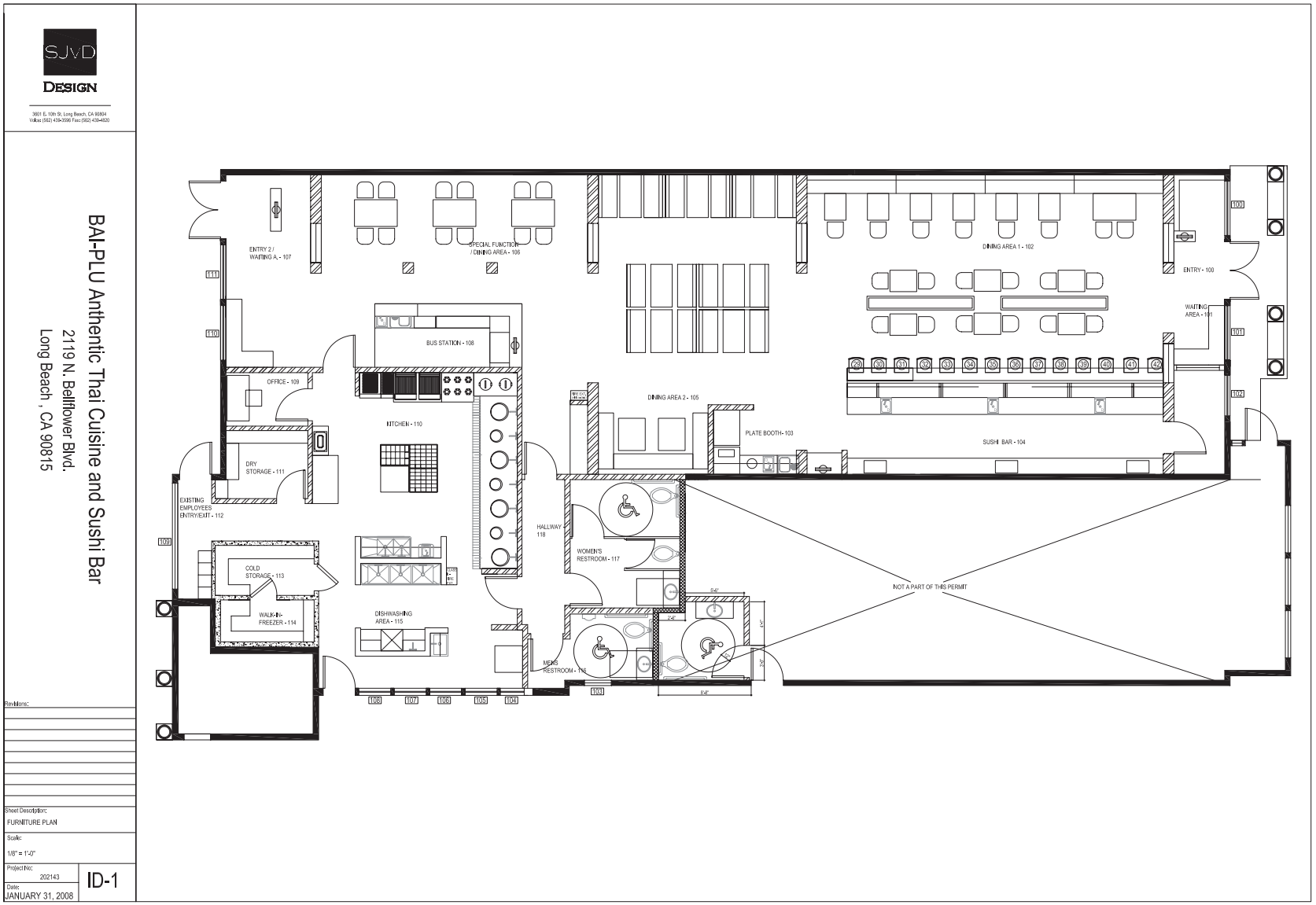


Figure 8-12 Floor plan of the Bai-Plu Restaurant and Sushi Bar. It is interesting to note that this interior was formerly a bookstore.
Reproduced with permission of SJVD Design.



Figure 8-13 Dining room and sushi bar at Bai-Plu Restaurant and Sushi Bar. The photo shows a contemporary treatment applied to an ethnic restaurant. *Reproduced by permission of SJVD Design. Photographer: Henry Cabala.*

Tables and Seating

The sizes and shapes of tables as well as the number of each size table impact the number of seats that will be accommodated by the space plan. Square and rectangular tables can be joined together easily for larger groups. Round tables can be made with fold-up sections that convert a square table into a round table for larger groups. Restaurants must consider using two-tops to accommodate the single diner. The warmth of a wood tabletop provides a different feeling to the guest than a laminate or other hard-surface top.

Tablecloths give a feeling of elegance, whether for lunch or dinner service, and they reduce noise. Cloth tablecloths and napkins—also referred to as linens—bring a measure of elegance to any upscale facility and even to a somewhat informal theme restaurant, such as a dinner-only sports-theme restaurant. Yet, the uncovered tabletop might be just what is needed in more casual full-service facilities. Chain theme restaurants often forgo formalities like linen tablecloths to help remind guests of the diners of the 1960s.

The type size and style of seating specified for the dining area conveys a lot to the customer about the kind of dining experience to expect. It will also have an impact on space allowances because the larger the chair, the more space for seating will be required, potentially reducing the number of tables that can be used. Fully upholstered chairs indicate to the customer that the dining experience will be formal, with a leisurely pace throughout the meal. However, fully upholstered chairs are more difficult to maintain. Armchairs or armless chairs with an upholstered seat and back or just an upholstered seat are very common in most medium- to high-priced restaurants. Chairs also need to have sturdy frames and leg structures. Commercial-quality furniture is a must for dining chairs in restaurants.

Chairs on casters are specified in many restaurants because they are easier to move on carpeted floors. If a caster is specified for carpet, it is best to use a double-wheel caster and also specify tight, short-tufted carpet. If a hard-surface flooring material is used, the chairs should be specified with nylon glides and not casters. However, these

glides can scratch wood floors. Dining chairs must be matched to the height of the tables, with seat heights at 18″ (457 mm) above the floor when the table height is 27–30″ (686–762 mm) above the floor.

Booths and banquettes remain popular in many types of restaurants, including upscale facilities. Booths can be designed with screens or other dividers that rise 4' (1219 mm) or more above the seat, providing mini private dining rooms for diners who want privacy. Banquettes appeal to those who want to be seen. Because booths or banquettes are commonly custom designed, care must be taken so that the seat is not too soft, which would make the table too high as well, and would make it difficult for guests to get in and out of the booth. Although older guests often prefer booths, this common design flaw makes it very difficult for older patrons to use booth or banquette seating satisfactorily.

Fabrics for chairs and seating units in upscale facilities can provide a further background or provide design accent. Seating at upscale restaurants uses natural fabrics or other quality textiles to add to the ambience. Delicate fabrics in an upscale restaurant could be used on chair backs rather than the seats, which will get harder use. Fabrics should be commercial-grade materials that have inherent stain resistance or have been treated to repel most stains. Patterned upholstery fabrics should be specified carefully so that the pattern is in scale with the chair or seating piece. Solid woven fabrics for seating can show spots and will require more care than small patterns.

Booths and banquettes should not be button tufted or otherwise deep tufted, since tufts are places for crumbs to accumulate. Commercial-grade vinyl is a good material for booth seats because sliding into a vinyl-covered booth is easier than sliding into a fabric-covered one. Suede-style vinyl gives the look of leather at a lower cost.

Other Design Elements

Because these surfaces are so large and visible, architectural finishes for floors and walls are important design elements in a restaurant. They can be treated as subtle backgrounds for interesting upholstery fabrics on seating, provide exciting accents in themselves through the patterns and treatments utilized, and pull the interior of a large space together into a cohesive whole. Ceiling and window treatments must be selected for ease of maintenance while helping to set an aesthetic backdrop.

A medium-sized patterned carpet used throughout the dining room will call attention to the traffic path but hide wear caused by the traffic. This covering might be chosen over hard-surface materials for acoustical reasons. A tightly tufted carpet with a short pile of a nylon-wool blend will be especially good for maintenance, hide traffic patterns, and allow for easier movement of chairs. A smaller pattern can be used to define the areas for tables and under booth tables. Resilient materials are appropriate at the wait stations and along the salad bar line. This variation of flooring materials will help differentiate functional areas, and the choices will ease cleanup and maintenance.

Wall surfaces provide a huge "canvas" to enhance the design concept or serve as a simple backdrop. Curved walls or walls with angles direct the flow of the dining room and can be an exciting way to divide the dining room into smaller, more intimate dining spaces. Pierced or closed screens, stained glass, upholstered panels, various kinds of wood trim pieces, and numerous other kinds of materials can be used above the divider walls to enhance the design concept. These walls can also help reduce noise.

Wall treatments that are more intricate, such as paneling with moldings at the ceiling and chair rails, are more expensive initially and to maintain over the long run. Paint, the most economical wall material, should not be used in areas where chairs will scratch the wall surface. Paint applied above booth tops and chair rails can create interesting changes in wall materials. In other areas, fabric wallcoverings over acoustic panels that meet code requirements should be considered rather than painted walls. These acoustical panels will also help reduce noise. Hard-surface materials like mirrors, metals, paneling, and large expanses of glass are good utilitarian materials in the right situation, but they will be noisy.

Ceiling treatments can provide an interesting finishing touch to the interior or be ignored in the design. Ceilings are a challenge because they contain many necessary mechanical items. Light fixtures, HVAC vents, fire sprinkler heads, and perhaps music speakers can all interrupt the ceiling surface. They are another hard surface that can add to the noise in the dining room. Acoustic ceiling tiles can be used to reduce noise levels and provide easier access to ceiling mechanical systems than drywall ceilings. Any type of dropped ceiling sections, fabric panels, or other dropped treatments must meet code. They also must be coordinated with the fire sprinkler engineer, HVAC engineer, and lighting designer. These ceiling treatments cannot interfere with the important environmental and safety systems.

Window treatments—if used at all—must also be specified with the potential view and the environmental impact on the interior in mind. A table by the window facing the parking lot might be acceptable for a mid-priced restaurant located along the highway but totally unacceptable at an upscale establishment. It is wonderful to watch the setting sun at a restaurant along the ocean; however, the setting sun in Las Vegas might be less pleasant to view if the architect has not specified energy-efficient windows. Materials used for the windows must meet the applicable codes in the jurisdiction. Strict code restrictions will affect the use of any fabrics for window treatments.

Color in the dining room can and should follow color psychology recommendations. The careful selection of colors not only creates an agreeable interior but also increases the guest's appetite. Colors that have strong appetite appeal are most of the colors in the warm section of the color wheel as well as true greens. The purples, yellow-greens, and mustard tones, as well as gray, have little appeal. Blues, seldom used in foods, are good colors for backgrounds. "To be more specific, a peak of appetite and agreeable sensations exists in the red-orange and orange regions. Pleasure decreases at yellow-orange, increases again at yellow, reaches a low at yellow-green, and is restored at clear green" (Mahnke and Mahnke 1993, 102).

The lighting design in the dining area can be functional, like that of a fast food restaurant, mood enhancing in a high-end gourmet facility, and everything in between. Experts agree that interior lighting is very important for achieving a successful interior in a food and beverage facility. "Correct lighting enhances the mood of a dining area, the appeal of the food, and the efficiency of a kitchen. And yet, in each of these situations, 'correct' means an entirely different thing" (Katsigris and Thomas 2005, 185). In the dining room and bar areas, lighting levels must be carefully calculated so that the proper selection of fixtures will provide the appropriate levels of light required for the design goals. All lighting should be on a dimmer system so that lighting levels can be changed to suit the time of day. The specification of general and accent lighting fixtures and light levels should enhance the concept of the total interior design.

Much of our psychological response to places, things, and events is based on our visual impressions. Lighting plays a significant part in promoting the comfort of the guest and providing a successful restaurant experience. Poorly designed lighting can hinder, if not destroy, that experience.

Only a few guests in certain hip restaurants enjoy being at a table with strong lighting that makes them the center of attention. Downlights should provide nonglare lighting on the table so that the guests are comfortable, can easily read the menu, and can see their companion across the table. Having the fixtures on dimmer switches allows for changes in lighting levels to suit the time of day. Brighter light for the lunch crowd and softer lighting in the evening during dinnertime will be appropriate. When the interior designer wants to use fixtures over a table, it is best to position them over fixed tables so that rearranging the tables does not cause over-lighted or under-lighted tables.

Private Dining Areas

Large groups can be disruptive to other diners. Many facilities include private dining rooms or areas that can separate these large groups. Private dining rooms give the guests and the management control over the group. The private dining room encourages large-group dining and is a great source of extra revenue. Some restaurants even charge an extra fee for the use of the private dining room in addition to the food and service charges.

Businesses have found the private dining room to be a great place to hold special business meetings. Restaurants for the business guest have audiovisual capabilities like TV screens, AV screens, conference room table setups, and marker boards behind custom cabinets.

The concept must determine how this area will be treated. It might be a more private section of the restaurant with nearly full-height partitions to give it privacy or a separate room closed off by doors. Glass walls will help give a feeling of spaciousness to the private dining space (Figure 8-14).



Figure 8-14 A private dining room at the Ritz Carlton Dove Mountain. *Interior design by Studio4. Photographer: © 2009 James L. Christy.*

Private dining rooms can be any size, but they are designed to seat a minimum of six guests. The size and location of the dining room need to be carefully weighed against the location of the kitchen. Should the business concept call for multiple private dining rooms, including a very large one, the owners and designer may need to consider a separate kitchen for these extra spaces.

The interior design generally mirrors that of the main dining room. However, if the space is private, the finishes and seating can be varied to make the room even more special. Elaborate custom millwork as a wall treatment, a portion of the wine cellar used as a backdrop, and special accessories in cabinets or on the walls are all possible in the private dining room.

The Kitchen and Back of House

Regardless of the type of facility, the space planning and equipment layout of the kitchen areas must include a careful functional analysis of the whole restaurant concept. Efficiently and effectively planning these areas is critical to the financial success of the enterprise. Obviously, the equipment needs and layout are different for the different types and styles of food service. However, there are many common principles as well. The generic descriptions provided here relate to a full-service restaurant.

It is most common for certified commercial kitchen planners or engineers to have primary responsibility for the design of the kitchen and back areas. This overview provides functional information so that the interior designer can appreciate the complexity the design of this part of the restaurant.

We will consider the planning issues of the kitchen from receiving and storage through the food preparation. This is because kitchen planners are concerned about the flow of the food products into the facility and the plating of foods for service in the dining areas. In addition to the food preparation areas of the kitchen, depending on the size of the facility, additional back-of-house space will be allowed for the office and employee areas. These areas are discussed in this section as well. Table 8-1 provides planning estimates of space for the many production areas.

The receiving area should be located near the receiving door at the rear of the facility. For the largest food service facilities, or those in hotels and high-rise mixed-use buildings, the receiving area needs to be near a loading dock. Space is needed in this area for check-in and short-term storage until the food or other items can be moved to their proper storage area after inspection. Good lighting is needed here to aid in the inspection.

Kitchen Receiving and Storage

Local health department regulations may not allow trash and garbage to be removed through the receiving area. This is to prevent contamination of fresh foods by garbage. The architect, kitchen designer, and/or interior designer will plan a second door near the warewashing area as an exit to the dumpsters and grease dumpsters.

Adjacent to the receiving area will be the various storage rooms and storage equipment for foodstuffs and dry goods. The square footage requirements for each of these areas will depend on the menu offered, the number of seats in the dining area, and the turnover at the facility. The following describes these areas:

■ Dry storage rooms should be planned without outside windows to prevent theft. It is also recommended that interior partitions in dry storage areas be built from the slab to ceiling decking to prevent theft.

■ *Dry storage*: Bottles, cans, and boxes of food and beverage items that can be stored at room temperature. Paper supplies, such as napkins, toilet paper, paper towels, and take-out containers. Cloth items like tablecloths, napkins, and uniforms. Cleaning supplies are also commonly kept in the dry storage area but must be in a separate room from foodstuffs to meet health department regulations.

■ *Liquor dry storage*: Cases of liquor are kept in a separate locked portion of the dry storage area. Wine and beer may need to be stored in temperature-controlled spaces.

■ *Refrigerated storage*: Ideally located convenient to production areas of the kitchen. This will help prevent spoilage. Large commercial-sized reach-in or walk-in refrigerators are needed for fresh meats, fish, produce, fruits, and dairy products. Small under-counter refrigerators are often placed in the cold foods plating areas as well as in the beverage area.

■ *Reach-in and walk-in freezer units*: Frozen foods can be located farther from production areas but still should be convenient. Floors are often insulated, which requires special construction detailing.

Kitchen Support Spaces

Allowances must be made for kitchen support spaces. Depending on the size and type of facility, these support spaces can include the following:

■ *An office for the manager*: A minimum of 60–80 square feet (5.6–7.4 sq m) is common, providing space for desk, files, computers, and a safe. One or two guest chairs may also be requested. The manager may also require that the office have windows looking into the kitchen.

■ *An office for the head chef*: A space similar in products and size to the manager's or slightly smaller. Space to accommodate a desk, computer, and one guest chair is typical. The chef's office should have visual control of the kitchen.

■ *An employee locker room and restroom*: Interior designers should specify employee areas that are well lighted, pleasant, and easy to maintain. Lockers are needed for employees' personal belongings, including coats and extra uniforms. Separate employee restrooms keep the staff—especially the kitchen staff, who may have soiled aprons—from public view.

Food Preparation Areas

Food preparation areas can be chaotic spaces. One way to control that chaos is to pay careful attention to the planning of the various food preparation areas. Every station and every staff member in the kitchen have roles to play, and these tasks and processes must be understood by the planner to ensure that the kitchen is planned for efficiency, safety, and logical work flow. The interior designer needs to understand these issues

even though it is likely that a commercial-kitchen design consultant will be responsible for the layout of this area.

Food preparation work areas vary considerably based on the type of restaurant and the service style. The variety of menu items, size of the dining room, and location and size of the lounge all impact the space needed for each preparation area. Food preparation areas, or kitchens for simplicity, are generally space-planned into four basic areas: pre-preparation, cold-food preparation, hot-food preparation, and the sanitary or warewashing area. Many table service establishments also include a bakery area for dessert and bread preparation. A separate salad preparation area might be needed in large restaurants.

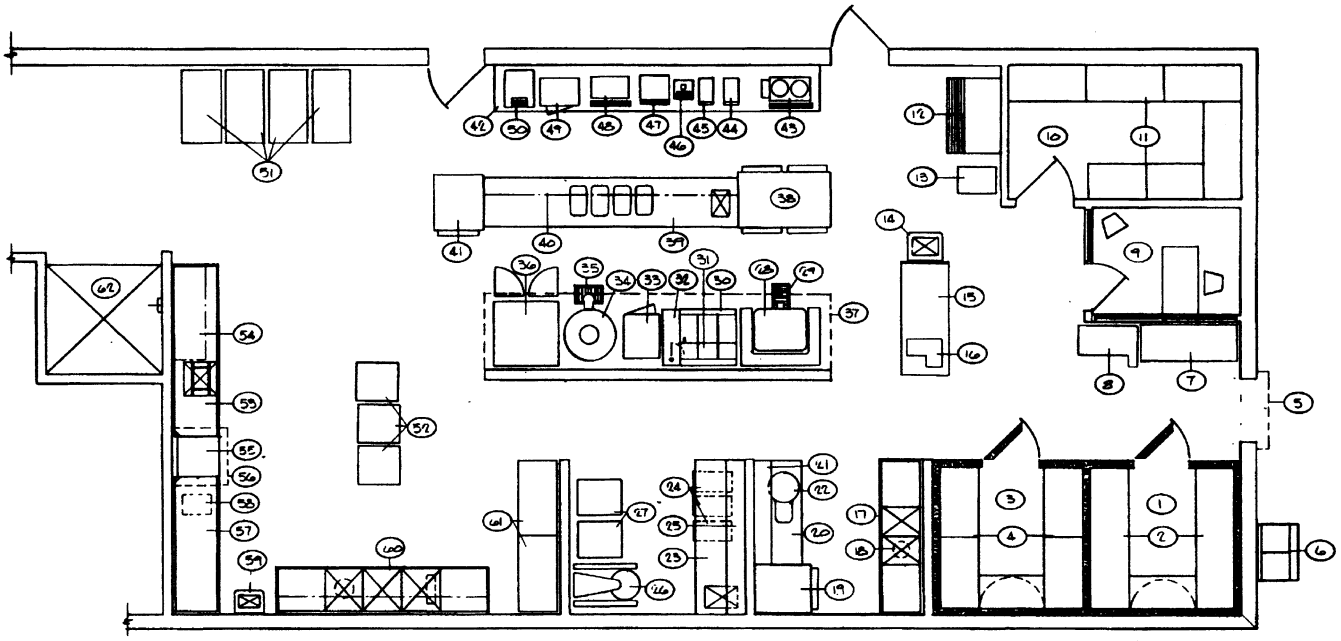
All refrigerated or frozen foods begin their journey to the guest's table at the *pre-preparation*—or pre-prep—area. Preparation includes cleaning salad items, peeling potatoes, making salad dressings, or otherwise preparing hot and cold menu items before they are cooked and/or plated. Meats and fish are also pre-prepared in another section of this area. Understand that separation between these work areas is mandatory to prevent contamination. Sinks, worktables, and food processors are some of the common pieces of equipment in this area of the kitchen. Meat saws, grinders, and slicers are also needed for meat preparation. In larger restaurants, ranges and ovens may also be included in this portion of the kitchen (Figure 8-15).

Salads, some appetizers, cold sandwiches, and perhaps desserts are assembled and plated in the cold-food preparation area. The cold-food area needs to be adjacent to refrigerators and have adequate worktables for the staff to prepare and plate food items. In large full-service restaurants or other types that have a significant assortment of cold food items on the menu, a separate pickup location in the cold-food preparation area is often planned. Hand sanitation sinks are also required in the cold-food prep area.

The hot-food production area will require the largest amount of space and greatest variety of equipment. The arrangement of the equipment for the hot line will vary with the menu and cooking methods. The hot-food production area is where ranges, ovens, broilers, grills, griddles, deep fryers, and other equipment for hot-food cooking are organized. Many pieces of this equipment will be required by the health department to be under venting hoods. The hot-food preparation area will also require a hand sanitation sink.

Hot foods might be cooked by a dry method—that is, using no liquids; broiling and roasting are examples. When food is cooked using liquids, such as for boiled potatoes or steamed foods, the method is considered moist cooking. Other foods may be cooked using a grill. There are flat-top grills also called griddles that are heated steel units. These grills are also considered a dry-heat cooking station. A flame grill will sear and cook meats. It is also considered a dry method.

Food flows from the hot and cold preparation areas to pickup stations. Hot foods will generally be plated and ready to serve to guests when placed on the pickup station counters, often called the pass, under heat lamps or on steam tables to keep them hot until picked up by servers. Cold foods will also be passed to the pickup area if a separate pickup station in the cold prep area has not been planned. In many situations, the serving staff does the final plating of cold foods. For example, they may place salad dressings or condiments on the cold items prepared by the kitchen staff. Roll warmers, soup warmers, and a microwave oven are often located at the pickup station. In many



EQUIPMENT LIST

ITEM	DESCRIPTION		
1	WALK IN FREEZER	32	SPACER W/POT FILLER
2	WALK IN FREEZER SHELVING	33	STEAMER
3	WALK IN COOLER	34	40-GAL. KETTLE
4	WALK IN COOLER SHELVING	35	FLOOR GRATE
5	AIR CURTAIN FAN	36	CONVECTION OVEN
6	WALK IN COOLER/FREEZER COMPRESSORS	37	EXHAUST HOOD W/FIRE SYSTEM
7	RECEIVING TABLE	38	PASS THRU REFRIGERATOR
8	SCALE	39	HOT FOOD COUNTER W/SINK
9	OFFICE	40	OVERSHELF
10	STORAGE ROOM	41	FREEZER
11	STORAGE ROOM SHELVING	42	BEVERAGE COUNTER
12	ICE MACHINE	43	COFFEE URN
13	ICE CART	44	HOT CHOCOLATE DISPENSER
14	HAND SINK—TABLE MOUNTED	45	ICED TEA DISPENSER
15	WORKTABLE	46	WATER DISPENSER
16	SLICER	47	JUICE DISPENSER
17	VEGETABLE PREP SINK	48	MILK DISPENSER
18	DISPOSER	49	MICROWAVE OVEN
19	REFRIGERATOR	50	TOASTER
20	WORKTABLE	51	TRANSPORT CARTS
21	OVERSHELF	52	DISH CARTS
22	FOOD CUTTER	53	SOILED DISHTABLE
23	BAKE TABLE W/SINK	54	RACKSHELF
24	INGREDIENT BINS	55	DISHWASHER
25	OVERSHELF	56	EXHAUST HOOD
26	MIXER	57	CLEAN DISHTABLE
27	PROOF CABINETS	58	BOOSTER HEATER
28	BRAISING PAN	59	HAND SINK
29	FLOOR GRATE	60	POT & PAN SINK W/DISPOSER SINK HEATER & OVERSHELF
30	HOT TOP RANGE W/OVEN	61	CLEAN POT STORAGE SHELVING
31	SALAMANDER BROILER	62	CART WASH

Figure 8-15 Commercial kitchen.
From Scriven and Scriven 1989, 49, 50. © 1989 by Van Nostand Reinhold. Reprinted with permission.

upscale and large restaurants, very little of the dish preparation will be done by dining room staff, as the chef will complete the dish ready for service before it is placed on the pickup station worktable.

The pickup area should be located immediately adjacent to the exits into the dining room, although sometimes this is not possible. The better the arrangement and planning of the pickup area in relation to the kitchen and the exit into the dining areas, the better the traffic flow. If the facility is a fast food or quick-service establishment, the flow from kitchen to servers must be direct. That may mean that the pickup window is open to be viewed from the dining room. In upscale table service restaurants, traffic flow must be designed somewhat more indirectly so that the clanking of dishes and the noise of the kitchen are not heard in the dining room. As much as possible, the flow of staff traffic and guest circulation should be separated.

The warewashing area, where dirty dishes are brought from the dining area and kitchen pots and pans are scraped and washed, is a noisy, messy area in the kitchen. It should be located relatively close to where the servers or bus persons reenter from the dining room, but it should also be convenient for kitchen staff for cleaning pots and pans. The warewashing area needs a worktable adjacent to garbage bins, workspace to store dishes and flatware until they are ready to be put in the dishwashers, and workspace or a place for dishware carts at the end of the dishwasher unit for stacking clean dishes and flatware. Deep sinks in a series of three units are needed to wash pots and pans and other cooking utensils. The pot-washing area can be adjacent to the dishwashing area or near the hot-food preparation area, depending on the chef's and owner's preference and local code restrictions. One or more trash cans are also needed near the door from dining room to kitchen and near the warewashing area for foods that are returned from the dining room.

Other Concerns

Specifying materials for the walls, floors, and ceilings in the kitchen is very important to ensure cleanliness and safety. All surfaces must be grease resistant and nonporous to allow for easy and frequent cleaning. Therefore, stainless steel, ceramic tile, and fiberglass panels designed for kitchen use are specified. Floors must be nonslippery and grease resistant. Many kitchens use sealed concrete for the floors, but nonglazed, nonporous, and slip-resistant ceramic tile is also a possibility. Rubber floor mats especially designed for kitchens are also common.

Direct lighting systems are most frequently used in the kitchen. They provide good overall lighting so that chefs and kitchen staff can properly prepare foods and work in a safe environment. Thirty to 40 foot-candles are needed for most working areas, and 15 to 20 foot-candles for general lighting. Good color rendition is needed in the food preparation area so that chefs and kitchen staff can ensure that only fresh food is being prepared. Light colors for walls and ceiling surfaces will aid in the overall lighting needs in the kitchen. Color-correcting fluorescent or incandescent lamps are recommended. Using incandescent lamps in the kitchen means that the food will be prepared under the same light used in the dining room. However, this will be prohibitively expensive in terms of energy use. White light fluorescent fixtures do not give the color rendition needed in the preparation areas.

Display Kitchens

Display kitchens are a popular type of kitchen in many restaurant concepts. A display kitchen is a cooking area positioned on the fringe of the dining room so that the guest can watch the chef prepare food. The display kitchen was probably inspired by early diner facilities, and it remains popular in many types of restaurants. Many customers feel that the best seat in the restaurant is one where they can get a good view of the chef at work in an elaborate display kitchen. In fact, some restaurants include a group dining table in the kitchen so that guests can watch all the action. In some guests' minds, there is something special about seeing their meals prepared right before their eyes. It also adds to the entertainment value of many restaurants, as guests get to watch the chef create their meals.

In more recent years, restaurants have included larger pass-through windows from the kitchen to the dining room to mimic the idea of a display kitchen, without having the chefs be more visible. Planning must be carefully done so that the display kitchen's location and design are well ordered and enhance the "show." Cleanliness and customer safety are just as important in the design of the display kitchen space as they are in food preparation itself. Open-flame grills need to be located on a back wall away from the guest or protected with heat-resistant glass. Decorative wall finishes must be selected or treated for easy cleaning. Accent lights will help dramatize the theatrical elements of the display kitchen, but they also need to be planned to ensure the safety and functional needs of the chefs.

COFFEE SHOPS

Coffee shops, or coffeehouses, probably became popular in the West in the seventeenth century, although the concept may have existed before that. Europeans used the early coffeehouse as a social center—much like the contemporary coffee shop of today, where people gather in the early morning for their favorite coffee drink, come back after lunch, and even linger until the proprietor gently throws them out at closing time.

Patrons meet friends and socialize, meet new friends, hold informal business meetings, read books, and go to a coffee shop just to get away from the house or office for a while. Many coffee shops are part of franchise groups, but numerous others are independently owned. With so many coffee shops opening almost everywhere, congregating at a coffee shop on a regular basis has created a renaissance in this facility's construction and design. Coffee shops are commonly located in strip malls and large shopping malls, on the ground floor of many high-rise office buildings, and in freestanding facilities (Figure 8-16). Coffee shops are also found in bookstores, grocery stores, and some upscale home centers or furniture stores. There are even drive-up versions so that the guest does not need to leave the car.

The entry should move guests easily to either the service bar/cash register or seating areas. Space is always needed in front of or along the service bar for waiting guests to order and pick up their beverages. These spaces need to be kept organized—although few customers seem to mind mingling between the cash register and pickup window. Displays of bakery goods and sandwiches next to and along the service area are common.



Figure 8-16 Coffee shop area at Breathing Space Yoga and Fitness Center.
Interior design by Design360 Inc., Halifax, NS. Canada. Photographer: Chris Dickson, Halifax Digital Imaging.

Most coffee shops have limited indoor seating and perhaps an outdoor patio. The trend is toward larger shops with more tables and soft seating. The soft seating should be set up in conversation groups. Facilities that cater to numerous laptop users are including banquettes and tables as seating options. The vast majority do not include table service. If the shop is more for the guest "on the go," the space will likely be under 1000 square feet (92.9 sq m). If limited food service is part of the concept or if the shop is in a location where guests will stay and lounge or meet for longer time periods, the space will need to be larger. At least 50 percent of the floor space should be for seating, with about 25 percent for the preparation of coffee and other items and the remainder for the service counter (Entrepreneur Press and Lynn 2001, 87).

Because coffee consumers enjoy watching their favorite beverage being prepared, the coffee and beverage preparation areas need to be visible. Espresso machines can be intricate in their design or efficiently oriented for faster service. This equipment can, thus, be an important design element in the interior. However, many coffee shops have gravitated to simpler machines for brewing the espresso drinks in order to speed up service.

Space will be needed either in the production area or in the back storage areas for dishwashing equipment. Sinks will also be needed for rinsing dishes, and a separate handwashing sink will be required in the production area. Space may also be needed for a microwave oven or panini press if sandwiches are sold. The design of the product and service areas must carefully consider locations for the disposal of paper cups, other trash, and other dishes used by the customers.

Key to the interior design of a coffee shop is the aroma of coffee and the sound of soothing music, served as a backdrop to relaxing colors and easy-to-care-for materials and finishes. The interior design and furniture items might convey the feeling of an Old World café using simple armless chairs and 24–36″ diameter (610–914 mm) tables. Large, comfortable soft seating upholstered in durable fabrics that will handle

spills, pens, and patrons' shoes is quite common. Do not forget to include an accessible table. A 24″ (610 mm) round table is not exactly accessible to someone in a wheelchair. The coffee shop could also be high-tech, using finishes that appeal to the techie consumer. For the most part, the interior design should be both comfortable and easy to maintain.

Most coffee shops have many windows, and natural light plays an important part of the atmosphere. Brighter light will be needed for shops that are more interested in setting a morning stage, while dimmer lighting will be appropriate for shops catering to Wi-Fi and laptop users. Be sure you understand the owner's goals and their expected client base when it comes to lighting design. Don't forget to include extra outlets for customers to plug in their laptop computers!

A receiving and storage area will be needed behind the visible production area and seating spaces. The business concept will drive the size of the backspaces. If food is prepared on-site, a small commercial kitchen will be necessary. Less kitchen space will be needed when packaged foods (such as cookies in wrappers) are sold. Storage for supplies such as disposable coffee cups, condiments, and perhaps a larger refrigerator for milk and creamers can also be accommodated in the back area. A small space for the manager's desk near the receiving and storage area is ideal to check in deliveries, place orders, and conduct other business activities.

Many coffee shops also sell coffee beans, coffeemakers and cups, teas, and other items. Cabinets or display fixtures will be needed for these items. A cabinet will also be needed for condiments, straws, napkins, and possibly silverware.

There are several code issues to keep in mind in the design of a coffee shop. Unless the space is very small, codes will require separate, accessible restrooms for men and women. The size and number of fixtures will increase with the size of the facility. Designers should keep accessibility regulations in mind as they design the space plan of the service area and access to tables and restrooms. Codes might affect the designer's choice of materials for architectural surfaces and upholstery. However, because most coffee shops do not use carpeting or allow smoking (avoiding the need for higher-rated fabrics on any soft seating), these code issues are less critical than in most other restaurants.

QUICK-SERVICE RESTAURANT

A *quick-service facility* is the industry term for a food service location that many people think of as fast food facilities. Typically, patrons line up at a counter inside the restaurant to place their orders, pick them up at the counter, and then move to tables that are provided inside or outside. Some quick-service restaurants have the order location on the outside of the building with no indoor seating. This is an older concept of the quick-service facility, but it can be found in some newer food service facilities as well.

Many quick-service facilities are franchise restaurants. The corporation that has developed the restaurant tightly controls the interior and exterior design. It is important, however, to mention some key design issues of these facilities, as an interior designer could be hired by an independent restaurant owner who wants to open a quick-service style facility.

The reader may be familiar with many of these design tips:

- Each queue line will have a POS computer terminal for ordering.

- If a single queue line is part of the design, be sure sufficient safe space is planned to allow for the line and entry and exit from the facility. Sometimes a single queue facility could be classified as a cafeteria.
- The display of the menu should be easy to read, whether a multiple queue line or a single queue line.
- Space needs to be planned for beverage (nonalcoholic) service. This is now often self-serve, although some quick-service facilities might serve the initial drink and then have limited availability for self-service.
- Space is also needed for condiments, napkins, and trash receptacles.
- Hard surfaces for architectural materials are the traditional approach.
- Surfaces, especially the floor, need to be easy to clean.
- Bright colors are typical, although less intense color schemes will attract older patrons.
- If play areas are part of the design, the interior designer must be sure that the design of that space meets codes and safety issues to prevent injury.
- In some quick-service concepts, space planning for multiple seating areas allows some areas to be closed off when business is slow. These areas also allow some acoustical control and separate older patrons from families.
- The facility will be required to have restroom facilities for both genders. The number of stalls will be dictated by code and the size of the overall facility.
- Kitchens are often in full view of the customer. Most of these restaurants, however, also have some kitchen prep space behind the open kitchen.
- Support spaces for receiving and storing foods and supplies, an office for the manager, and locker room space for employees will also be needed.

For the vast majority of quick-service facilities, the emphasis is on fast customer turnover, easy-to-maintain surfaces, and color schemes that place a premium on not having patrons stay for long periods of time. If the facility is a franchise, the corporation will dictate many of these design decisions. No doubt, variations on these corporate design concepts would need to be approved by the corporate office. If the designer is hired to design the interior of an independently owned quick-service restaurant, many more freely created design ideas can be implemented.

BEVERAGE FACILITIES

Beverage facilities, more commonly referred to as bars and lounges, are places where alcoholic beverages are served. People patronize bars and lounges to socialize. It is important for the designer to remember this as he or she creates an atmosphere conducive to meeting people, meeting friends for dancing, enjoying a sporting event on a wide-screen television, or even waiting for a table in the dining room. The vast majority of restaurants provide beverage service. Exceptions include quick-service facilities, cafeterias, and some smaller, independently owned restaurants.

Many restaurants do not sell alcoholic beverages and do not have a bar. When a restaurant includes a bar it is commonly referred to as the beverage area. The focus of this discussion is on a bar or lounge in a restaurant. Concepts, however, can easily be applied to beverage areas in hotels, freestanding facilities, and other types of facilities (Figure 8-17).



Figure 8-17 The bar integrated into the dining room of a restaurant at Ritz Carlton Dove Mountain, Tucson, AZ. The bar is visually separated from the dining room by the change in flooring and custom cabinets. *Interior design by Studio4. Photographer: © 2009 James L. Christy.*

One type of beverage service facility is the *bar*. These establishments—especially the older, more traditional ones—might also be called pubs, taverns, or saloons, and they can serve drinks with little or no food service. The term *bar* also defines the cabinet and display areas where drinks are mixed and poured by a bartender. Bars are usually smaller than spaces called lounges. A bar often provides less seating than a lounge, generally at the bar itself or at small booths or tables.

A *lounge* has more comfortable seating and is more often associated with higher-end restaurants, hotels, and live-stage entertainment such as nightclubs and show lounges in casinos. In a lounge, the bar itself may not have seating at the bar cabinet. Seating commonly consists of small-scale lounge chairs at small tables or groups of small sofas for the patrons. Many lounges have a dance floor with music provided by a jukebox or small band. Show lounges where various performances are offered are usually larger than lounges in restaurants, where live entertainment is less ambitious.

A somewhat newer bar type is the beer or *brewpub*. Of course, brewpubs are not new at all! They have existed for centuries from the beginning of the development of restaurants and bars. We are referring here to the facility that has craft beer production as its focus, along with the serving of food and its various craft beers. Often these facilities make the brewing production area a focus of the interior. Of course, they are in enclosed areas with temperature-controlled environments.

Here are several key planning concepts regarding the location and design of a beverage facility:

- It is separate from main dining when reasonable and part of owner's concept.
- The separate bar provides privacy and security in family-style restaurants.
- If smoking is allowed in the bar, design that area so that limited smoke gets into the dining nonsmoking areas.
- Jurisdiction regulations may not allow patrons to have to go through the bar to get to a restroom.

The Bar Service Area

The bar itself consists of the *front bar*, with or without stools for patrons, and a *back bar* for the display and storage of bottles. Elaborate millwork designs provide an interesting challenge for designers. The creative display of bottles and glasses often becomes a focal point of many lounges and bars. What most people refer to as the "bar" is the guest's view of the front bar cabinet. Behind this is the back bar where bottles are displayed. Figure 8-18 provides dimensional guidelines for these items.

Bar stools at the front bar should have a seat height of 30″ (762 mm) above the floor, assuming that the top of the bar is the standard 42–45″ (1067–1143 mm) above the floor. Because of their height, bar stools should never be specified with casters. Some design concepts will specify bar stools that are fixed to the floor. This is, of course, safer but is purely a design/function decision. Design concepts sometimes use a footrest or footrail 7–9″ (177.8–228.6 mm) above the floor. The footrail can help to protect the millwork from damage.

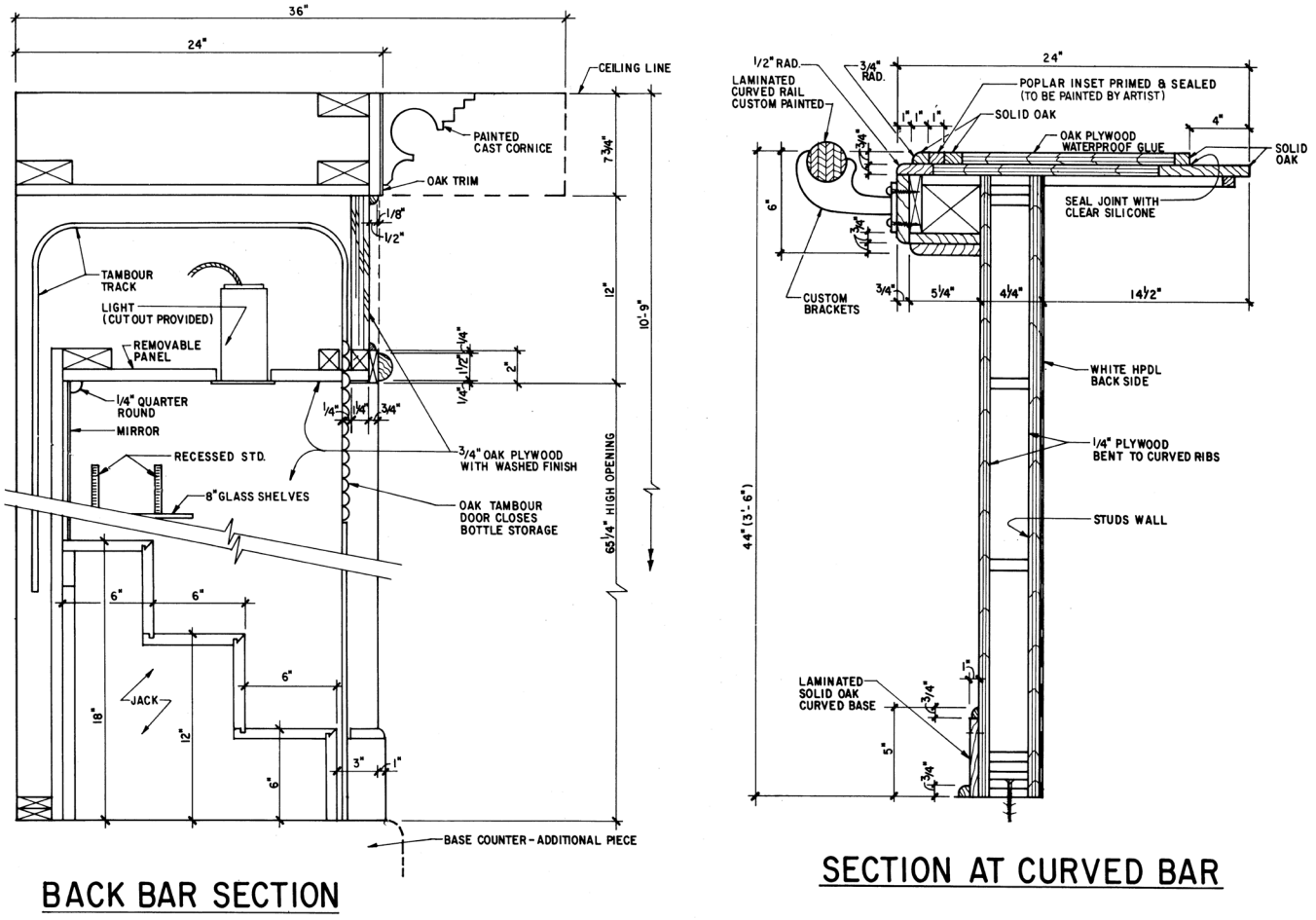


Figure 8-18 Detailed drawing of a back bar and a curved bar. *Reprinted with permission from* Design Solutions *magazine, published by the Architectural Woodwork Institute, Reston, VA.*

Behind the front bar are the back bar and under bar. Let's look at the back bar first. The back bar functions as the display area for the different liquors and glasses. It also provides storage space below for beer bottles, extra liquor bottles, and other accessories needed at the bar. It will be 24–30″ (610–762 mm) deep and 36–42″ (914–1067 mm) high.

The facility needs a variety of glassware, depending on the line of beverages served. Ten or more different kinds of glasses might be needed for a bar serving a full range of beverages. Bottles are displayed on tiered shelves so that the customers and bartenders can easily spot the different brands. The back bar will also have undercounter refrigerators for cold beer and wine storage and counter space for the cash register or computer. Closed storage for back stock is also common in the design.

The *under bar* is the main working area for the bartender as he or she faces the guest. The under bar includes many activity areas and has specific equipment and size needs. The bar countertop should be 18–24″ (457–610 mm) deep, and the total depth of the under bar will need to be 22–26″ (559–660 mm). At the top, a *speed rail* is located to hold bottles of the house or "well" beverages so that bartenders can get to them quickly. A four-compartment sink for cleaning and sanitizing glassware, draining space for glassware, ice bins, undercounter storage, soda guns for dispensing soda, and beer taps are other equipment items of the under bar. Refrigerators may be placed here but are more likely located at the back bar.

The space between the back bar and the bar is called the activity zone. It is 30–36″ (762–914 mm) wide. This provides a comfortable space for the bartender to work between the bar and back bar without taking extra steps. Thirty-six inches (914 mm) allow sufficient space for one bartender to work at one of the cabinets while another bartender walks behind him or her.

Storage space in the bar area will be required for extra cases of liquor, wine, and beer. This storage space can be placed in proximity to the bar or in the kitchen. Regardless of the location, it must be planned as a secure space to prevent theft. It should also be shielded from sunlight and fluctuating temperatures. A large bar may need a separate beer cooler to hold kegs.

A service bar will be required at one end of the bar or at another appropriate location along the front bar. The *service bar* is where the waitstaff orders and picks up beverages to take to the dining room. In some facilities, it is a window and shelf through the wall adjoining the dining room, with the window out of sight of dining guests. In larger facilities it may be larger, requiring compact under and back bars and a separate bartender. When a service bar is not possible, an area at the end of the bar is designed to accommodate the place where the waitstaff will pick up drink orders from the bar.

Lounge Area

Today's restaurants and bars bring exciting design possibilities to beverage facilities of all kinds. In upscale restaurants, designers often create theatrical backdrops for the bar itself and use exciting lighting design to heighten an atmosphere that will draw crowds (Figure 8-19). Of course, not all beverage areas are theatrically designed. A beverage area in family restaurants and in many chains is designed as a pleasant accompaniment to the dining room.

Generally, the furniture and finishes specified for the bar/lounge are similar to those used in the restaurant. Furniture in a beverage area often consists of small tables and chairs, bar stools and booths, or banquettes and tables. Frequently, tables in beverage areas are only 25–27″ (635–686 mm) high to allow patrons to lounge in the more comfortable seating units often found in bars and lounges. Chair seat heights in this case will average 16″ (406 mm) above the floor for these lower tables. Lounges often use more soft seating groups of loveseats and comfortable club chairs, providing the look of a living room to some of the areas in the lounge. Tables in this case are very sturdy coffee tables so that they will not break if someone sits on them. Fabric specification should also consider flammability standards, as most bars allow smoking. Understanding local code requirements concerning fabric and seating unit specification is very important in the design of beverage areas.

Some facilities that also provide a limited amount of food service in the beverage area might incorporate booth seating or even "community tables." These are tables that use bar-height chairs, and the table might sit 8 to 10 people. If food is served at the bar, the depth of the bar might need to be a little deeper than the 18–24″ (457–610 mm) indicated above.

As an alternative to lower tables and soft-seating groups, some bars use hi-top tables with tall bar stools. These tables are 42–45″ (1067–1143 mm) high so that patrons can either sit on a stool or stand. Many of these designs include a footrail of some sort. Again, the stools should not be on casters for safety.



Figure 8-19 Lounge at the restaurant and bar at the Adrift resort, Marina Bay Sands. *Reprinted by permission of Wilson Associates.*

Lighting in the bar or lounge is usually more subdued than in the dining areas. Lower light levels are created by the use of low-wattage indirect ambient and accent fixtures. Accent lighting in the lounge is often supplemented by candles in containers for safety. Bars designed with entertainment in mind present many lighting design challenges. One challenge is to provide sufficient light for guests seated at tables and booths engaged in conversation. Another is the lighting effect that might be needed to create the theatrical or entertainment concepts of the space. These effects are produced with a wide variety of accent lights and spotlights using colored lamps or filters. The lighting designer hired to prepare the lighting design for the restaurant is commonly retained to plan the lighting for the bar as well.

Architectural finishes will need to meet code requirements for life safety. Because smoking is more prevalent in a bar or lounge, the designer should specify flame-resistant and smolder-resistant upholstery on any seating. Local jurisdictions may have other building and safety code requirements for a lounge or bar. Accessibility regulations apply to this space as well. The plan must provide clear passage from the entry to seating areas for a patron who is physically disabled. The plan must also allow for access to all parts of the beverage area should there be sunken or raised areas. Of course, not every seat needs to be accessible.

RESTROOMS IN RESTAURANTS

As would be expected, full-service restaurants are required to include restroom facilities for customers. Attractive restrooms that are well maintained and well designed help to enhance the quality of the facility. Owners do not always allow a large budget for restrooms, but that is no excuse for boring all-white toilet facilities with only colored partitions to bring relief. The designer and the facility owner should recognize that the restroom facilities, along with all other public areas, help create an impression of the overall quality of the restaurant.

Here are a few tips on the design of restroom facilities in food and beverage facilities:

- Locate them away from the waiting area or in the back adjoining the kitchen.
- Provide as much privacy as possible when determining the location of restroom entrances.
- Separate restrooms will be required for men and women unless the occupancy is small enough to allow a unisex restroom.
- All surfaces must be specified with durability, easy maintenance, and moisture resistance in mind.
- Local codes may require specific types of materials behind the lavatories and on the walls by the water closets or urinals.
- Baby-changing stations in both men's and women's restrooms are required.
- Other general design criteria, application issues, and generic layouts for public toilet facilities are presented in Chapter 2.

Summary

Providing design services for the food and beverage industry can be an exciting and creative way to use one's skills as an interior designer. For the smaller facility, the interior designer often needs to educate the owner on how good interior design adds to the overall value of the facility and enhances the success of the facility. The continual updating of existing facilities, as well as those that change from one type of restaurant to another, and the construction of large numbers of new establishments means that opportunities to design food and beverage facilities will remain high. Development and operating costs are very high, and the owner will expect the interior design consultant to help create an interior facility that increases the chance of success.

This chapter began with a discussion of the importance of bringing the business concepts, theme, and menu ideas together in a unified interior design solution. It also emphasized the importance of handling functional issues of traffic flow, workplace design in the kitchen, and safety for staff and guests while meeting code requirements. A brief discussion on sustainable design criteria has been added. Design application

details include a full-service restaurant, coffee shop, quick-service facility, and beverage facility.

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INTERNET RESOURCES

ADA Accessibility Guidelines (ADAAG): www.access-board.gov/guidelines-and-standards

ADA.gov (United States Department of Justice, Civil Rights Division): www.ada.gov

American Hotel & Lodging Association (AHLA): www.ahla.com

APCO Architectural Signs: www.apcosigns.com/techpdf

Green Restaurant Association (GRA): www.dinegreen.com

International Code Council (ICC): www.iccsafe.org

International Hotel and Restaurant Association (IHRA): www.ih-ra.com

National Restaurant Association: www.restaurant.org

Sustainable Restaurant Association: www.thesra.org

Whole Building Design Guide (WBDG): www.wbdg.org/about.php

CHAPTER 9

Retail Facilities

Retail stores selling all types of merchandise are being built or remodeled on a consistent basis throughout North America and the rest of the world. *Retailing* consists of all activities involved in the sale of goods and services to the ultimate consumer. Independent owners, franchises of retail chains, and store ownership groups or corporations establish retail stores. The interior design of a store plays a significant role in the success of that business. The design and layout of a store must move the customer through the store, provide the backdrop to best present the merchandise mix, and simultaneously encourage customers to purchase the products or services offered.

Understanding something about the client's business is necessary in order to work effectively with the client and make appropriate design decisions. Personal shopping excursions can always provide ideas, but they do not prepare the designer to create a functional and effective retail interior design solution.

The focus of this chapter provides an overview of functional design considerations and methodologies for the planning and design of a retail store. By definition, the *retail store* sells merchandise to the end user or ultimate consumer of the merchandise. This chapter follows the outline of the previous chapters in that it includes an overview of retail business and then describes generic planning and design elements. Design application discussions of a generic clothing store, gift store, and jewelry store provide additional design information.

Historical Overview

Stores or businesses that sell goods to consumers have existed since ancient times. Market squares, where goods and foodstuffs were traded, have existed for centuries. Of course, retail stores and department stores flourish all around the globe. This brief historical discussion focuses on retailing in the United States.

By the 1700s, privately owned retail specialty stores abounded in England, the Continent, and the American colonies—soon to be the United States. This growth in what would become known as retailing flourished and consumer demands increased.

By the 1800s, the middle classes demanded better-quality market goods, so specialty stores increased in number. During the Industrial Revolution of the nineteenth century, centers of commerce developed in the central cities. This was due to increased trade as the crafts and manufacturing processes developed to produce goods. The switch from open markets to actual store locations accelerated after the 1840s.

In the 1850s, the general store was the main source of trade in rural areas of the United States. The interior of the general store was a large, open room with high wall shelves and cabinets to display merchandise. A large wooden counter where merchandise was wrapped and monies traded hands was also part of the design.

Merchandise of all kinds was sold in this type of store, catering to as many needs as possible for rural families. Many times the general store operated as the local post office, a telephone service, and additional legal services. Rural shoppers also utilized catalogs. The earliest catalog stores were Montgomery Ward and Sears, Roebuck and Company. Catalog stores evolved into department stores in the twentieth century.

Stores of various specialties were increasing in numbers in the urban areas during the 1800s and afterward. At first these were small stores with limited choices in merchandise and simple design and layouts. During the 1800s, general merchandise stores developed into department stores by broadening their inventory. By the mid- to late nineteenth century, larger retailers with a greater variety of choices were opening in the major cities.

The downtown department store evolved between the 1860s and the 1920s. These department stores provided safe places for women to shop and featured ladies' lunchrooms and sitting rooms. R.H. Macy & Co. was founded in New York City in 1858, and John Wanamaker opened his store in Philadelphia, Pennsylvania, during this time frame. In the 1890s, architect Louis Sullivan's Carson Pirie Scott building in Chicago was another of the early important department stores (Barr and Broudy 1986, 6–7).

Department stores continued to evolve. The invention of elevators encouraged the construction of multistoried buildings and department stores, creating more vertical square footage and larger department stores. During the 1920s, some department stores in the United States began opening branches. The first of these were J.C. Penney and Sears, Roebuck and Company. From 1929 to the 1950s, department stores spread into the suburbs. In the 1950s, the discount store was created. Early discount stores were designed very simply, with self-service rather than service by store personnel a key ingredient in their design.

The first auto-oriented shopping center in the United States was the Country Club Plaza in Kansas City, Missouri, developed in 1922 (Kliment 2004, 18). It was one of the first shopping centers to cater to the automobile shopper, providing parking lots with free parking. These centers offered a mix of tenants besides retail stores to entice the population to shop, conduct business, and eat at restaurants.

Mall and shopping center development continued to add amenities for more comfortable shopping experiences (Figure 9-1). Food courts, offices, movie multiplexes, and other entertainment conveniences were added. In 1976, the first urban vertical mall, Water Tower Place, opened in downtown Chicago, Illinois. It includes high-end specialty stores, department stores, a hotel, offices, condominiums, and a parking garage and is today considered a preeminent mixed-use project (Kliment 2004, 21).

Today, the shopping experience keeps changing, as Internet shopping is so popular with many people. Large brick-and-mortar shopping centers are fighting for survival; the department stores of the 1960s to 1980s have changed hands or closed; and smaller stores are also losing out to large chains and Internet retailers.



Figure 9-1 Mixed-use shopping center development.
Drawing courtesy of Leo A. Daly.

Retailing must change to keep up with its consumers by offering the selling environment in the manner consumers choose. One example is the pop-up store, which is a temporary store that might exist for short periods of time. Kiosks in the mall and a retailer opening for a short time in a vacant store are other new retailing innovations. Then there is the trend of the store within the store in many department stores. Store design must keep up with these types of changes in the retail business environment.

Overview of Retail Business Operations

Retailers in the United States generated $4.7 trillion in sales during 2011 and accounted for an estimated two-thirds of the U.S. gross domestic product (GDP), according to a U.S. Department of Commerce report of 2013 (Farfan 2014). The top 10 interior design firms specializing in retail interiors accounted for over $166 million in revenue for the reporting year 2013 (Zimmerman 2014, 94). This indicates that the retail industry makes a significant contribution to the economy and provides tremendous potential for professional interior design services.

As with any commercial interior, the successful design of a retail facility depends heavily on the designer's ability to understand the business of the business and the specific business of the client. Retail business operations are complex and involve more than placing products before potential customers in a pleasant atmosphere. Interior designers should not finalize decisions and recommendations about the design of a retail store without this background information.

It is obvious that the overall goals of retailing are to entice customers into the store and make sales. It doesn't matter if the store is selling jewelry, clothing, or tires. The planning and design of a store is created to attract customers through the store to help them find and subsequently purchase goods. Each retailer has specific concerns that focus on providing sufficient space allowances for the display of merchandise, preventing shoplifting and internal theft, limiting liability, promoting the image of the facility, and encouraging growth of the business.

Although the design of the retail facility plays a significant part in the achievement of the overall goals of a retailer, marketing and merchandising play important functions as well. Let us take a brief look at key issues in marketing related to the retail industry and the interior design of retail spaces. To help the reader understand the business of the business, this list of terms is commonly associated with the business operations of a retail store or facility.

- *Hard goods*: Heavier merchandise that is often made of metal or wood, such as furniture, appliances, and includes sporting goods. Also referred to as hardlines.

- *Marketing channel*: Includes the producers, the wholesalers, the retailer, and the consumer. These direct a flow of goods or services from the producer to the final consumer.

- *Marketing concept*: This states that the goal of every business organization is to satisfy consumer needs while creating a profit.

- *Merchant*: A buyer and seller of commodities for profit. A merchant can be a vendor who sells to the retail seller or store.

- *Retail sale*: The ultimate consumer's purchase of the product.

- *Retailer*: A merchant middleman who sells goods mainly to the ultimate consumer.

- *Retailing*: The business activity of selling goods or services to the final consumer.

- *Soft goods*: Merchandise that is soft, such as clothing, linens, towels, and sheets. They are usually also light in weight.

In determining which products to offer for sale, the merchant considers several factors. The first is the benefit the consumer seeks in products. The second is whether the products represent a way to satisfy a physiological, safety, or psychological need. In addition, the advantages of supplementary services to the customer, such as deliveries, installation, and alterations, are considered.

What consumers eventually purchase is directly tied to their needs and wants. Needs are things a consumer feels are essential, while wants are the things the customer would like to have. Retailers focus on offering goods and services that satisfy consumers' needs and wants. These terms relate to defining needs and wants of buyers:

- *Needs*: Essential physiological and psychological requirements necessary to the physical and mental welfare of the consumer.

- *Physiological needs*: Required for survival and basic comfort, such as food, clothing, and housing.

- *Safety needs*: Required for security and stability, such as a cellular phone or an alarm for the car.

- *Esteem needs*: Those regarding self-respect, admiration, and achievement. These kinds of goods vary depending on the consumer's background. Antique furniture, a new car, and designer jewelry are examples of esteem-need goods.

- *Wants*: Conscious impulses to acquire objects that promise some type of reward. Many types of goods that satisfy esteem needs can also satisfy wants.

Understanding these needs and wants will help the store owner determine what products to sell; it will also help the store owner develop the retail plan that will be part of the overall design concept and feasibility study. The *retail plan* is a group of activities that are crucial to the successful planning of the business operation. An effective retail plan answers the questions concerning what, when, where, why, and how specific retail business activities are to be accomplished. The right message, the right appeal, and the right services are all considerations in retail planning (Lewison 994, 31–32).

A retail plan includes five important stages:

- Defining retail environments
- Controlling financial, organizational, human, and physical resources
- Identifying and selecting retail marketing and sites
- Developing and managing products
- Creating and implementing promotion strategies

The retail plan also directs the conceptual interior design of the store, much like the design concept used in hospitality projects. It is important for the interior designer to understand the underlying philosophy of retail planning for each project in order to provide an effective interior design for the facility.

The store owner's or management team's tasks and responsibilities begin with developing the merchandise blend or variety of products, finding the best location, operating the store, and purchasing, pricing, controlling, and promoting the merchandise. In addition, they provide the interior designer with ideas for the design of the interior of the store. Current interior store design has changed from the earlier crowding of merchandise to a more streamlined, organized ambience with emphasis on simplicity, wider aisles, better sight lines, and the use of more flexible fixtures (Lewison 1994, 269).

Working with the store owner, the interior designer will consider how the environment of the store will affect a customer so as to encourage purchasing. The store's image plays a large part in the appeal of the merchandise to the customer in the particular setting in which it is offered.

Image includes store location, interior design, the actual products and their presentation, the price of items, and public relations. The interior design helps to set the stage for the presentation of merchandise and creates an appropriate image related to that merchandise. For example, the interior design of a luxury jewelry store cannot look like the jewelry area in a big box store. In addition to finish specification, color, and graphics,

the interior designer's space planning of fixed and flexible merchandising space will affect sales and the store's image.

A growing trend in retail design and retail business is via *experiential opportunities*. Experiential, of course, means based on an experience. Customers are interested in experiencing the merchandise—that is, having the opportunity to touch, hold, and even see how the merchandise functions in the environment in which it will be used. Of course, we have always had the opportunity to touch and hold merchandise like clothing. It is the environment where that clothing is being sold that is changing.

The interior environment of a store must set the stage for the purchase. In a food store, odors of baked goods and food from the deli entice the customer to purchase items not on the shopping list. Just think of all those free samples that grocery stores are offering to shoppers. That sample is to encourage the shopper to buy that specific product—not likely on the list—providing an experiential opportunity. In sporting goods stores such as Cabela's, climbing walls, walking around in a pair of boots to help determine fit, and admiring extensive displays of products help the customer see and experience the products for sale. The use of paneling in a formal design in Ralph Lauren shops conveys the feeling of luxury and tradition that exemplifies the Ralph Lauren product line, providing another example of how the environment is designed to help sell merchandise.

Stores are also designed using theme appeal, which involves establishing an environment related directly to the product, to holidays, or to special events (Lewison 1994, 269). Examples include the Christmas decorations and seasonal displays used by most stores, and special displays tied to local events, such as a city hosting the Super Bowl or an All-Star game.



Figure 9-2 Retail specialty store. This store uses rescued furniture items for display of merchandise. *Interior design by Rabaut Design Associates. Photographer: © Jim Roof Creative, Inc.*

When all of these factors are put together, the design of the retail store that embodies the concepts of the retail plan unfolds. That design must communicate to the customer that this is the store where they want to buy that new camera, piece of jewelry, dress, set of golf clubs, or whatever the item. "The store must look physically right to complement the merchandise being displayed and sold. Any mismatch between store location, store design, the merchandise, and its presentation can pull down a store's profits and may eventually foretell its demise" (Barr and Broudy 1986, 9).

When preparing to design a retail facility, the interior designer must understand the retail business in order to avoid that mismatch. Before any specific space planning or design specification activities are undertaken, designers must learn about the merchandising methodology of that retail store. Doing so is critical.

Types of Retail Facilities

Retail stores are categorized according to the type of merchandise sold as well as the type of facility. The North American Industry Classification System (NAICS) lists numerous retail businesses based on the products or services that are sold within subtypes as well. It also provides a wide variety of statistics about businesses in North America.

For our purposes, we will focus on ownership and location. Let's begin with definitions and brief discussions of some of these types:

- *Single store*: An entrepreneurial facility selling a specific product but from only one location.

- *Chain store*: A retail store with multiple locations that may be regional or national in scope. It can be either independently owned or owned by the chain and managed locally. It can also be considered a franchise store.

- *Department store*: A retail store that stocks a wide variety of brands and product offerings.

- *Magnet store*: A large, well-known chain store that attracts a large number of customers to a mall or center. Also referred to as an anchor store.

- *Hypermarket*: This is a very large store, generally over 200,000 square feet (18,581 square meters) that sells a wide variety of merchandise.

- *Supermarket*: A large store focusing on the sale of groceries and household items.

The single store is the simplest type. The designer will work directly with the owner in almost all cases. The merchandise they sell can be anything from baked goods, children's clothing, gifts, hardware, to just about any type of product you might name (Figure 9-3). There are literally hundreds of thousands—if not millions—of this type of store. As independent owners, they are free to explore design solutions that they believe are appropriate for their endeavor. Owners of this type of store often are most in need of an interior designer's assistance because the owner may have limited experience in effective planning and design.

Another common type of store is the chain or franchise store. Chain and franchise retail stores require local merchants to follow policies established by corporations

related to management. The corporate owners also mandate the design of a chain or franchise-owned specialty store. Interior designers will have more restrictions on what can be done in the design of a chain store. In fact, it is not uncommon for the corporate team to send a designer to oversee the build-out of a chain store.

Department stores offer a wide variety of merchandise from numerous sources. Readers are familiar with department stores such as Nordstrom, J.C. Penney, Dillard's, Bloomingdale's, and Macy's, to name some of the largest. Interiors are designed to create backgrounds for selling merchandise much in the way the small specialty store is designed. Many department stores have begun to incorporate stores within stores, in which a particular brand of merchandise (commonly cosmetics) is highlighted in its own differently designed section of the department store. Department stores are often the *anchor*, or largest store at a shopping center or mall. While all department stores of the same brand in the same general geographic area are not identical, they will have some similarities because they are often designed by corporate designers to meet the corporate brand.

The hypermarket has made a significant impact on retailing in the United States. A *hypermarket* is a store with at least 200,000 square feet (18,581 square meters) that sells a wide variety of general merchandise and/or food. This type of retail facility is often considered a discount store, although not all hypermarket stores are discount stores. The plan is more open than a department store and uses simple finishes. Two familiar stores developing the hypermarket location are Walmart and Target. Warehouse stores that are open to the public through a membership program (such as Costco) are another subtype of the hypermarket.

A few other types of stores with which you may be familiar include *boutique* and specialty stores, dealerships, and supermarkets. The first two generally have a small store footprint and a narrowly focused product mix, while the other two are generally larger stores.



Figure 9-3 Schedoni, a small retail store in Coral Gables, Florida. Lighting is used to create the atmosphere of the store. *Photograph courtesy of Pavlik Design Team, Ft. Lauderdale, Florida. www.pavlikdesign.com.*

Retail stores are also typed to some degree by location. One type is the freestanding, or stand-alone store, that occupies a single building. They can sell any type of merchandise. Many stores are located in shopping centers. *Shopping centers* are a grouping of retail stores—possibly combined with offices—often with at least one large store that attracts shoppers to the other stores. Some are referred to as strip centers because they are built on a horizontal line rather than clustered around an open courtyard.

Shopping centers are often developed as mixed-use properties combining retail stores, food service facilities, offices, and other service providers. Some are located close to residential areas and become community-gathering places. Some are in larger urban areas and might include hotels as well. Major investors are now focused on the redevelopment of existing properties and revitalization of shopping centers.

Recent trends see the development of large, regional shopping centers with many specialty stores and one or more *magnet* or anchor stores. With its mix of stores, this type of center attracts customers from a large area. The magnet store could be a department store, a supermarket, or other large retailer focusing on a specific type of merchandise, such as linens, books, or sporting goods. In response to the public preference for shopping in one location and to bring more shoppers to the area, baseball stadiums, ice rinks, and entertainment facilities such as IMAX theaters are being constructed adjacent to large regional centers. Landscape and hardscape areas encourage shoppers to stay and browse the development. Plenty of parking and access to public transportation also bring customers to regional shopping centers.

Malls are similar to regional shopping centers, with the difference being that they are often enclosed. They are mixed-use with many specialty stores, one or more magnet stores, food service facilities, and often entertainment facilities such as movie theaters. They offer a full range of shopping services comparable to those of small, central business districts.

Larger regional malls have become common in the suburbs of major urban areas. They are similar in concept to the mall, but have multiple magnet stores and a larger variety of specialty stores. Some regional malls include hotels and recreational facilities—even sports areas—on the fringe of the regional mall.

The Mall of America in Bloomington, Minnesota, is one of the world's largest regional malls. Due to its size, it is classified as a superregional center. When opened, the mall was on 78 acres and included over 5 million square feet. It contains over 520 stores, numerous sit-down and fast food facilities, arcade facilities, an aquarium, multiple movie theaters, and a 7-acre amusement park with a roller coaster in the center of the mall. According to their website, plans for updating the Mall of America continue and could include doubling the existing space.

Open-air village concepts are popular as a retail shopping option. Basically, these projects are patterned after a small-town business district, with narrow roads and shops on either side of the streets. In some cases, parking is on the same side as the entrance to the stores and is reminiscent of old-town shopping areas. In others, the

parking is behind the shopping facilities. According to an article in *Retail Traffic Magazine,* these retail centers include pedestrian paths and a plaza with a "town square," as well as spaces planned for offices, community services, dining, and entertainment spaces.

Other newer, nontraditional shopping options provide convenience to the consumer. *Pop-up stores* are temporary stores usually in existence for a limited period of time. For example, Halloween stores may set up in malls and shopping centers during the month of October. Kiosks have become common in shopping malls and other retail locations. *E-tailers* are those where customers shop online. Retailing through online ordering, catalogs, and television are other business options. These businesses usually don't hire interior designers, but they are mentioned because they are a business option in retail.

Planning and Interior Design Elements

The merchandise to be offered naturally impacts what will be done to design a retail store. Perhaps it is obvious, but the layout, materials, and colors appropriate for a clothing store with younger buyers as the target market will be different from those for a clothing store with older buyers. Because Gen X and millennial (or Gen Y) buyers increasingly have greater amounts of disposable income, many stores are designed and merchandised to be attractive to that segment of buyers. Yet, the baby boomer generation must not be forgotten when designing stores, as that segment still possesses the largest amount of dollars for discretionary spending.

The design of stores also varies by the price point of merchandise sold as well as, of course, the type of merchandise. Luxury boutique retail stores selling high-end products are designed using materials, lighting, and planning techniques that will not be found in small mid-priced and budget goods stores. The environment of the luxury store must play to the experience and extravagance desired by those customers. These stores will likely need special assistance with project management to ensure that the expensive materials used are installed correctly. Although a small, budget-priced store will not use expensive materials, the concepts of matching the materials and design concepts to the merchandise still apply.

The material in this section provides the reader with a background in the basic planning and design elements that must be considered in the interior design of small retail stores. Although the discussion focuses on the small retail store, these design elements can be applied to the design of larger stores. The exact specialty of the store will affect how these elements are applied.

The section begins with information on concept and feasibility studies, followed by an important discussion on store merchandising. The critical issues of sustainable design, security, and codes are next. These are followed by an overview of space allocation and traffic patterns. The final parts of this section discuss furniture, materials and finishes, and mechanical systems.

RETAIL STORE EXTERIOR DESIGN

The exterior design of the storefront presents the first major impression the store can make on a shopper, whether the view is from the street or the broad corridor provided by malls. The purpose of the exterior architectural design of the store is to attract attention, create the highest level of product exposure, and maximize selling areas visible from outside. Design concepts that affect the exterior of the store include the general exterior architectural design, the entrance, store window displays, and signage.

One of the main ways the exterior design attracts customers into the store is through the storefront's configuration. A very common configuration is the straight front. It offers a large number of display windows and plenty of opportunity for shoppers to see into the store. A second common configuration is the angled front. The two windows closest to the entrance doors are angled. This helps to direct window shoppers to the doors. The arcade front has several recessed windows, which increases window display but does decrease interior selling space (Figure 9-4).

The advantage of the straight front is that it helps to maximize selling space while providing window display. The angled front gives the consumer multiple ways to view displayed merchandise and reduces window glare, which makes display items easier to view. The arcade front has several recessed windows, which increases the amount of the store's window display.

The entrance door also can brand and market a store. For example, the red door of the Elizabeth Arden Salons is an important symbol for that store. Stores also place logos on doors to help identify themselves. Of course, depending on the codes, the larger the interior footprint of the store, the greater the number of entrance doors that will be required.

Store window displays play an important part in enticing customers into the store. Apparel shops utilize large windows to display clothing on full-sized mannequins. Jewelry stores often use smaller display windows. Placed at eye level, these smaller windows—often called shadow-box windows—allow the customer to better view these small objects. Some retailers prefer that windows display merchandise and allow a view into the interior to entice shoppers to enter the store. One way this is done is by using a ramped window. In this case, the display window has a display floor higher in back than in front, in either a wedge or tiered shape. This type of display is often used in shoe and accessory stores (Lewison 1994, 278).

Store signage is also used to attract customers. Dating back hundreds of years, store signage helps passing customers identify the type of merchandise available from a particular merchant. Many store signs incorporate the name of the store with the type of merchandise for sale—for example, Barnes and Noble Booksellers. Other stores, such as Apple, are so well branded that simply the name of the store identifies the merchandising concept for the customer. Today, chain stores have standardized signage and logos that help create instant recognition. Smaller stores also hope that the design of their signage helps customers understand what they sell, be it gifts, clothing, or auto parts.

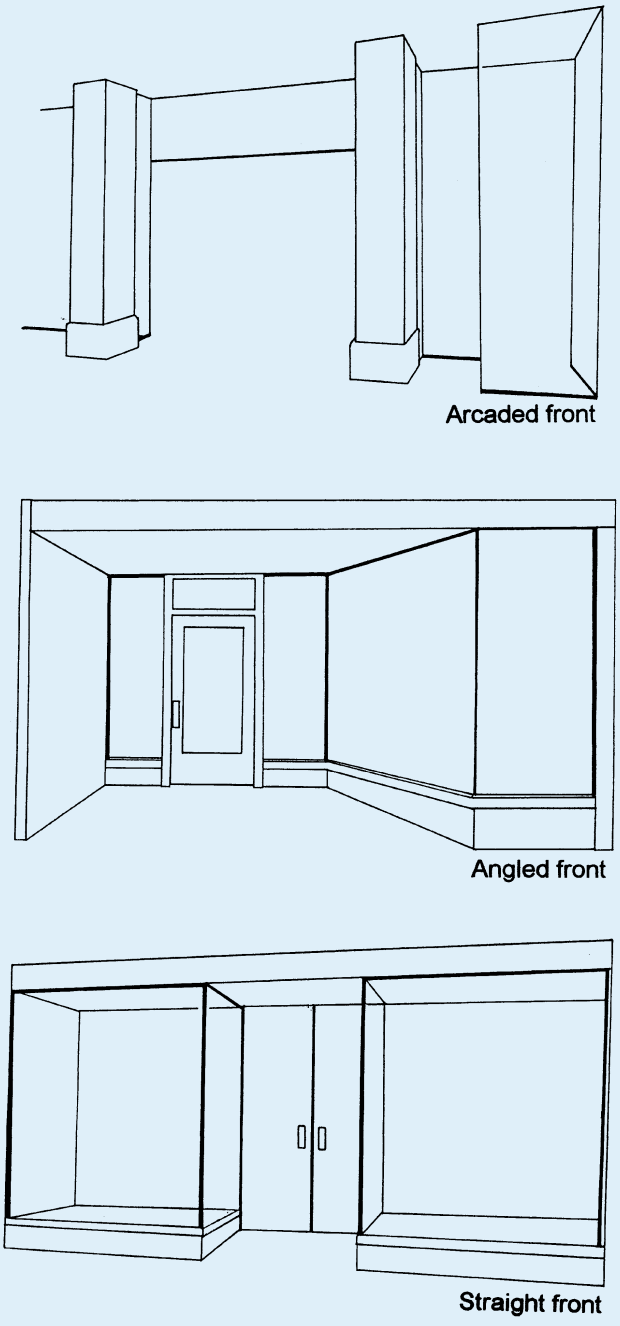


Figure 9-4 Three storefront designs.
Drawing by Elizabeth A. Rodgers, SOI Interior Design.

FEASIBILITY AND CONCEPT

A business tactic to help increase the success of a new retail facility is to investigate the feasibility of the store and develop a concept. This task is similar to any feasibility research conducted for other types of commercial facilities. A feasibility study helps the prospective store owner more clearly understand his or her concept and the potential reality of that concept. It helps to be proactive with risks and rewards.

It usually begins with ideas for the store from the owner and is added to by the designer. A consultant can be used as well and probably would be for large facilities like department stores. Unlike most feasibility studies for other types of commercial interiors, the mix of product is very important to the feasibility of the store. Considerable marketing and merchandising research must be conducted to find out what products the customer will be attracted to in order to entice the customer to the store.

The following list includes topics that should be researched and studied:

- Business idea (clothing, gifts, jewelry, etc.)
- Product mix and price point
- Types of target customers—demographics would be included
- Competition
- Potential traffic flow of customers
- Need for products in the expected location
- Type of service (full or self-serve)
- Location
- Merchandise display strategies
- Budgets for fixtures, finishing the interior, initial inventory, and technology, to name the most important

There is no getting away from simple "retail store research." Existing stores must be shopped and observed. Every store has a story to tell the customer, from the moment one is approached at the entrance through to the materials, finishes, colors, types of fixtures, and lighting that are used. The type of products, price point of the products, and customer service offered by the sales force tell another story. Although retail research is not the primary way a designer should learn about the retail design field, the method should not be ignored as a tool.

STORE MERCHANDISING

All the decisions about the planning and interior design of a retail store are heavily influenced by the merchandise to be sold and the type of customer the store owner wants to attract. The mix of merchandise offered heavily influences the layout of traffic paths and display fixtures, the architectural finishes, possible furniture items beyond fixtures, and other elements involved in the store design. Obviously, different layouts, display methods, and fixtures are needed to display jewelry versus clothing versus sporting equipment.

There are several terms important to the concepts involved in store merchandising. The most important are listed here:

- *Merchandising*: Sales promotion, which includes market research, development of new products, coordination of manufacturing and marketing, and effective advertising and selling
- *Merchandising blend*: Combines the retailer's merchandise with the decision the consumer uses in making selections
- *Nonselling space*: Areas not allocated for the direct display or sale of merchandise, such as the stockroom and store office
- *Selling space*: All the area designated for the display of merchandise and interaction between customers and store personnel
- *Vignette*: A display of furniture and accessories that is created to look like an actual room
- *Visual merchandising*: The display of merchandise in store windows and in other locations in the selling space

Merchandise is grouped into product-line subdivisions. Within each of these subdivisions are three categories or types of merchandise: demand, convenience, and impulse. *Demand merchandise* is usually a necessary item that encourages the public to shop. Suits, dresses, and shirts are examples in clothing stores. A bed or sofa is an example of demand merchandise in a furniture store. The retailers of small stores stock mainly demand merchandise because these items turn over faster and produce constant revenue. *Convenience items* are repeatedly used—for example, hosiery in a clothing store and lamps in a furniture store. *Impulse items* are unplanned purchases and are dependent upon good display—usually at the point of purchase. Examples include candy and gum placed at the grocery store checkout counter.

When allocating space for merchandise, the interior designer also needs to be aware of two merchandising approaches to making space decisions: the model stock method and the sales/productivity ratio method. In the *model stock method*, the retailer determines the amount of floor space needed to stock a desired amount of merchandise. In the *sales/productivity ratio method*, the retailer allocates selling space on the basis of sales per square foot for each merchandise group. The retailer/merchant will decide which method will be used. This information directly relates to the placement and space planning of the fixed and flexible fixtures and to the proximity relationships of other merchandise, which directly affects the direction of the interior design.

Visual merchandising is another facet of merchandising goods. *Visual merchandising* is the display of merchandise in store windows and in other locations in the selling space (Figure 9-5 and Figure 9-6). The objective of visual merchandising is to encourage the completion of the sale once the customer is in the store. Visual merchandisers or display designers (previously referred to as display staff or window dressers) are hired specifically to deal with visual merchandising for the store. A talented, creative display designer can bring customers into the store based on the reputation of the designer's show windows and other display work.



Figure 9-5 Note the different kinds of shelving and display cases in this specialty store, The Chocolate Market, Vancouver, British Columbia. *Interior design by DH Designs. Photographer: Ed White*

This method of visual display can create interest and expose the product to consumers, enhance the look of the product, give information, aid sales transactions, and increase sales. Many merchandising displays can also serve as storage space, as all the backup stock may be utilized in the display. Visual merchandising is considered a form of nonmedia advertising because it helps create a store image for customers.

An interior designer working as a visual merchandiser has an excellent opportunity to develop and increase portfolio work rapidly. This is a good position for an entry-level designer who needs to increase his or her work experience as well as accumulate portfolio items.



Figure 9-6 Mannequins in lifelike poses are often used to display merchandise, as in this Tommy Hilfiger showroom, New York, NY.
Design by and photograph courtesy of Peter Gisolfi Associates, Hastings on Hudson, NY.

SUSTAINABLE DESIGN

Sustainable efforts in retail stores begin—as with so many other types of commercial facilities—with the impacts of energy efficiency, water conservation, and other building construction systems that are basically out of the control of the interior designer. However, the designer's responsibilities can make an impact—especially regarding energy conservation and the materials used to finish the interior.

A retail store contains many cabinets, shelving units, and storage units. These common fixtures are less likely to be constructed using green materials and processes. These types of fixtures will probably off-gas toxic fumes from the plywood, composite boards, and laminate finishing from which they are made. However, display cabinets and many fixtures can be custom-made using green products and techniques. The interior designer should explore using materials that do not produce toxic fumes for these types of products. In some cases, metal shelves can be used for display fixtures. However, this is not a universal solution because metal shelves in a store selling high-end luxury products would not be appropriate.

Products that are repurposed have become popular in some store designs. For example, repurposed barnwood as paneling might not be appropriate for a store that sells jewelry or high-end gifts, but has its place in a sporting goods store. Mosaic wall treatments and mosaic tops on cabinets or tables are other examples of repurposing materials. GreenSpec, a resource from BuildingGreen, can help the designer find environmentally friendly products.

The Forest Stewardship Council (FSC) certifies that wood comes from forests that are managed for regeneration and not from types that are being depleted or illegally harvested. This certified wood can be used for paneling and furniture items such as cabinet fixtures, cash wrap desks, and any other desks or guest seating included in the plan.

Other popular treatments in stores emphasizing green interior design include exposed concrete flooring and an exposed ceiling that is not finished in dropped acoustical tile. Of course, flooring materials—including the adhesives for affixing carpets and/or any hard-surface flooring—should be researched to be low-VOC and be easy to maintain without using toxic cleaning products. Painted walls, a common treatment in stores, should be painted with low-VOC paints. Natural materials for other types of wall treatments would be ideal.

Lighting is a critical factor in merchandising a store. Lighting can be selected to be energy wasting or energy efficient. It is very important to avoid over-lighting in the design. "Lighting for retail establishments must enhance the customer's experience, properly illuminate the merchandise, and satisfy all of the technical and energy code restrictions" (Binggeli 2012, 383). The use of compact fluorescent lamps (CFLs) and light-emitting diode (LED) lamps in appropriate fixtures are keys to energy and lighting efficiency in a retail setting.

Stores that focus on selling green products can have revenue problems due to the potential lack of interest from consumers. Yet, there are customers who want to buy green products or certainly more natural products. They are even willing to pay extra for those products. There are also those customers who prefer to shop in stores that feature green design and sustainable concepts in the store philosophy. Consider the success of REI for sporting goods and Whole Foods for groceries.

There is also a new LEED certification category that can help designers meet LEED specification for a retail store. Information regarding LEED for Retail is listed under the Building Design and Construction category at the U.S. Green Building Council website. The U.S. Green Retail Association encourages retail stores to embrace sustainable operating and design efforts.

SECURITY AND SAFETY

There are two main issues when it comes to security and safety. First is for the customer. Customers want to feel that they can come to any type or size of store in safety. Security cameras and other devices help provide a measure of safety because their existence may deter individuals from robbing the store or its customers. Architects and designers need to design retail spaces where customers feel safe and secure.

Security is also an issue for the store owner. Store owners and tenants of retail spaces must generally provide their own security measures to prevent theft or *shrinkage*—the loss of inventory—as it is called in retail. The store wants to deter shoplifting, which is the act of stealing merchandise from the store, along with pilfering that might be

performed by employees. Many kinds of security measures can be used in the retail store, some of which will impact interior design. Large convex mirrors placed in "blind" corners; employees walking through the store to maintain contact with customers; fitting room attendants and procedures to limit the number of items in fitting rooms; and display fixtures that are not so high as to block visual control of the store from the cash register are all methods usable in any type of store. Layouts should prevent high-priced items from being located too close to the front entrance, where they can be easily stolen.

Video surveillance systems have become prevalent, regardless of the type of merchandise sold. These systems allow the store owner to monitor what is happening throughout the store, with special emphasis on the cash register and areas where high-priced items are displayed and stocked. Video surveillance can also be useful in the parking lot, assuring customers who shop at night some measure of safety when they return to their cars. Some stores—notably electronics, convenience stores, and drug stores—and shopping malls have the architect include exterior barriers to prevent thieves from crashing into the entrances.

At the cash wrap register area, the point of sale (POS) system should be locked whenever an employee is not at the register. To protect the store and its customers from data breaches, the credit card swipe unit should also be in full view of the customer so that employees would have a harder time double-swiping a card for fraudulent use. The *cash wrap* area is often the place where high-value items are displayed. Those cabinets should be lockable to prevent theft.

Electronic article surveillance (EAS) systems and exit pedestals are the most effective security measures. An EAS tag containing a circuit capable of emitting a radio signal is attached to a piece of merchandise. If the tag is not removed or deactivated at the time of sale, an alarm goes off at the exit, which alerts the sales staff to potential theft. Tags are applied as a device on the article or integrated into the price tag. Another kind of electronic tag or marking device can code prices onto tickets. Still other tags are processed by optical character recognition (OCR) systems. Anti-theft technology continues to evolve to help eliminate a very costly part of doing business.

Many safety issues, such as sizes of aisles, fire sprinklers, and provision of accessible counters, are defined related to codes. They are discussed in the next subsection.

CODE REQUIREMENTS

Building and fire safety codes help protect the customer and the store owner/property owner. Retail stores must also meet accessibility regulations. Codes related to mechanical systems, such as plumbing and electrical, will also potentially impact the interior design and space plan of a retail store, regardless of size and type. The size of the store and its building type will govern the code requirements. Code requirements may vary somewhat when the store is located in a mixed-occupancy facility such as a hotel. The reader is urged to verify local code requirements for the particular project.

In the International Building Code, the occupancy classification of retail stores is Mercantile. However, some shops or stores, such as a beauty shop, will be classified as Business. The Life Safety Code classifies stores as Mercantile facilities as well. The difference is that the mercantile space is for the display and sale of goods, while any type of shop that falls under Business predominantly provides a service. Department stores, grocery stores, showrooms, and wholesale stores that are not simply warehouses are

other examples of facilities classified as Mercantile. Some malls will also be included. Malls often have different code requirements because they are groups of stores and can include restaurants and entertainment spaces.

Corridors formed by full-height partitions are less common in retail stores. The traffic paths and exit accesses of a store are more likely to be aisles. Remember that an *aisle* is defined as an unenclosed traffic path formed by movable furniture or equipment (Harmon and Kennon 2005, 134). Aisles can be considered exit-access passageways in retail stores. When this is the case, they must be wide enough to meet the occupancy load, similar to exit access corridors. That clear width is a minimum of 36–44″ (914–1118 mm). Space requirements between movable fixtures are determined by local jurisdictional codes.

Materials and finish selections will also have some restrictions related to fire and building codes. Architectural finishes for walls and ceilings must be Class A or B in almost all situations. Flooring must meet Class I or II standards for fire safety. With the large amount of combustible material in stores in the form of merchandise, the interior designer needs to use great care in the location and specification of lighting fixtures so that hot lamps do not cause a fire nor interfere with sprinklers and smoke detectors. Decorative treatments that add interest to walls or ceilings should be carefully selected to reduce fire hazards and must be specified according to local codes.

Retail stores must accommodate accessibility guidelines, which can impact the design of the cash wrap counter, heights of store display fixtures, size of dressing rooms, and clearances at entrances as detailed in Section 7.2 of the ADA guidelines. Stairs and raised floor areas must be designed for both accessibility and safety. An accessible dressing room needs to be a minimum of 54–72″ (1370–1829 mm) if a door is used. Railings are needed for raised areas unless the local jurisdiction allows a variance. Ramps are needed as well to ensure that the raised area is accessible. Materials on stairs leading to raised areas may need to be a material different from that on the remainder of the floor surfaces to help prevent falls and to indicate raised areas related to accessibility regulations. Code officials in the local jurisdiction must be consulted concerning plans for raised areas in retail stores.

Retail stores must also provide toilet facilities. A small store generally needs to provide only a unisex toilet facility. Larger stores must provide separate toilet facilities for men and women, with one or more fixtures. Mercantile occupancies are not required to have separate facilities for employees and the public. Toilet facilities must comply with accessibility standards, with a minimum of one accessible toilet facility for each sex as necessary.

This brief discussion does not cover all the code requirements for the wide variety of retail establishments. As always, the interior designer must prepare drawings and specifications that meet existing local codes for the facility and its location.

SPACE ALLOCATION AND CIRCULATION

The allocation and layout of space in a retail store is of major concern to the retailer and an important part of the services that the designer will provide. The space in retail stores is generally categorized as selling space and nonselling space. *Selling space* is all the area designated for the display of merchandise and interaction between customers and personnel. It is similar to the front-of-house spaces in hospitality facilities, although it is not referred to that way in the retail industry. *Nonselling space* includes areas such as the stockroom, office, and any other areas not allocated for the direct display or selling of merchandise (Figure 9-7).

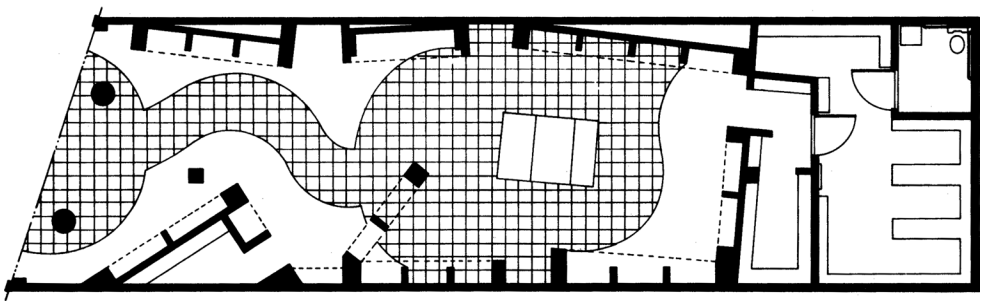


Figure 9-7 Floor plan shows functional divisions of a shop for customer areas, product storage, and employee areas.
From Kilmer and Kilmer 2014, 275. Reproduced with permission of John Wiley & Sons.

There are several key guidelines that the designer will incorporate into the space plan of the store. These are discussed in detail with the store owner during programming and include the feasibility of a specific store footprint for the type of store to be created. Space allowances will be impacted by merchandise mix, types of fixtures, and fixture locations in the plan. There are other factors that will impact the overall space design related to type of merchandise. The designer will also discuss architectural finishes, signage, placement of the cash wrap desk, and other issues inherent in the design of selling and nonselling space.

Some important guidelines concerning selling space include:

- The most valuable space is near the front of the store.
- Display space on the main or central aisles is more valuable than space on peripheral or side aisles.
- Eye-level space is more valuable than space above or below eye level, especially for new items.
- Space on the first floor is generally more valuable than raised or upper-floor space.
- The space along the aisles is more valuable than the peripheral corner space.

Circulation and traffic patterns establish the layout of aisles and the positioning of fixtures within the store. Merchandising research has shown that people usually turn right when entering a store. The designer needs to attract the customer to the left as well in order to reduce one-way traffic. A planning and merchandising technique is to position the bulk of demand merchandise away from the entrance, forcing the customer to pass convenience and impulse items prior to reaching the intended item. Convenience items are traditionally placed somewhere in the midsection of the store. Impulse items are usually located near the sales counter/cashier or close to the entry.

There are several ways to plan the layout of the store, with the aisles, for the most part, dividing the space. The type of plan most appropriate to the store will depend on the size of the overall space to be used. The small store, like a gift shop or independent clothing store, will have some limitations on layout while trying to plan ways for customers to view a lot of merchandise. The larger stores and department stores have many more options in their layouts.

Some typical layouts are discussed in this section. The reader may find other arrangements discussed in the resources listed in the Bibliography and References that may be appropriate. These have been selected, as they are very common in smaller stores.

The most economical plan used by many small stores is the *straight plan.* It can be used by almost any kind of store, be it clothing, gifts, shoes, or many other types of sellable products. Wall fixtures or other display devices are arranged along the perimeter walls. Other fixtures are arranged within the space so that traffic moves easily from the front to back of the store. Some designs include the use of niches along the perimeter walls to create small alcoves. Some stores use raised areas to add interest and to help with merchandising goods. Figure 9-7 is in essence a straight plan with a major aisle that takes the buyer from front to back of the store.

The *boutique system* divides the sales floor into individual semi-separate areas, each possibly built around a shopping theme that focuses on the individuality of the product. It is very popular in high-end stores. Personal service, uniqueness, and ambience are all considered important elements in planning and creating a boutique atmosphere (Figure 9-8).

The *diagonal plan* creates movement of the customer through the space. It almost forces the customer to travel through the entire store, allowing them to see lots of merchandise and creating a dynamic plan. It is particularly suited to a store that depends on self-service rather than staff waiting on the customer.

Another style of floor plan is the *free-flow system*. In this planning system, displays and fixtures are not planned in a static way, which is a particular advantage to a small store. Free-flow creates a free flow of the traffic patterns and placement of fixtures to encourage browsing and potentially impulse buying. The free-flow system is recommended for the most effective use of space, especially in small stores, because the displays can be changed very easily and targeted for the volume of merchandise in stock.

A store that must deal with numerous columns often is planned so that the internal layout of aisles and store fixtures use the *grid system.* It often creates a straight plan due to the location of the columns. It is most commonly used in planning larger stores such as department stores. The grid system makes it easier to locate fixtures and aisles within an overall space that can be somewhat limiting. However, due to the necessity of working with the columns, the aisle pattern provides very little flexibility to the overall floor plan.

In larger stores, any of these planning concepts can be used; in fact, multiple concepts will be used depending on the department. However, it is more common for larger

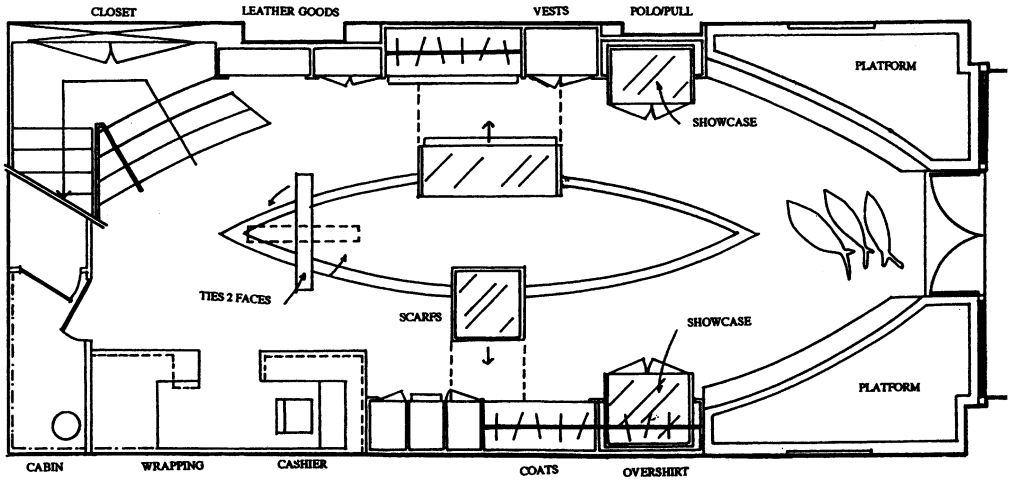


Figure 9-8 Floor plan using the boutique system.
Plan courtesy of Jean-Pierre Heim & Associates, Paris, New York. Jean-Pierre Heim and Galad Mahmoud Architects, DPLG, Paris.

stores to use planning techniques to move customers from one department to another. In these larger stores, stairs, escalators, and elevators add to the complexity of the planning mix. The placement of these traffic movement elements plays an important part in attracting customers to other parts of the store as well. Stairs, escalators, and elevator are elements planned by the architect or in consultation with the architect. Escalators are usually installed in pairs and generally located in the center of the sales area, while elevators are usually placed in the rear of the store.

Easy access from the store entrance to all store sections is very important. Small retail stores usually use a single aisle extending the length of the store—the straight plan system. If the store is large, minor aisles branch off from the main aisle whether that aisle is placed directly through the center of the store or as a radial main aisle creating a circular traffic pattern.

Other important considerations in the placement of the different types of items are the costs of the items and the concerns about theft and security. Merchandise placement is highly flexible and is dependent on the merchant and the product mix. The final decision about where to place goods is based on two factors: the need for exposure of the merchandise, such as impulse versus convenience items, and the retailer's expected profile of customers, their age group, and their shopping frequency.

There are several points to keep in mind when planning nonselling space. They include:

- The amount of back storage for reserve stock is determined by the store owner, as it can reduce selling space.
- Allow appropriate space for a desk or office for the store manager in the back area.
- Determine how new merchandise will be brought onto the floor to avoid interfering with customer traffic.
- With a freestanding or strip center store, provide space for store delivery trucks to load and keep items separate in the receiving area.
- Some products will require preparation before being taken to the sales floor. This is especially true of clothing stores, where receiving shipping cartons are opened, items are steamed or pressed, and garments are placed on hangers before the merchandise goes to the sales floor.
- Determine how deliveries made by rapid-ship companies will be handled, as these are often not delivered to a freight door.
- Additional storage may be needed to handle off-season stock that was not sold during the season.
- Space will be needed for alterations and fitting rooms for clothing stores.
- Space for custodial supplies and restrooms for employees are other nonselling spaces. Local codes will determine if a restroom for customers is required.
- If the store is large and has many employees, a break room or area for employees to store personal items needs to be planned.

FIXTURES AND FURNITURE

Most of the furniture in a generic retail store will consist of various kinds of merchandise display fixtures. Depending on the nature of the merchandise and the store, other furniture items might be required. The store owner and the planned merchandise mix will guide the designer in the mix of store fixtures. This section will focus on display fixtures, since they are the primary furniture items.

Merchandise is displayed using a variety of counters, racks, wall systems, and platforms as well as freestanding flexible fixtures. These different display equipment items are commonly called *display fixtures* and are also used to store and protect merchandise. Some fixtures are designed to display hanging items and some are designed to display folded items. Many stores use specially designed cabinets to display folded clothing and many gift and specialty items. A common goal of the interior designer is to provide creative design planning in the selection and specification of merchandise display equipment. Fixtures should allow the maximum amount of merchandise to be available on the selling floor per code without appearing overcrowded. Display fixtures should also be flexible in use and easily moved. If custom cabinetry and fixtures are specified, the interior designer will be required to produce the drawings for their manufacture.

Here are brief definitions of some of the most common store fixtures:

- *Cash wrap desk*. The counter area where a cash register and other POS equipment is used to transact the sale of the merchandise.

- *Cubes, pedestals, and showcases*: Many of these items are custom designed and manufactured especially for the store. Merchandise can be displayed on them or within showcases.

- *Freestanding fixtures*. Floor-standing fixtures allow customer access from all sides. The most common freestanding fixtures are the two-way, the four-way, gondolas, spirals, and rounders. It is common for the two-way and four-way fixtures to consist of a flat metal bar, horizontal to the floor and held up by a round post.

- *Gondolas and cabinets*: Fixtures can also be made of custom millwork or stock millwork and can be installed on the walls or as freestanding units. A gondola is a three-dimensional open-shelved unit with access from all sides. The average height of a gondola is 48–54″ (1219–1370 mm) from the floor. It can be used to display many kinds of merchandise in a variety of retail stores.

- *Island fixture*: A three-dimensional counter used for the display of a wide variety of accessories such as jewelry, scarves, and handbags, as well as cosmetics.

- *Mannequins*: A display item that looks like a human body to display clothing items. These come in sizes from children to adults and vary in "realism" from lifelike to a simple representation.

- *Rounders*: A type of fixture that is preferred to display merchandise on sale. This fixture has a round tube above a stand. Merchandise can be hung from clothes hangers.

- *Slatwall fixture*: Brackets are used to display a variety of merchandise including apparel. Variations on the type of brackets help to better merchandise the store.

- *Spiral fixtures*: A vertical curvilinear fixture, often metal, with hooks spaced evenly to hold clothing accessories such as belts or scarves.

Some store fixtures need to be flexible in their design so that they can be modified for the owners' use. For example, shelving units will provide the opportunity to rearrange shelves to accommodate different sizes of merchandise. Gondolas and cabinets are often designed to accommodate stock within the unit, as well as display merchandise on the unit.

The cash register and cash wrap areas of the store need to be accommodated within cabinets. These are mostly custom designed, although stock items will be available from the same sources as display fixtures. Space will be needed for one or more POS computers, counter space for wrapping or bagging items, storage for bags and boxes, and other needs defined by the client. Accessibility requirements must be considered in the design of this custom cabinet.

Other furniture items might be needed based on the type of merchandise to be sold. Naturally, chairs are needed in shoe stores, chairs or stools may be needed in jewelry stores, and many clothing stores provide a few seating units for those waiting for a customer to try on merchandise. Obviously, these are only a few examples of the additional items needed in the selling spaces, depending on the merchandise mix.

MATERIALS, FINISHES, AND COLOR

The appropriate setting for wall treatments helps to present and sell merchandise. It can be created to be a backdrop, which brings emphasis to the merchandise, or it can be created to provide a more visually active selling space that can also sell some types of merchandise. Thus, much can be done with the interior materials and finishes in a retail store. However, the choices depend upon the type of atmosphere requested by the retailer from input during initial interviews and program development (Figure 9-9).



Figure 9-9 A builder's showroom displays architectural finish choices in custom shelving, another type of store fixture.
Interior design by Debra May Himes, ASID, IIDA, LEED AP. Photographer: Dino Tonn.

Buyers today are into the experience of shopping. The bland interior design of big box stores certainly sells merchandise, setting the budget tone that a big box store wants to convey. Owners of smaller stores, boutiques, and department stores are looking for more in the design of their stores. That can mean using unusual materials, using materials in surprising ways, using textures on walls, and utilizing great lighting design.

Although store finishes are not changed annually, many feel the need to remodel to some degree or another about every five years. These background materials and finishes must also easily blend with the seasonal differences in merchandise. Store interiors can be easily changed with paint. This should be kept in mind when specifying finishes. Design can easily incorporate masonry, woods, and even ceramic tile to bring more interest and expression to the concept envisioned by the owner.

Remember that soft, porous materials absorb sound and hard, rigid materials reflect it. Maintenance is an important factor. Areas of the store where more traffic and wear and tear will exist need to be designed to take the abuse and be durable. That is one reason why many large stores, such as department stores, use hard-surface materials for main traffic paths.

As reviewed in the section on codes, building and fire safety codes will impact what materials can be used on walls and floors. Wall treatments will be determined in part by how much of the walls will be used to display merchandise and what types of fixtures —if any—will be used on the walls. Paint might be the best choice over more expensive materials when walls are the focus of product display. Wall treatments can also include graphics and signs to help identify products sold and locations within the store. Consider shoe stores that display shoes under logos or signs indicating running shoes and walking shoes, or displaying all of one brand of shoe in a specific area.

Floor treatments should be selected with aesthetic, noise, and safety considerations in mind. In winter climates, stores that open directly to the outside should not have slick, hard surfaces at or near the entrance. Hard-surface materials are appropriate for many kinds of stores, such as boutique grocery stores. A quiet and more elegant atmosphere for shopping in a clothing boutique, for example, can be achieved with high-density, low-pile carpeting. Carpeting does require maintenance, and electrical outlets will be needed for vacuum cleaners when carpeting is specified.

Although color selections may seem unlimited, many stores require the use of certain colors or color schemes. This is especially true for chains and franchise store owners, who must replicate store interiors based on strict corporate guidelines. In other cases, the retailer has a logo and color choices that are already established and identified with the product lines. Using dark colors on walls, ceilings, and floors can create dramatic interiors—yet these colors, as well as others, can affect the color of merchandise. This can especially be a problem in clothing stores.

Often, the specified colors for the walls and floors are neutral colors that serve as a backdrop for the merchandise, if this is a reflection of the merchandise mix and target customer. If a specific dominant color is requested by the retailer, the interior designer must make certain that it does not interact or conflict with the changing colors of the merchandise. This is especially true in clothing stores, since the colors of current merchandise change more rapidly in the apparel market.

MECHANICAL SYSTEMS

The most important mechanical system that can be impacted by the interior designer is interior lighting. Familiarity with lighting fixtures and lamp characteristics are critical in the specification and placement of lighting in retail stores. Lighting design consultants can be hired as subconsultants.

The primary purpose of lighting is to improve the display of merchandise. Lighting systems can significantly increase the positive reaction of the consumer to products on display. Poor lighting or a lighting design that diminishes the visual qualities of the products will result in reduced merchandise sales. Poor lighting or misspecification of lamps will also impact the colors of the merchandise. (How often have you looked for a particular type of lighting fixture in an apparel store to make sure that the colors of garments match?) It is very important for the interior designer or lighting designer to carefully plan the types of light fixtures and lamps used throughout the store to best show off the merchandise.

In the sales area, four basic categories of lighting are used:

- Some type of *general (ambient) lighting* to provide overall visibility. This can be done with a large variety of fixtures and requires lighting levels of 20–60 foot-candles, depending on the type of store and merchandise.

- *Accent lighting* is necessary to add visual impact to displays. The lighting from these lighting fixtures, in particular, should attract attention to the items displayed. Track and spotlights are commonly used for this type of lighting. You might think of this type of lighting as similar to the sparkle lighting in food service facilities.

- *Case* and *shelf lighting* provide lighting within display cases and above or along shelves to help display certain kinds of products. These need to be hidden so that the lamp will not burn a customer.

- *Peripheral lighting* is used in some areas to attract attention to the wall displays and merchandise. Recessed lights and wall washers are commonly used for peripheral lighting.

Due to their cost and the cost of potentially rewiring a space, lighting fixtures are not replaced as often as other items in a store. Flexibility in the type of lighting fixtures specified is important to make it easier to light merchandise when changes in the display fixture layouts are made. Poorly selected fixtures and lamps can also negatively impact the colors of merchandise, which could lead to their return. Additional information about lighting design is provided in the "Design Applications" section later in this chapter.

The recommended foot-candles needed for selling vary with the type of merchandise and the colors used. According to the Illuminating Engineering Society of North America (IESNA), 30–60 foot-candles are recommended in merchandising areas (Steffy 2002, 80–81). In a boutique apparel store, for example, with lighting for display, the specific lighting can range from 60 to 90 foot-candles, with higher levels recommended for primary displays (McGowan 2003, 505). It is important to consider energy efficiency in lighting design by choosing fixtures that can use LED, CFL, and possibly halogen lamps for large areas rather than incandescent.

The International Building Code and the Life Safety Code regulate exit and egress lighting levels. Local codes may impact lighting design in terms of energy usage. Large stores are limited in the number of watts per square foot. Smaller, specialty stores often are allowed higher limits, depending on the merchandise. State regulations will also impact lighting design related to watts and types of lighting needed in order to positively impact energy conservation. The designer must be sure that the lighting plan not only provides needed lighting levels for function but also meets any restrictions imposed by the jurisdiction for energy efficiency.

Of course, other mechanical systems issues in a retail store include technology to run the POS system and security systems, sound systems for background music, and possible others depending on the type of store. Lighting design will impact the HVAC system, so the interior designer must work closely with the architect to avoid negatively impacting energy efficiency.

Design Applications

Although stores can be classified by type of ownership as discussed earlier in the chapter, the type of merchandise sold can also classify them. There are many stores that sell apparel, accessories, linens, and other kinds of soft goods. Soft goods are also referred to as softlines. Products such as appliances, furniture, sporting goods, and the like are often referred to as hard goods or hardlines.

Many elements that go into the planning of a retail store are very similar, regardless of the type of merchandise offered for sale. However, it would be impossible to discuss specific design applications for each kind of merchandise in the many types of retail stores in this book. This section on design application focuses on small clothing stores and gift stores. In these types of stores, it is possible to discuss issues related to very common types of small stores.

A brief section on the design of hardline stores is included. A brief design application discussion of salons has been moved to Chapter 12 under the "Day Spas" section.

GENERIC SMALL CLOTHING STORES

A key to the layout and design of a clothing store is the merchandising concept developed by the store owner. How and where merchandise is grouped aids in the overall goal of selling merchandise. These groupings also guide the customer through the store as they seek items. For example, it is not unusual for appropriate accessories, such as belts, to be displayed near pants.

Space Allocation and Planning

The design of a small clothing store uses the same elements in space planning as many large clothing stores. Space allocation into logical selling groups of fixtures to display the merchandise creates the layout of the store. The plan includes the sales area, traffic path planning, fixture specification, and placement. The designer will also plan the location of dressing rooms and nonselling spaces, and specify colors and materials for architectural surfaces and lighting.

The selling space represents revenue-producing space. Thus, maximizing merchandise display and sales space is a critical issue in a small clothing store (Figure 9-10). The retailer will request that the maximum square footage be used for merchandise display and sales, while a small amount of space should be allocated to nonselling functions.

Flexible and functional planning is necessary because apparel merchandising stock and quantities will vary, depending on what is being sold. The designer needs to plan space layout and fixtures that will give the store owner or manager maximum flexibility in merchandise display.

In clothing stores, a large number of items are used together by the consumer. For example, in a woman's store, blouses and other tops are placed near skirts, pants, jackets, and accessories such as belts and scarves. Ties, belts, and dress pants are placed near dress shirts in men's stores. The planning concept associated with this fact is referred to as "in close proximity." *In close proximity* simply means that items that are related are placed near or next to each other. Of course, this principle can be applied to other types of stores and even other types of facilities. The close proximity of one product to another allows the sales clerk easy access and the potential for selling more products to coordinate with the outfit. Mirrors on the sales floor can sometimes help customers see quickly how items go together before they are taken into the dressing room.

Space planning will also be impacted by the volume and combination of demand, convenience, and impulse goods in the clothing store. Examples of demand merchandise in a clothing store are coats, dresses, and suits; convenience items are gloves, sweaters, ties, and socks; and impulse items are costume jewelry, scarves and handkerchiefs, and other accessories. In clothing stores, each of these types of merchandise generally requires different types of display fixtures.



Figure 9-10 The Something Blue bridal shop was designed in a former bank, creating an interesting adaptive use of the old teller line and other spaces.
Interior design by Phyllis Moore, FASID, RID.

Circulation and traffic paths through a clothing store seek to move customers through the store and allow flexible fixture placement. Spacing of display fixtures and counters will be impacted by jurisdictional codes and accessibility requirements. Movable fixtures are considered furniture, and there will be some flexibility in the size of aisles between fixtures. However, 36″ (914 mm) would follow accessibility guidelines.

The majority of small retail outlets use a single, straight center aisle extending the length of the store. This aisle can vary, depending on the placement of the fixtures. The width of the main aisle is usually 6′ (1829 mm), with minor aisles ranging 3–4′ (914–1219 mm). If raised areas are included in the plan, accessible access must be incorporated. In larger clothing stores, stairs, escalators, and elevators must be easily accessible and are an important factor in determining the traffic pattern.

Another category of clothing stores that brings in considerable revenue is children's clothing stores. Interior designers should remember that the basic concepts presented above apply to a children's clothing store; however, certain elements will be specified using smaller-scale furniture and dressing rooms that accommodate both the child and parent.

Dressing rooms, also called fitting rooms, are considered part of the selling space. Each dressing room needs to be provided with a stool, chair, or bench, a shelf for handbags or accessories, several hanging hooks, and a full-length mirror. Size will vary with the price point of the store, with more generous dressing rooms in luxury stores.

Privacy is also an issue related to the planning of dressing rooms. Entrances to dressing rooms should be screened from the main selling floor, but in control of staff. In many clothing stores, a three-way mirror may be specified adjacent to the dressing rooms so that the sales clerk can suggest additional items for purchase to enhance the outfit. At least one dressing room must meet accessibility standards.

Nonselling Space

Regardless of the size of the clothing store, a certain amount of nonselling space is necessary. Nonselling space must be carefully planned to avoid wasting valuable selling space. Nonselling areas in clothing stores include:

- Space for receiving and signing for incoming stock.
- Space for unpacking and inspection of merchandise.
- Space for layaway items.
- Space for prepping merchandise, such as ironing and/or steaming.
- Space for hanging new items on racks before moving them to the sales floor.
- Space for administrative activities for the manager.
- Storage space for administrative files and records.
- A secure place for employees to store personal items.
- Space for back stock.
- Space for cleaning supplies, boxes, vacuums, and the like.

- Space for mechanical equipment such as HVAC.
- A public restroom available for customers may be required by code, but one is certainly a necessity for staff members. It must meet code requirements.

Fixtures and Furniture

Fixtures are specified once merchandise mix, zoning, and traffic paths are determined. Since merchandise volume changes from season to season, it is important that the fixtures be flexible in order to display the varying products to their full advantage. The most commonly used flexible fixtures in clothing stores are

- Two-ways
- Four-ways
- Spirals
- Rounders
- Slatwall and modular perimeter frames
- Gondolas for folded items shirts or sweaters
- Mannequins

It is quite common for clothing stores to provide a few benches, chairs, or even sofas somewhere near the dressing rooms and mirrors. This seating is placed for the convenience of individuals accompanying the shopper. The type of seating and styling will be in congruence with the overall design—and price point—of the store. Upholstered seats are more comfortable and more common in stores selling higher-priced and upscale merchandise.

The cash wrap desk or counter is naturally very important. In a small store, it is often located to have visual control of the store, especially the entrance. In addition to the transaction of sales and returns, the cash wrap desk can also be a place where small impulse purchase items can be displayed. The designer should have as much information from the retailer as possible about how this space will be used in order to best meet the retailer's needs.

The cash wrap desk is almost always a custom cabinet designed by the interior designer. Generally, this cabinet is 42″ (1067 mm) high, with a writing surface for customers to write checks. An interior countertop 36″ (914 mm) high will house the POS computer, cash drawers, or cash register, and an area to wrap merchandise.

The higher counter area allows for better security of the cash register or drawers. However, accessibility standards will require that a portion of the customer's side of the counter be no higher than 34–36″ (864–914 mm) or that an auxiliary counter be provided with a maximum height of 36″ (914 mm). The cash wrap desk requires space to store any items needed at this desk, such as shopping bags.

In a store for children's items, care must be taken that fixtures cannot be easily tipped. Small items like costume jewelry for children should not be too easily accessible. The materials chosen for floors, walls, and any seating should be easy to maintain. Some

stores include a small play area. This space must be carefully designed to ensure security and mitigate liability. An unsupervised play area where children might be injured is a potential liability.

By the way, a POS system will help the store owner or manager perform many management control functions. Besides printing out the receipt for the sale, the computer will keep an accurate inventory and make ordering new merchandise faster.

Materials and Color

Finishes and color specification are our next topics for a clothing store. Flooring should be specified with safety in mind as well as aesthetics. Flooring close to the door should be specified as slip resistant if entry is directly from outside, and a floor mat may be needed (Figure 9-11). Carpeting provides comfort and style and is a common material in many clothing stores. Carpet tiles are a good sustainable product, as worn areas can more easily be replaced than broadloom carpet. Patterns should be used cautiously, as they will detract from the merchandise. Area rugs should be used only in locations where they will not cause a customer to trip. Remember that wood floors, although warm and beautiful, also require extra maintenance.

The designer can specify various materials for wall treatments. Keep in mind that generally walls will be where fixtures display merchandise. Paint is the lowest in cost and is easily changed. However, painted walls can easily be damaged or scratched and may need more frequent repair. Wallpaper-type products can also be easily damaged. There may also be code issues with the use of wallpapers or wall textiles.

The selection of colors and materials is a little different for clothing stores than for other retail facilities. It is very important that the color of the walls, floor, and ceiling not reflect a tint of a specific color onto the merchandise. This effect can change



Figure 9-11 Interior of the remodeled Mills clothing store. Note the contemporary materials and the various methods of display, including custom cabinets. *Design by Design360, Inc. Halifax, NS, Canada. Photographer: Chris Dickson, Halifax Digital Imaging.*

the apparent color of merchandise. Thus, it is always best to specify neutrals for large-volume planes in the interior. Color punches might be appropriate as accents, such as behind the cash wrap counter.

Mechanical Systems and Codes

Lighting design and specification are critical elements in a clothing store. Although some experienced interior designers can provide the lighting specifications, it is also practical to utilize a lighting designer who can specify the lighting requirements for the multitude of products found in a retail clothing store. Proper lighting is important to achieve accurate color rendition of the merchandise displayed in the store as well as protect certain fibers from fading. The interior designer should be involved in the specification of the luminaries used in the store.

To provide basic information on lighting specification in stores, here are a few guidelines:

- Recommended lighting levels include the following: 50 foot-candles for cashier checkouts, 100 foot-candles for merchandise feature displays, and 30 foot-candles for merchandising areas.
- The client will want a lighting plan that entices the customer to move from one area to another.
- Retail lighting can be very creative, leaning on theatrical lighting effects to add interest and excitement.
- Color-correcting lamps are important to provide lighting that enhances apparel colors.
- Specify energy conserving light fixtures and lamps.
- Spotlights on tracks provide flexibility.
- Be careful that fixtures do not blind the customer. Baffles will help refract the light.
- Lighting should wash the merchandise with light, not create hot spots.

Code compliance will impact the design of the clothing store. Clothing stores are considered mercantile (M) occupancies in the IBC. This will apply to a freestanding store as well as those included in shopping malls. Specific issues include sizes of aisles between fixtures, accessibility considerations, and restrictions on architectural materials. At least one dressing room must be accessible, and additional ones may need to be accessible based on the square footage of the store. Toilet facilities must also meet accessibility regulations, even if the facility is not made available to customers.

GENERIC SMALL GIFT STORES

Gift product stores provide challenges not generally associated with clothing stores. Items are commonly small and need specialized display fixtures to best merchandise them. The display of gifts requires varying viewing heights as well. Many of these stores sell items of extra value/price, such as would be found in a jewelry store, or fragileness, such as crystal gift items requiring special fixture treatment.

As with most retail design, the merchandise mix is the starting point for the interior planning. The nature of the items and their size will impact layout planning and fixture specification. A store selling fragile or high-price-point items will need more closed case fixtures or cabinets. Zoning and product placement related to the merchandise mix are important to pinpoint between the designer and the store owner during programming.

Window design and display opportunities are important in order to entice potential customers passing by the store to enter. Some stores use closed window displays called *shadow boxes* to heighten the exclusiveness and draw attention to the merchandise. Other stores selling larger gift items open up their window displays to provide a view into the rest of the selling space (Figure 9-12).

Space Allocation and Fixtures

Circulation and traffic patterns are established by the placement of fixed features such as wall cabinetry and the cash wrap counter, as well as the island fixtures and the gondolas. Depending on the size of the store, there is usually a 6-foot-wide (1829 mm) central aisle or main aisle, with the minor aisles being 3 to 4 feet (914 mm to 1219 mm) wide. Gift store designers use a variety of store layouts based on the type of fixtures needed to display the gift items. The straight plan and diagonal plan are common.

Placement of the cash wrap or checkout counter is another important planning consideration. The cash wrap counter is usually placed toward the rear of or at least one third of the distance into the selling space. Location of the cash wrap will hinge on the owner's desires. Clear lines of sight to the entrance and the whole store are important for security. The cash wrap counter may be a fixture available from vendors or a custom cabinet designed by the interior designer to meet the specific needs of the store owner. The cash wrap counter will also need to be designed to meet applicable accessibility requirements.



Figure 9-12 View into the Exploration gift store at Vancouver International Airport. *Design by DH Designs.*

The layout and design of the store and specification of fixtures are all done in order to create a stage for the gift items to be sold. In discussions with the store owner, the designer will organize the store layout so that customers will feel invited into and through the store to view all the merchandise available. With proper positioning of the fixtures, they will be exposed to the majority of products for sale.

Let's not forget that gift stores will require some nonselling space. These needs are similar to a clothing store's, although they will generally be smaller because the stock will be much smaller in size. The store owner will clarify the exact needs in the nonselling areas. Refer to the "Generic Small Clothing Stores" section for a list of items generally needed for nonselling space.

Retail stores such as gift shops depend upon cabinetry especially designed and manufactured for the retail industry. There are many styles of ready-made cabinets as well as custom-designed cabinets from these specialized vendors. Cabinets with glass tops, gondolas with open or closed shelving, and wall shelving with open or closed units are common. Base-type cabinetry with open shelving above is often accompanied by closed and locked shelving below for storage of inventory (Figure 9-13). In some stores, pedestals and cubes with or without glass cases can be used to display some items. Specification of fixtures should also consider flexibility in arrangement of any shelves. Seasonal changes in merchandise might require different arrangement of shelves on walls and in cabinets.

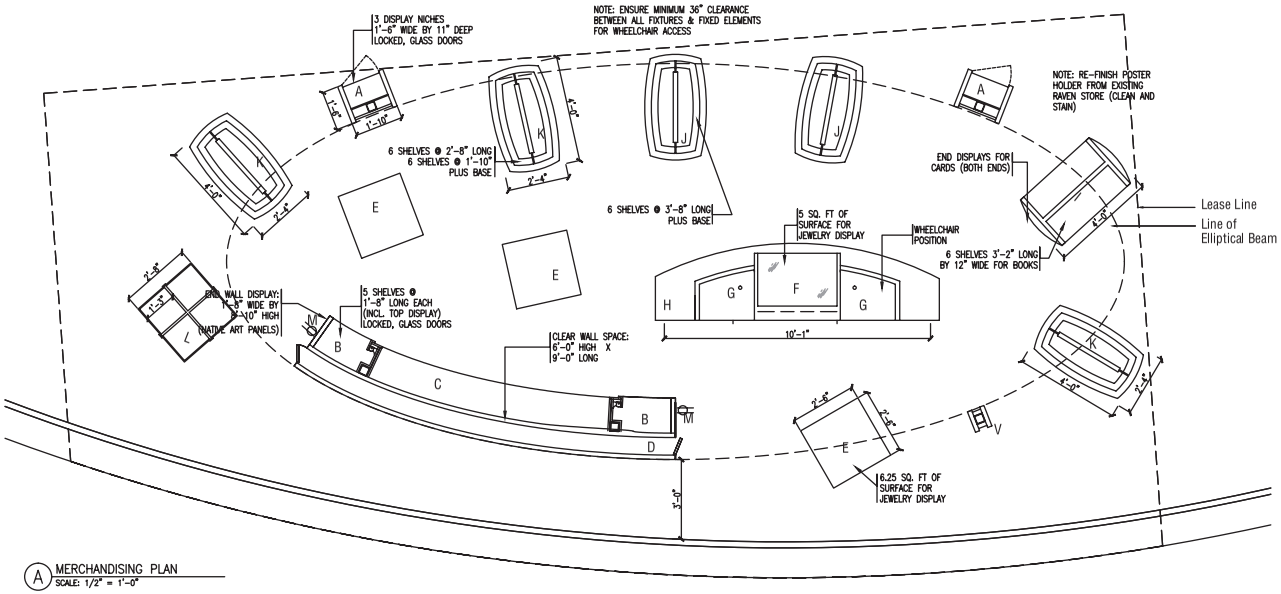
With the use of slatwall fixtures and their multitude of accompanying accessories, the possible combinations of hanging, display, and shelving seem endless. Slatwall is popular due to its versatility for display, as well as the aesthetic appeal created by the specification of custom surfaces.

Viewing level is an important consideration in the specification of fixtures for gift stores. Base cabinets are generally 36″ (914 mm) high, although heights up to 48″ (1219 mm) are also sometimes needed. Store owners place higher-priced items or new products at eye level for easy viewing by customers. Due to viewing angles, the lower shelving can be more difficult to access, especially for customers with accessibility needs and senior citizens.

Code compliance is another concern in the design of a gift store. Once again, a gift store will be classified as a mercantile occupancy in the International Building Code. If the gift store is located in another type of occupancy, such as a hotel or hospital, materials for architectural finishes may be more highly regulated than those of a gift shop in a retail store configuration. Accessibility requirements will impact the design of a gift store as well. The cash wrap desk must meet accessibility standards and might also need to be redesigned in an existing facility space.

Finishes, Lighting, and Other Systems

Depending on the price point and type of merchandise, the materials and finishes used in gift stores will often be more creative and even to some degree theatrical. However, those creative ideas cannot overtake the actual merchandise so that they are lost in the interior design. It is very important to combine function and practicality with creativity in the specification of materials, finishes, and colors so as to create an effective backdrop for the items to be sold.



FIXTURE LEGEND

- A. Column display - locked glass front
  -high end articles - museum type display
- B. Back wall display, glass shelves, locking glass doors
  - arctic museum pieces
- C. Clear wall space 6' x 9'
  -carved items
- D. Gate storage ±13'-6"
- E. Bent wood box design jewelry display
  30" x 30" each (3 total) - native paintings on base
- F. Locked display case - in cash desk
  -jewelry
- G. Cash registers
- H. End shelves for general merchandise display
- I. Display unit for books (facing out) and cards on ends facing out
- J. Pottery - shelves wrap around ends
  - lit from above: 28" x 48"
- K. Slippers, giftware - shelves wrap around ends: 28" x 48"
- L. Spinner tower for framed prints
- M. End panels - Native Art Panel (large raven's head)
- N. Back of columns - kept clear for gate clearance
- O. Large sculpture & totem from front display window
  -special lighting for after hours effect
- P. Special item niches (similar to 'A')
- Q. Closed storage
- R. Raven medallion
- S. Native motif
- T. Gifts of the Raven sign
- U. Elliptical beam - masks hung on inside face
- V. Plain column - wood clad

Note that some of these codes refer to millwork on Elevation drawings

Figure 9-13 This is the merchandising floor plan for the Gift of the Raven gift store pictured in Figure 2-1.
Drawing courtesy of DH Designs.

It is essential for the walls, floor, ceiling, fixtures, and all cabinetry to avoid overpowering the retail space. Neutral background colors are usually preferred for the walls and cabinetry. Splashes of color might be appropriate in certain areas of the store, such as a small alcove highlighting very special merchandise. Changing displays for new merchandise and for seasonal merchandise might require the ability to include temporary finishes in cabinets or even behind wall shelves.

Carpeting is the preferred flooring material in many small gift stores, especially those selling higher-end products and jewelry stores. High-density, low-pile carpeting is often selected when a soft floor covering is appropriate. Of course, carpet will show traffic patterns faster and will need to be cleaned frequently. Small to medium-sized patterns will help disguise traffic wear. Hard-surface flooring is noisier and may require special maintenance. Some hard-surface floorings, such as marble and travertine, are often associated with a luxurious interior, however.

Lighting for the selling space includes general lighting for monitoring the space and ambient lighting to attract attention to walls. Pendant lighting to designate specific areas and task lighting to highlight specific products and work surfaces are all used in planning gift stores. Track lighting fixtures and various pendant fixtures can be used to attract attention to specific areas or displays. Pendant fixtures at the cash wrap counter not only provide needed task lighting but also help call attention to the POS area. Flexibility in the lighting design will help the store owner achieve the focused lighting needed to entice the customer. Colored lights and sparkle lighting can also be used to help create an exciting environment. Notice how lighting is used in Figure 9-2 and Figure 9-11 to help create the atmosphere required for the products being sold.

Remember that the selection of lighting fixtures also impacts the image and design concept. Lighting fixtures can create a conservative, mysterious, luxurious, or even dynamic mood as they coordinate with the types of lamps used and the color scheme of the interior. The small store owner, while not totally unconcerned about energy efficiency, is often more interested in using fixtures and lamps that best help to display the items for sale. However, the use of some energy-efficient systems will be needed to meet today's energy codes. Including a lighting consultant in the planning process is very important for interior designers who do not have experience in the lighting design of retail stores.

Despite electronic tagging and labeling, security is an issue due to the small size of gift items. These items can be readily removed from shelving and stolen despite the presence of alarm systems. Security cameras in obscure areas of the store are effective as long as the customer's privacy is not jeopardized. Convex mirrors continue to be an inexpensive and somewhat effective monitoring device due to their visibility.

GENERIC JEWELRY STORES

Is your client someone who will be selling high-end gems and jewelry, or a retailer of costume accessory items? This is a key question in the design of a jewelry store, as the answer will impact many design recommendations you make to your client. This brief discussion focuses on mid- to high-end jewelry stores.

Customers entering most jewelry stores expect elegance and sophistication in the design of the store. This is especially true when the customer knowingly enters a store that sells gems, gold, and precious stones. The customer may not be specifically

thinking of elegance when they enter the store, but the image that the store projects will be important to the buyer. This will impact the materials used on walls, floors, and display cabinets.

The manner in which the items are displayed should project the beauty of the jewelry to help sell the merchandise. Display cases, gondolas, island fixtures, and cabinets for gems and fine jewelry must be enclosed for security. Some of these display cases are commonly at a height of 36″ (914 mm) so that a customer can sit down to look at items. Generally, however, jewelry display cases will be 40″ (1016 mm) high with glass tops and fronts. Should the store also sell lesser-priced costume jewelry, these items can be displayed without lockable cabinets (Figure 9-14).

There are many other kinds of fixtures that might be needed in this type of store, maybe a lockable display kiosk, small racks, and/or lockable units that sit on top of the cabinets. Fixture specification, as always, will be a determined from the information gathered from the store owner during programming.

Here are several specific tips for designing a small jewelry store:

- Floor plan layouts can be of many kinds but are commonly straight or diagonal.
- Depending on the wishes of the store owner, the cash wrap and register location will be either in the back of the store with a view of the whole space or near the front so that staff can observe the entrance.
- The plan will require space for jewelry repair, generally on the main selling floor.
- Lighting design is very important to best show off the sparkle of the jewelry items.
- Lighting to be specified will be included in the closed cabinets as well as for general lighting and lighting of other fixtures in the store.
- Security systems are very important in this type of store.
- Very high-end stores may have a vestibule that requires going through a separate locked door when entering.



Figure 9-14 Jewelry stores require custom cabinets along with critical lighting design to best display the merchandise.
Photo courtesy of Burke, Hogue & Mills Architects.

HARDLINE STORES

Hardlines are merchandise items that are, quite simply, hard. What first come to mind are furniture and major appliances. Other items considered hardlines include consumer electronics including computers, automotive items, sporting goods, toys, hardware, housewares, and household appliances. Many other items can also be considered hardlines, such as cosmetics, lighting fixtures, plumbing fixtures, and even food items.

Contrast hard goods to soft goods or softlines. They are generally made of textiles and often can be folded—for example, clothing, linens, towels, and items like gloves and footwear.

Hardlines are commonly sold in large stores, big box stores, and areas of department stores. The size of the products themselves dictates that these stores require more square footage to display samples of the goods. Some products like furniture and major appliances may be only on display. Back stock or special orders are necessary for the customer to obtain the merchandise. Other products, like consumer electronics and sporting goods, will have stock displayed so that the customer can take them home immediately.

A common characteristic to hardlines is that most of these products come in boxes or hard packaging. These items require more storage space in a store selling area and in stock rooms. In many consumer electronics stores or areas, an opened item is on display with extra boxes of items stored below the display items. In this way, the consumer is confident that they are purchasing a new product.

For many hardline products, ancillary products may be displayed nearby—items such as cables and inks for computers and printers; organizer bins for refrigerators; sporting apparel for any type of sporting goods; and car wash products, oil, and car floor mats in a tire store. It is, thus, important for the designer to discuss with the store owner all the products that will be sold, including any of these ancillary and impulse items that will require display space and fixtures.

Many stores that sell home appliances display those appliances with custom or semi-custom cabinets to show how the appliance will look in a "real" atmosphere. Furniture stores display merchandise in vignettes of product groupings to mimic a bedroom, living room, or other space.

Space planning must take into account the sizes of the products on display along with ancillary products the owner may want to sell. Aisles must be large enough so that the customer can step back from the hardline item and see what it looks like. The aisles must also be large enough to make it easy to move merchandise in and out of the sales floor. A minimum of 4-foot aisles will be common for traffic paths. Naturally, aisles must meet code restrictions and accessibility guidelines for the safety of the customer.

There are far too many variations in the design of the various kinds of stores that can sell hardlines to detail all the design elements in this text. Here are several general tips that need to be considered in the design of a hardlines store or department:

- Space planning must allow room for customers to view perhaps all sides of a product for items such as furniture and appliances.

- Display fixtures, methods, and finish materials for architectural surfaces must be in congruence with the type and price point of the merchandise. Using marble and expensive stones for wall treatments in a hardware store sends the wrong message to the buyer, but marble incorporated into a display for high-end kitchen appliances will be expected.

- Display fixtures are generally very specialized or custom designed. They must support the weight of the products being displayed and not allow the items to fall off the shelf.

- Because consumers are interested in the experience of shopping, displays of goods, utilization of goods, and demonstrations of many goods are important planning factors for the store owner and designer. Stores like Cabela's (sporting goods) not only display items, but have secure areas where an item like a bow and arrow can be tried within the store.

- In many cases, the design of the store may be influenced by the brands of merchandise to be sold. This could impact product placement, colors, and graphics used within the store.

- More color is often used in hardlines stores because they have more space. Caution is still required to prevent overpowering the products being sold with too many bright, bold colors.

- Since these stores are large with high ceilings, lighting is less a factor of creative aesthetics and more a function of general lighting to best view the items.

- A greater percentage of support space will be required for hardlines in order to hold stock of displayed items. Even the display of items like cameras will require display gondolas or cabinets for storage of stock.

These are some key items to keep in mind when designing a store that sells hardlines merchandise. Further information can be obtained from resources at the end of the chapter or from the Internet.

AN OFFICE FURNITURE DEALERSHIP OR SHOWROOM

A store that sells primarily commercial office furnishings is referred to as an *office furnishings dealership*. These stores are considered retail stores because walk-in customers often purchase merchandise at retail. Yet many of these stores sell multiple items to various kinds of businesses and even to other commercial facilities at less than retail price. Commercial furniture is also sold in large office supply stores such as Staples, and in some very large residential furniture stores.

The office furnishings dealership displays, stocks, and sells only commercial-quality furniture. It is called an office furnishings dealership because it sells exclusively or primarily furniture from one or more manufacturers. This furniture is usually office systems furniture. The company will sell other furniture lines as well as case goods furniture.

The interior design of an office furniture dealership is created to show potential clients the firm's ability to design with the products they sell. Although the selling floor displays some of the furniture items, most office furnishings dealerships use their working areas for sales and design staff as part of the "display." In this way, the client sees the products in a working environment. In a sense, this is similar to the vignettes in a residential furniture store. If the company also provides interior design services, that department is often placed off the main selling floor, along with the design library of catalogs, samples, and appropriate auxiliary workspaces.

Another type of store displaying and selling furniture is the manufacturer's showroom. A *showroom* is generally a wholesale business rather than a retail store. Showrooms rarely allow customers to enter unless an interior designer accompanies the customer. That is why this type of facility is also referred to as a trade showroom (Figure 9-15).



Figure 9-15 Holly Hunt showroom. Notice the two different vignettes in this photo.
Interior design by Gary Wheeler, WheelerKänik. Copyright, Westgreen Construction Limited.

Furniture manufacturers have showrooms located in or near trade marketplaces like the Merchandise Mart in Chicago and the Trade Mart in Dallas. Other manufacturers locate their showrooms near trade marts or in areas convenient to the commercial design community. A manufacturer's showroom is used by interior designers who do not work in a store or showroom facility to help clients view actual products rather than depending on catalogs and sample books. The showroom also contains offices for sales representatives working with the design community.

Depending on the needs of the manufacturer, the furniture items or other products might be displayed in vignettes or on specially designed display racks. A staff designer usually plans the showroom. The furniture displayed consists of the key or primary product lines offered by the company.

Manufacturer's showrooms are also working offices for sales representatives of the company. Nonselling space is provided for other general office functions and conference rooms as well as employee lunchrooms.

Major changes in the showroom often occur before trade shows such as NeoCon in June. At that time, the space may receive a total redesign of partitions, materials, lighting, and display products.

Summary

The retail industry will continue to ebb and flow with the economy. Department stores may give way to big box stores; the small specialty store might transition to an online business; and malls could become educational facilities and even museum locations. However, the design of retail stores will continue, and designing these facilities will remain exciting and challenging.

There are many factors that impact the design of a retail store. The store aesthetic is only one. An interior designer wishing to specialize in this type of facility must understand the business of retail; have an extensive understanding of merchandising of goods, and understand why people buy. The designer must also be sensitive to the use of color, lighting design, and materials, and have a lot of creativity. The interior designer must also clearly understand that the owner of the store is not the only client who must be satisfied. The store's customers and what they expect from the store must also be considered when planning and designing.

This chapter provided an overview of the business of retailing as a basis for design decisions. Basic information to help the student and professional understand how to approach the design of a retail facility provides a background that must be supplemented with further research if the reader wants to embark on retail design as his or her specialty in commercial interior design. The references provide a great deal of information on the design of retail stores.

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INTERNET RESOURCES

ADA Accessibility Guidelines (ADAAG): www.access-board.gov/guidelines-and-standards

Americans with Disabilities Act (ADA): www.ada.gov

Building Green: www2.BuildingGreen.com

Forest Stewardship Council (FSC): www.fsc.org

Illuminating Engineering Society of North American (IESNA): www.ies.org

International Code Council (ICC): www.iccsafe.org

Mall of America: www.mallofamerica.com

National Association of Store Fixture Manufacturers (NASFM): www.nasfm.org

National Fire Protection Association (NFPA) and Life Safety Code: www.nfpa.org

National Research Council Canada (NRC): www.nrc-cnrc.ga.ca

National Retail Federation (NRF): www.nrf.com

North American Industry Classification System (NAICS): www.census.gov/eos/www/naics

Retail Council of Canada: www.retailcouncil.org

U.S. Census: www.census.gov

U.S. Green Building Council (USGBC): www.usgbc.org

U.S. Green Retail Association: www.greenretailassociation.org

CHAPTER 10

Healthcare Facilities

Healthcare interior design is one of the most important of the commercial interior design specialties because it can impact the well-being of the user of the space so directly. Users, of course, are the patients and their families as well as the healthcare staff. Healthcare design is not a project that should be tackled without some experience or research into the needs of the specific healthcare facilities.

Casual exposure to healthcare facilities does not properly prepare a designer to specialize in this area of commercial interior design. An understanding of basic terminology associated with medical practice is highly recommended. The more knowledge the designer has of the healthcare field, and of the laws and regulations that apply to the design of healthcare facilities, the more effective he or she will be in creating functional and suitable project solutions.

Healthcare involves the diagnosis and treatment of individuals through the services of various medical professionals. Healthcare facilities include many types of businesses that allow healthcare providers to prevent, treat, or cure diseases or ailments, such as the office of a primary care physician, the emergency room in a hospital, the dentist's office for routine care, and many other facilities. In each type of facility, the patient and family members experience a certain level of anxiety. Ideally, the interior design of the facility helps to alleviate that anxiety to some degree.

The goal of healthcare design is to understand each specialized area and the design needs of the specific assignment, and to develop appropriate design solutions and specifications. The designer is challenged to meet specific aesthetic and medical needs while abiding by the regulations governing this area of commercial design.

Due to the broad scope of healthcare, the subject will be limited in order to provide an overview of this branch of commercial interior design. A brief historical review provides a background to understanding the medical field. An overview of healthcare and medicine are provided followed by discussions of various types of healthcare facilities.

The "Planning and Interior Design Elements" section presents generic key design issues for human healthcare facilities. More specific design information is provided concerning the design of medical office suites, areas of a hospital most commonly designed by interior designers, and dental facilities.

Historical Overview

Healthcare design has a long and complicated history. This section will give the reader a brief perspective on the evolution of healthcare and healthcare facilities. Historical evidence shows that places of healing existed throughout the world as early as 3000 BCE. In the late fourth century BCE, the Greek physician Hippocrates stated that disease had natural causes and was not caused by the gods.

Hospitals were first associated with religious groups and priests acting as healers. Government or public funding became more common as cultures grew more sophisticated. The ancient Romans developed institutions for the care and shelter of the sick. The word *hospital* comes from the Latin word *hospitalis,* meaning an institution for guests.[1] Religious orders operated most of the hospitals in the Middle Ages and provided care not only for the sick, but also for the infirm, the poor, and travelers. An early hospital in Europe is the Hotêl-Dieu, in Paris, which was founded in the 1400s (Kobus et al. 2008, 176). During the Renaissance, the research and drawings of the human body by Leonard da Vinci aided in accelerating the study of medicine.

In the 1700s, Europe commenced the building of hospitals for the poor and those with contagious diseases. These charity hospitals were an effort to control the spread of contagious diseases. However, because they were overcrowded and unsanitary, they often contributed to disease, which spread throughout the facilities.

During the eighteenth century, hospitals in the United States were used primarily to treat the poor. Because of their terrible reputations, the wealthy preferred to be treated in their homes or in hotels. Such private care was considered to be more comfortable and safer in terms of protecting against infectious diseases. Physicians could bill for care delivered in a home, but it was considered unethical to bill hospital-based patients.

In the nineteenth century, several factors produced changes in hospital care. Included are these important developments that resulted in more widespread use of hospitals: the discovery of anesthesia, the introduction of antiseptic techniques, and the establishment of the nursing profession. The nursing profession was developed essentially during the Civil War in the 1860s.

Many of the changes in medical care were due to enhanced and organized education and the gradual creation of health insurance from both private and governmental agencies. According to their website, the American Medical Association (AMA) was founded in 1847 and established medical education standards. Although not the first insurance programs, Medicare and Medicaid, established by the U.S. government in 1965, help senior citizens and the poor pay for their healthcare (CMS.gov 2015).

Here are a few other keys to the development of healthcare:

- In the 1880s, specialized facilities and surgical staff encouraged the performance of advanced surgical procedures.

- By the 1890s, private rooms for the rich and semiprivate rooms for the middle class added to the use of hospitals.

- The post–World War II era saw an increase in remodeling and expansion of hospitals as war veterans and the general population sought improved healthcare.

[1] *World Book Encyclopedia,* 2nd ed., s.v. "hospital."

- There was also an increase in the building of medical office buildings and grouping of medical practices after World War II.
- In the 1960s, outpatient clinics for general family practice became popular.
- By the 1970s, hospitals began sharing equipment and personnel, especially in small or rural hospitals where the cost of the equipment was prohibitive.
- In 1974, the HMO Health Maintenance Act was initiated to help address the rising costs of healthcare.
- In 1996, the Health Insurance Portability and Accountability Act (HIPPA) became law.
- In 2010, the Affordable Care Act (ACA) was created to help address health insurance reforms. It took effect in 2014.

New hospital designs and continuing changes have evolved to create healing environments, making a dramatic impact on the design of hospitals and healthcare facilities in general. *Healing environments* provide visual and acoustical comfort, creating a more nurturing residential atmosphere to aid in healing. This will be discussed further later in the chapter.

Finally, as advances in healthcare services occur, they will continue to impact how healthcare facilities are designed. Interior designers wanting to specialize in this area of commercial interior design must keep abreast of these changes so that they can do a better job of gathering the information they need to design a doctor's office, a department in a hospital, or any other facility in the healthcare industry. The Healthcare Facilities Symposium and Expo, held in the fall, is an excellent healthcare-focused conference and a great source of information.

Overview of Healthcare/Medicine

Medical practice continues to change. Often this happens in reaction to new methodologies, technologies, and the expansion of medical science. Sometimes it is due to alterations in how medical services are provided as a result of changes in insurance and regulations. Treatment approaches also change, as some methods in use today did not exist several years ago.

Advances in medicine and medical practice do impact the interior designer choosing to specialize in this type of facility. Many changes impact what is considered appropriate in the design of everything from a small physician's office to the largest hospital. Patient care can also evolve and impact interior design. The old green-and-white color schemes of years past have changed dramatically. Many environments are designed to provide a comfortable homelike setting rather than sterile interiors while, of course, providing healthy environments.

An interior designer wanting to specialize in healthcare design must be willing to learn about the healthcare field. Gaining an appreciation of the complexities of the field before accepting any interior design assignment will lead to increased success of the project for all stakeholders and users. Learning the common terminology



Figure 10-1 The design of this hospital lobby brings the outdoors in and creates a healing environment for patients, visitors, and staff. *Interior design by Cama, Inc. Photograph courtesy of OhioHealth.*

used by the client is one step in that learning process. Basic terminology is also necessary in order to have a clear understanding of concepts presented in this chapter. Several terms that are used throughout the chapter and that are crucial to a deeper understanding of the medical design are provided here. Other terms specific to section discussion will be included in those sections. The reader can also use the references at the end of the chapter to begin a broader understanding of healthcare.

- *Health Maintenance Organizations* (HMOs): Large groups of healthcare providers offering services to member patients at either group clinics or a physician's medical office suite.

- *Licensed practical nurse* (LPN): A nurse with a degree from a two-year nursing program. This individual is also licensed by the state.

- *Medicare*: A U.S. government program of insurance to provide medical care to citizens over the age of 65 and certain disabled individuals under the age of 65.

- *Nurse practitioner* (NP): A nurse with both a bachelor's and a master's degree plus additional training in diagnosis so that he or she can provide some of the same care as a physician under the supervision of a physician.

- *Outdating*: Many kinds of medical supplies must be used by a specific date. After that date, they are considered outdated and cannot be used.

- *Physician's assistant* (PA): A nonphysician licensed to practice medicine under the supervision of a licensed physician. Some PAs obtain additional training in specialties such as emergency care, oncology, OB/GYN, and many other disciplines.

- *Primary care physician* (PCP): Usually the first physician the patient sees for treatment or another consultation. He or she has received extensive medical training in a selected specialty.

- *Registered nurse* (RN): A nurse with an undergraduate degree in nursing and who has passed a state licensing exam. This individual has more training than a licensed practical nurse.

For the vast majority of patients, medical care begins with a primary care physician (PCP). These physicians deal with the overall health of their patients. Primary care physicians are in general practice (GP), pediatrics, family practice, and internal medicine. When necessary, the PCP refers the patient to the appropriate specialist. A patient going to a PCP is primarily going to that physician for diagnostic and simple treatment. If referred to a specialist, more complex diagnostic procedures are in order as well as more complex treatment. Many larger private practices include one or more physician's assistants (PAs) to assist with patient care.

In the field of medicine, there are numerous accredited major specialty areas, subspecialties, and clinical disciplines such as pediatrics, cardiology, and radiology. According to the Medicare website, there are dozens of physician specialties. These specialists are often in private practice, although some may also be employees of hospitals or other health facilities such as the Veterans Administration.

Primary care and physician specialists may work as solo practitioners or in a group practice. A *solo practitioner* provides professional services to the patient and is personally responsible for that care. Solo practitioners represent the largest percentage of all practicing physicians engaged in one of the specialties or subspecialties. These primary care physicians and specialists' practices will include other medical staff such as nurses, physician's assistants, and technicians.

Group medical practices represent the second most common form of medical practice. A group practice will be organized as a business entity. It can be an association of solo practitioners, a partnership, or a corporation. The members can combine their resources and expenses, providing more equipment and larger facilities as well as increasing nursing and technical staffs. Group practices often combine based on a medical specialty or on a combination of similar specialties.

Hospitals are organized differently from private practices. Treatment in a hospital and other types of specialized healthcare facilities may consist of preventive medicine, treatment for disease and/or illness, or health maintenance. The purpose is not only to save patients' lives but also to improve the quality of life of their patients.

Physicians and other medical staff who have positions in a hospital are considered *salaried physicians* (think of them as employees). These physicians usually do not have private practices. They may work in many of the medical departments and may serve as medical directors and department heads. Some physicians in private practice are granted the privilege of practicing and treating their patients in the hospital facility. These physicians are not employed by the hospital. Other medical staffs, such as nurses and various technicians, are also employed by the hospital.

Private interests or a government agency can own hospitals. A governing board, such as a hospital board of trustees composed of a president and the trustees or board members, manages it. When the hospital is owned by the city, the citizens elect board members. The board of trustees of a hospital is responsible for establishing and reviewing the policies of the hospital, as well as selecting a hospital administrator who will actually manage the facility.

The hospital administrator is responsible for overall management of the hospital and all departments and divisions within the hospital. There are administrative heads for these departments, such as the administrative head of the surgical department. There are also department heads or supervisors, such as a nursing supervisor. This structure is much like that of a corporate office.

Nursing services usually represent the largest component of hospital personnel, and the efficient organization of the nursing department is critical to the operation of the hospital. The nursing staff is generally comprised of registered nurses (RNs) and licensed practical nurses (LPNs). The department of nursing has a director with several supervisors in charge of a patient unit or ward. A nursing supervisor is in charge of a group of patient units and supervises the overall operations as they relate to nursing care. Each nursing department is on a ward or unit and has a head nurse, often referred to as a *charge nurse*, who functions as the administrator of that particular area. RNs, LPNs, student nurses, aides, and volunteers all report to the head nurse. Included in a nursing unit are the operating rooms, recovery rooms, intensive care units, patient rooms, and emergency rooms.

It would not be appropriate to leave the overview discussion of medical care without some brief comments about managed patient care. Patient care managed by a health maintenance organization (HMO) has significantly affected physicians practicing today. HMOs offer health insurance coverage under healthcare-based care guidelines. An HMO physician treats patients who utilize HMO coverage and agrees to provide services to these patients at a discount. There are now four types of HMOs:

- *Group*: The physicians are partners of the group. Individual physicians are not paid directly, but rather on the basis of a group distribution decision.
- *Staff model*: Physicians are salaried employees of the HMO. The physicians work in the HMO's office building.
- *Independent practice associations* (IPAs): A physician contracts with the IPA, which in turn contracts with an HMO. The physician will maintain his or her own office and see non-HMO as well as HMO patients.
- *Network model*: The HMO contracts with a group, an IPA, or individual physicians. Medicare provides another type of managed care.

Medicare is a national social insurance program administered by the U.S. government. It provides healthcare coverage to Americans age 65 and over who worked and

paid into the system during their working years. Some people under 65 receive Medicare coverage due to disabilities.

Managed medical care is provided in other countries as well as the United States. Readers interested in managed medical care and medical care in other countries can start their research with an Internet search.

A major portion of the healthcare industry is devoted to the treatment and care of patients 65 years of age and older. This patient group is experiencing rapid growth, as the baby boomers started turning 60 in 2006. Chapter 11 is devoted to a discussion of the design of medical and living facilities for seniors.

FORCES IMPACTING HEALTHCARE DESIGN

There are many ways that healthcare design is impacted by outside forces. It is not possible in the context of this text to deal with all those forces in detail. However, a few brief comments on some issues are presented here.

One such outside force is, of course, government regulation. Building accessibility codes are one issue. They can become stricter as building safety issues change. Codes and regulations also impact healthcare design with new interpretations. For example, ADA regulations are required for all new commercial construction and major renovations. As part of code application, definitions of occupancies can be modified by local and state organizations so that the designer must understand which codes apply to their project. Other modifications to whatever the latest IBC codes are can be made by local governments and, thus, impact a healthcare facility project.

The Affordable Care Act (ACA) requires Americans to have health insurance or they will face income tax penalties. How does this impact the design of a healthcare facility? With this law, more people will be visiting physicians and hospitals. This is putting pressure on existing providers and their facilities. It also will likely increase the number of medical offices and other healthcare facilities that will be built.

Another regulation that impacts healthcare design is the Health Insurance Portability and Accountability Act (HIPAA). This federal regulation was created to address patient privacy and the transfer of patient information from the patient to the primary care physician. For the interior designer, this law affects the planning of workstations for the receptionist, nurses' stations, and medical records departments, and other patient recordkeeping departments. Space must be provided for computer terminals not only in offices but also in exam rooms so that patient information can be easily added to the patient's records.

Another impact on healthcare is the changing patient profile. First, naturally, is the aging baby boomer population. These aging adults generally require more frequent interaction with a physician as diseases and injuries impact their older bodies. Then there are the patients who don't take what the doctor says at face value. As Internet use increases, more patients visit the doctor's office after investigating their problems on medical websites. Questioning tests and coming better prepared to appointments can be good, but it can also increase the amount of time the physician spends with each patient. The virtual self-diagnosis is not always what the physician believes is the real issue.

Certainly, the costs of healthcare and insurance are forces impacting healthcare. As the costs of providing healthcare increase, physicians and hospitals must increase their fees for services. Although insurance companies will repay much of these costs, patients also pay through insurance premiums, copays, and out-of-pocket payments paid to the provider.

As costs increase, healthcare providers—both the physician and hospital—are under increased pressure to reduce costs. For designers, this can mean the facility will be reluctant to use quality products for seating, architectural finishes, lighting solutions, and the like. At the same time, patients do not feel good about waiting rooms with chairs with worn upholstery, damaged flooring, and the like. These hints of "failing to care for the office" can turn off a patient and even make them skeptical of any advice given by the physician. The designer must be careful in specification, but also come prepared to talk about life cycle costs of better-quality goods versus less expensive initial costs.

Security is also an issue. In hospitals, it is vital that someone cannot simply wander around where they do not belong. Security guards and cameras are naturally going to be part of the environment. Staff will also be watching for unauthorized individuals on patient floors and in treatment areas. Although all this added security is necessary, in some instances it does not add to the desire to create a more open healing environment.

In a physician's office, patients are concerned about the security of their medical and financial information. The office must safeguard paper records and computer-based records. Access to exam rooms and the business office through a lockable door controlled by the receptionist is a frequent design tactic in medical office suites.

Akin to this security issue is the electronic health record (EHR) system. This is a health record-keeping system being strongly recommended if not required of physicians. This system helps transfer information from one physician to another. For example, a patient who has to have surgery will have an easier time transferring any imaging records (MRI, ultrasound, etc.) from the provider of that service to the primary care physician and the surgeon.

Evidence-based design (EBD) continues to grow as an important interest. This research tactic essentially began in the healthcare industry and is growing in other areas



Figure 10-2 The High Point Regional Cancer Center, High Point, North Carolina. This family lounge is inviting and calming for patients and visiting family.
Interior design by Heulat Parimucha. Photography by Peter Brentinger.

of commercial interior design. Evidence of design decisions helps the designer with specification decisions. EBD is briefly discussed in Chapter 3.

To some degree or another, hospitals and physicians realize that creating aesthetic environments can help ease patient anxiety and promote healing. It might not seem important, but the environment also creates an impression that the facility and, thus, the services provided are going to be better at an attractive facility than one where the magazines are three years old and the paint is chipped. Modern, attractive environments do not come cheap, and as a result, especially in a physician's office, the aesthetics may take a back seat in the doctor's mind. The use of products that are "green" and/or sustainable that will help the indoor environment of the patient rooms and other areas of the hospital and medical offices is desirable, but these are not always selected by the client.

Here are a few other challenges to the healthcare industry that might impact interior design:

- More attention must be paid to the use of materials that are easy to maintain and do not harbor infections.
- Various codes must be understood and applied properly to remodeling projects as well as new construction.
- Commercially owned urgent care centers provide care that is not an emergency in nature—that is, immediately life-threatening, as in someone having a heart attack. The growing number of urgent care centers may lead to consumers/patients shopping for urgent care facilities rather than visiting their primary care physicians.
- Inpatient hospital rooms continue to change to single patient rooms from doubles. The extra space provides better accommodation for the family to be at the patient's side.

These issues and others impact healthcare and the design of healthcare facilities. The designer who wants to specialize in this type of facility should keep abreast of what is impacting the industry. Information can be obtained from professional association publications, trade magazines, and conferences focusing on healthcare design.

Types of Healthcare Facilities

Due to the wide range of services provided by the medical community, there are many types of healthcare facilities. It is not possible to describe each type in depth because of this breadth. Medical services and the types of facilities where these services can be obtained also evolve through changes in philosophies and even regulations. This section will focus discussion on facilities most familiar to the student and those most likely to be designed by a student or practitioner.

Let us begin with the two most familiar and most frequently built types of facilities: the medical office suite and the hospital. The evolution of science, treatment, and technology has resulted in many changes to the design, planning philosophies, and working conditions of these and all other medical facilities. The medical office or hospital of today is quite different from what your grandparents may have encountered at your present age.

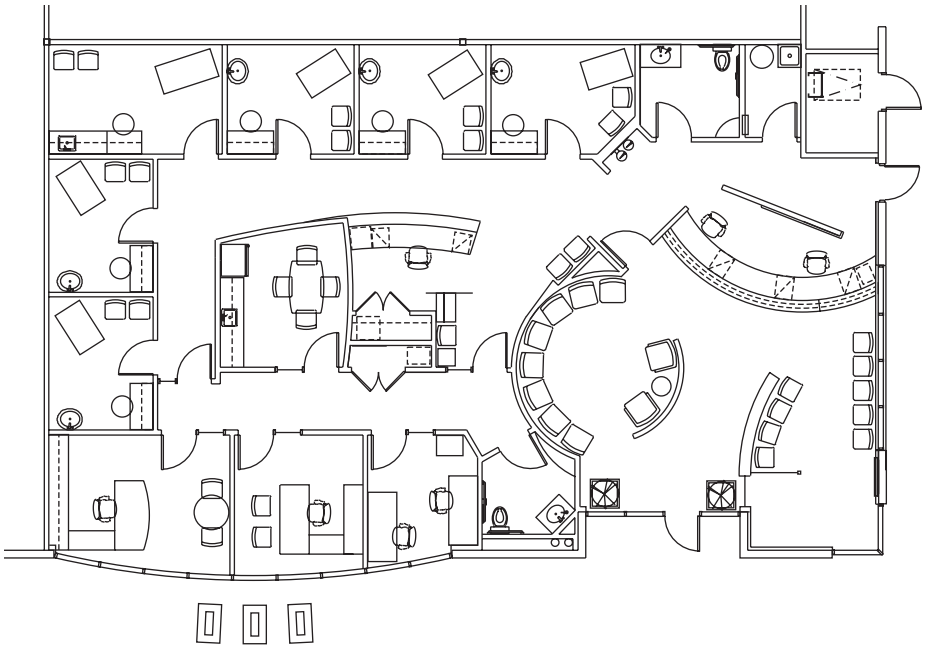


Figure 10-3 Floor plan for a small medical office suite for an endocrinologist. Note the divided waiting areas.
Drawing courtesy of Phoenix Design One.

Medical office suites are a familiar type of medical facility to readers and are major clients of interior designers with knowledge in medical design. The most common is that of the office facility for a primary care physician (PCP). The various physician specialists also have medical office suites, sometimes in buildings shared with a PCP.

The medical office suite includes exam and/or treatment rooms in combination with appropriate nonmedical spaces. These nonmedical spaces include offices, business offices, spaces for staff, and storage. Depending on the size and configuration of the practice, the suite may include space for a laboratory for simple tests, such as blood drawing, and space for cardiac testing (Figure 10-3).

There is a wide variety of design requirements for a medical suite, based on the specialty and the number of physicians included in the practice. Suites for specialists will have specific space needs that may need to be planned in conjunction with an architect or other consultant. This chapter deals extensively with the general design needs of a generic PCP medical-office suite.

A physician's office suites can be located in a freestanding building or as part of a medical office building (MOB). The location of an MOB can vary. Some may be built adjacent to a hospital, whereas others are freestanding units separate from the hospital campus. Medical office buildings are usually owned by a healthcare corporation, a group of physicians, or an individual physician. Specialized medical services such as medical imaging, pharmacies, laboratories, vision care offices, and urgent care centers can also be included in an MOB or be freestanding facilities.

A *hospital* is defined as "an institution providing medical and surgical treatment and nursing care for sick or injured people."[2] Furthermore, a hospital can be a center for research, technology, and education as well as patient care. Physicians can treat their patients in a hospital on both an inpatient and outpatient basis.

[2] *Oxford American College Dictionary*, s.v.

MEDICAL OFFICE BUILDINGS

Many physicians' medical suites are located in medical office buildings (MOBs). A *medical office building* is defined as an office building with one or more office suites for specialized medical practitioners. They contain a variety of medical office suites for various professionals. An interior designer may be involved in the interior design of the whole of the building or hired to design suites within the building. For a suite, the client is the physician or physician group leasing the office space. Other tenants such as pharmacies, vision care, or coffee shops may also be tenants of the building. In some cases, other professionals, such as real estate agents, could also be included as tenants.

An architect will likely execute the primary layout planning of an MOB. Few interior designers can legally plan the partitions and load-bearing structures of a large or multistoried MOB. Here are some key issues in the planning of an MOB of which the interior designer should be aware, regardless of actual responsibility:

- Codes and other building regulations will dictate the specification of the entrance, corridor sizes, numbers of exits, and other issues regulated by the building, life safety, and accessibility codes.
- A single-story MOB will provide access to suites either directly from the parking lot or from a central courtyard.
- Multistory MOBs will have a service core with the elevators, stairs, mechanical equipment, and public restrooms either in the center of the building or in another appropriate location.
- A medical office building that contains an outpatient surgery center will be located on the ground floor and will have a private exit from that suite in order to discharge patients without routing them through the waiting area.
- The interior designer also works with representatives of medical equipment and supply manufacturers as required by the designer's contract.
- Wayfinding, building, and site maps are important to help patients find the correct suite with minimal problems. Information should be available at each elevator site, and suite numbers should be posted on each floor.
- In a large MOB, an information booth or security desk will have a map of the building to help patients locate the specific medical suite.

The *general hospital* is the best-known type of hospital. It deals with a wide variety of diseases and injuries and contains numerous medical departments. A very large general hospital is often called a medical center. The most common medical departments in a hospital include emergency, surgery, obstetrics, pediatrics, acute care medical units where patients are kept overnight, diagnostic imaging, pathology, laboratory,

rehabilitation therapy, and various other clinical services. There are also nonmedical departments that support the medical departments. A few key support departments are purchasing, housekeeping, dietary services, and all admittance and recordkeeping areas.

There are also several specialty types of hospitals. These provide care that is needed when the patient no longer needs to be in a general hospital or is more suitably treated in a specialized facility. Readers are likely most familiar with:

- Children's hospitals
- Rehabilitation/physical therapy center
- Behavioral health center
- Cancer treatment center
- Chemical dependency/recovery center
- Trauma center

Other types of inpatient and outpatient treatment centers exist for other specific treatment needs. All these types of hospital facilities are based on criteria such as length of patient stay, type of treatment needed, size of facility, and ownership.

There are several other types of healthcare facilities that have been created to service specialized patient needs. A sampling of the most common is provided here. Of course, this list is not all-inclusive:

- Outpatient/ambulatory surgery centers
- Urgent care centers
- Burn treatment centers
- Pharmacies
- Senior living facilities
- Testing labs
- Research labs
- Breast care centers
- Oncology treatment centers
- Medical imaging centers
- Vision care offices
- Hospice care facilities
- Dental care offices

A variety of other healthcare facilities may be part of a hospital campus or can be freestanding, privately owned facilities. One that has become increasingly common is the *urgent care center*, sometimes called an immediate care center. These neighborhood

healthcare centers provide noncritical emergency care, acting as alternatives to hospital emergency rooms at lower costs. They are located in neighborhood environments, often near medical office buildings and somewhat remote from hospitals. The design concepts for this type of facility will be included in the "Design Applications" section.

Rehabilitation centers provide care for patients recovering from such conditions as strokes, paralysis, amputations, and cardiac complications. In this type of facility, 24-hour nursing care is available. The patient in a rehabilitation center is usually medically stable, and the physician has prescribed some form of rehabilitation therapy. The physician, who is usually not located at that facility, visits his or her patients there.

Hospice care centers are another type of medical facility. Hospice patients are those who have a terminal illness and whose chances of recovery are minimal. The purpose of the hospice is to ease the patient's pain and discomfort, provide caring emotional support, and assist families in this transitional stage. Grief counseling is also provided to family members who request assistance. Hospice care can be provided either on an inpatient basis at a hospital or at a freestanding healthcare facility specifically for these patients. Hospice care is also available in the patient's home.

Another type of healthcare facility is a *dental office* or dental clinic. Dental offices can be located in a multistory commercial building, a freestanding medical center, or a separate building devoted to dental practice. The locations vary in terms of the size of the dental practice, demographics, and the need for a dental facility in the area. A dental practice may be a general practice or a dental specialty such as oral surgery, orthodontics, periodontics, or endodontics. Many dental practices consist of one dentist with a staff of assistants, although several professionals can also form larger dental practice groups.

Planning and Interior Design Elements

Each type of healthcare facility has distinct planning, materials, and aesthetic requirements and design guidelines. These variations naturally stem from the exact nature of the facility but also from how the facility is defined by the building codes. For example, the International Building Code generally considers a medical or dental office suite to be a business occupancy—as does the Life Safety Code—while a hospital is considered to be an institutional occupancy. The Life Safety Code refers to hospitals as a healthcare occupancy. Some spaces within the facility can change the code requirements that will then impact many planning and design decisions.

Many planning and design element decisions are also based on where the facility is located. Hospitals have more extensive code restrictions and more limitations on materials specifications due to state health department regulations. Design restrictions for medical office suites are based on the size of the medical office building and whether it is attached to a hospital or is freestanding.

In most cases, the interior designer works not only with the physician owner or physician group, but also with the owner of the facility or building. He or she will also be coordinating with an architect, contractors, and consultants such as representatives for medical equipment companies. Depending on the designer's experience, the project responsibility can range from relatively simple products and materials specification to a complete project from preplanning through all phases of the project.

The material in this section provides the reader with an overview of the basic planning and design elements that must be considered in the interior design of medical facilities. These design elements provide a background to the more specific discussions in the "Design Applications" discussions later in the chapter.

FEASIBILITY STUDIES

A feasibility study is always an important part of the planning of a healthcare facility. This type of research will always lead to better planning and design. It also will also lead to more success at meeting the various goals of the client/owner of the project. The larger and more complex the proposed project, the greater the need for and importance of this step. For example, a hospital project, whether new construction, an addition, or a major remodeling, will never begin without a feasibility study. The developer of a medical office building will want a study to ensure the economic prospects of the new property. Physicians opening a private practice, as a solo practice or with a group of colleagues, often seek this type of study to ensure that the decisions on planning, specifications, and budgeting will be appropriate.

A feasibility study for a proposed healthcare facility, such as a hospital or larger medical office building, usually takes considerable time. It will involve research concerning needs of the facility and potential users of the facility. It will also research and report on funding issues and many government regulations in regard to the building type. If the client's project is moving into or remodeling an existing building, research on whatever impacts the building itself will play in the design. For example, remodeling an existing suite may involve demolition and removal of partitions and other architectural features.

In the construction of a major facility such as a new hospital, the feasibility study will often be conducted in conjunction with or prior to the in-depth departmental programming needed to proceed to schematic design. To help prevent errors in the plans and to limit budgeting errors, this information is needed before planning can be undertaken. Architectural issues and projected costs of future development are based on this research and initial planning.

Programming for space allocation identifies the specific needs of each area or department within the healthcare facility. Preliminary relationship diagrams and bubble diagrams may be incorporated to develop and assess information from the client. Especially in a hospital or another very large medical facility, workload analysis is performed to ensure that the space relationships within areas help create effective facilities.

An important part of any feasibility study will be research regarding codes and regulations that will potentially impact space planning and design specifications of materials and products. In one way or another, all basic codes previously discussed in this text will impact the vast majority of medical facilities. Depending on the use of space and type of building, additional regulations will be involved (Figure 10-4).

A consultant other than the interior designer often prepares the feasibility study for larger projects. Perhaps the architect will conduct the study or a specialist in healthcare design working with the architect will prepare it. Naturally, the client will be involved. Ideally, the interior designer will also be involved to provide input on functional and aesthetic issues that fall within the designer's expertise and legal capability.

The feasibility study should include a written report on the healthcare facility as well as exhibits such as photographs, drawings, and floor plans as might be needed.

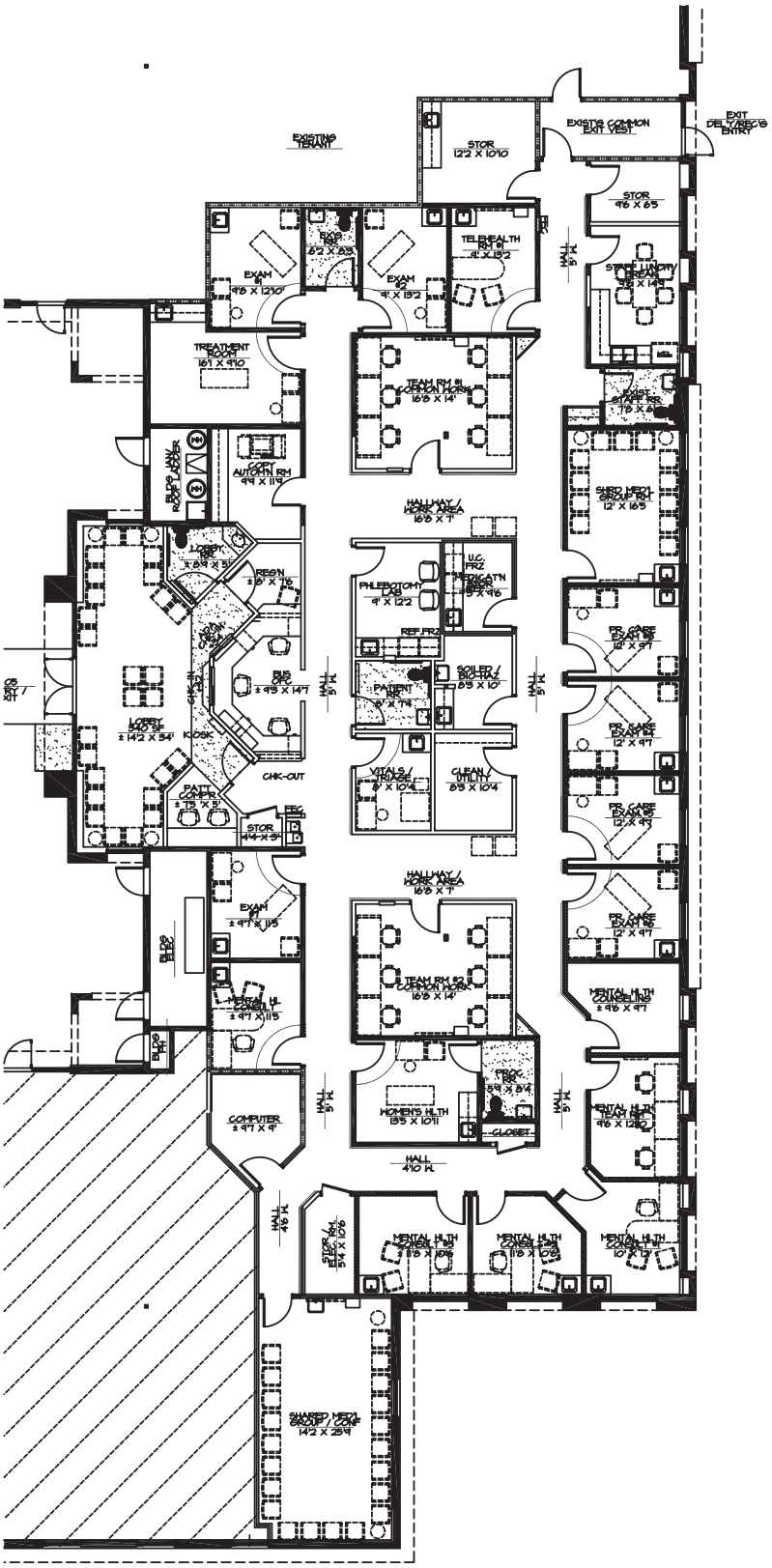


Figure 10-4 Floor plan for a primary care physician.
Space plan by James G. Tigges, IIDA, ASID.

Information on security and the ability to expand may also be requested or necessary. Floor plan studies, charts, and, of course, budget estimates will be included.

SUSTAINABLE DESIGN

The focus of sustainable design in the healthcare industry has been primarily on infrastructure and mechanical systems. Of course, owners of hospitals and office buildings that are primarily leased to medical professionals are doing more related to sustainable design than developers of multiple-occupant office buildings. Architectural design can incorporate energy savings, water conservation, use of daylight, and other building-focused sustainable tactics. The interior designer must look for green materials and products for architectural finishes and furnishings to add to a healthy environment.

The use of nontoxic materials is very important because patient health can be negatively impacted by VOC fumes. Hospitals and many other healthcare facilities are *sealed environments,* meaning that windows do not open and air quality is dependent upon the HVAC system. This does not allow toxic odors from furnishings or other products to dissipate. Eliminating products that off-gas toxic chemicals is a vital task for interior designers.

Designers must become familiar with and continue to learn about materials and products that are truly green and sustainable and not just "greenwashed." Using recycled materials is a good option; however, the recycled materials must not contain toxic resins. Specifying products that do not require cleaning agents or polishes that will not contribute to poor indoor air quality, and that will not emit objectionable and unhealthy odors, is another tactic easily accomplished by the designer. In fact, the interior designer should be sure to include in his or her services a provision of best cleaning practices information (available from manufacturers) on all products specified for the interiors.



Figure 10-5 Reception and waiting area at the Cosmetic Dermatology offices of George Washington University Medical Center, Medical Faculty Associates, Washington, DC. *Interior design by Huelat Parimucha. Photography by Anne Gumerson.*

Designers once again must be ready to explain and use life cycle costing to help dispel the idea that green products are more expensive than nongreen products. Funds to replace architectural finishes and furniture in a medical facility are rarely easy to find for the property owner. Even in new construction, interior treatments and furnishings other than those required for medical necessity often get cut in order to pay for the functional items. Costs and cost savings will be important factors in the decision between approving a sustainable product with a higher initial cost and a nonsustainable product with a lower initial cost.

When choosing upholstery and other textile products, the designer needs to obtain valid information from the textile manufacturer concerning the true "green" performance of products. Many are not tested for off-gassing or other toxic characteristics. Specification of formaldehyde-free materials and products for flooring, wall treatments, and furniture items is another important task of the interior designer. Because many items in a medical facility—especially a hospital or other institutional occupancies—are required to use materials with flame-retardant characteristics, the designer must be careful and understand what chemicals are used to create this safety measure.

Lighting fixtures are another important feature the interior designer can specify that impacts sustainable design in medical facilities. The designer can specify the types of lighting fixtures used in a facility and the types of lamps (bulbs) used as well. Refraining from using fixtures with incandescent lamps is one solution. Specifying energy-efficient lamps in ceiling fixtures, accent lights, and downlights is another. Suggesting the transition to LED lamps is another way the designer can aid in sustainable design tactics.

It is now quite easy to research information about sustainable products online. The number of items in any category is too huge to incorporate into this limited discussion. *Green Guide for Healthcare,* a publication from the group of the same name, is downloadable for free after registering with the group's website. It contains significant information about greening the healthcare environment. Two books that provide excellent background information are Bonda and Sosnowchik (2014) and Binggeli (2008).

In general, these three factors should be kept in mind:

- "Select products with low or no VOC content, and choose water-based finishes whenever possible, to address indoor air quality issues.
- "Choose products based on their total life-cycle cost, including maintenance, durability, and embodied energy.
- "Use products with a high recycled material content, or products that can be recycled, salvaged or reused, to address end-of-life issues." (Bonda and Sosnowchik 2007, 115)

These types of specification factors will all represent tactics that will help create a sustainable healthcare environment. They also will be easily understood by facility owners as criteria for specification.

SECURITY AND SAFETY

All types of healthcare facilities will have concerns involving security and safety. Privacy is an issue even in the smallest private physician's suite. All patient records must be stored in such a way that access is available only to authorized staff members. Walls between medical services rooms, such as exam, consultation, and treatment rooms, should have acoustical privacy. This can be an issue when a facility is planned into a building designed

for offices and windows are not calculated for the sizes of exam rooms and other spaces. Walls should also be insulated or be made of materials with a sound transmission class (STC) of 45.12. The Health Insurance Portability and Accessibility Act (HIPPA) of 1996 will also impact patient privacy and security. This was discussed earlier in the chapter.

Although not a direct responsibility of the interior designer, the systems and planning of locations for computer terminals, printers, and data storage units is a very important part of providing security and privacy in medical facilities. Careful planning helps to ensure that the storage and retrieval of patient records meet standards deriving from current federal regulations.

Almost all of these facilities will store certain drugs that are considered controlled substances. These drugs are required to be stored in locked cabinets. Storage solutions will be needed for all sorts of other medical supplies and medical items to limit who can access the items.

Hospitals have security staff to help ensure patient, visitor, and staff safety. Security cameras may be provided in certain areas, but patient privacy combined with security is always going to be an issue for the design team and client. Hospitals and large MOBs may have security personnel in the lobby. Security cameras and staff monitoring will be security tactics in smaller practices.

CODE REQUIREMENTS

Feasibility studies will uncover the applicable codes for each project. To begin, medical offices, physicians' and dental offices, and some ambulatory outpatient clinics, outpatient clinics, and testing laboratories (where a patient may go for a blood test) are all considered business occupancies by the International Building Code unless they are attached to an institutional facility. The International Building Code considers hospitals, limited-care facilities, and skilled nursing facilities—to name a few—to be institutional occupancies. Institutional occupancies will have stricter code regulations than business occupancies.

The various applicable codes adopted by the jurisdiction in which the facility is located and by local health departments impose strict regulations for healthcare facilities. There will be limitations to varying degrees on what materials can be used for walls, floors, windows, and perhaps seating units. Most of these regulations will have a greater impact on hospitals than on physicians' suites. However, the designer must verify what regulations related to finishes will apply to the specific project.

The codes and regulations that will have the greatest impact on the design of a healthcare facility in the United States include:

- *International Building Code* (IBC): Concerned with building systems, egress, mechanical systems, and many other issues.

- *Americans with Disabilities Act* (ADA) and/or *Architecture Barriers Act* (ABA) accessibility standards or other accessibility requirements: Note that the ABA applies to facilities owned or leased by the federal government or where federal funds were used in the design and construction of the facility.

- *NFPA 101 Life Safety Code*: Available from the National Fire Protection Association.

- *Sustainable design*: Indirectly, the design of facilities will be impacted by sustainable design guidelines provided by USGBC through the LEED for Healthcare standards.

- *Other codes*: For example, the plumbing code adopted by local and state jurisdictions may apply to specific types of facilities or to the specialty to be housed in an office building.

Specific code issues are covered in the "Design Applications" sections of the chapters, but a few comments are warranted. Please note that these are *not* the only code requirements or guidelines affecting healthcare facilities:

- Corridor architectural treatments are of the highest importance for fire safety. These are primarily outlined in the Life Safety Code. Materials in corridors must be Class I, while those in smaller spaces can be Class II.

- Textiles used for seating, cubicle curtains, and window treatments are often required to be fire retardant in hospitals. Some flexibility exists for physicians' suites, depending on exact configurations and use.

- In states that have adopted CAL 133 or TB 133 regarding seating units, fabric and seating unit specification will be carefully monitored by the local fire marshal.

- Public areas, rooms used by patients, corridors, and restrooms must meet ADA guidelines for accessibility.

- Entrances to the medical suite must meet ADA guidelines.

- Accessible patient rooms in hospitals must have a turning space of at least 60″ (1524 mm) in diameter for wheelchairs.

ADA Issues

Medical office suites are generally considered business occupancies by the building and life safety codes. As such, these types of medical facilities will need to meet the ADA requirements for business, mercantile, and civic facilities (Section 7). Hospitals and other medical facilities where a patient spends the night are institutional facilities. In this case, the design of these facilities will be guided by Section 6 of the ADA for medical care facilities. A few requirements for accessibility in healthcare facilities in general, as appear in Section 6 of the ADA Accessibility Guidelines, include:

- Reception counters must make provision for individuals in wheelchairs.

- Public-use toilet facilities must be designed to be accessible.

- A portion of patient rooms and their associated toilet facilities must be designed to be accessible. The exact number will be based on the size and type of facility.

Other guidelines detailed in Section 4 of the ADAAG will impact the design of medical offices, hospitals, and other types of medical facilities. It is not practical to outline those in this text; therefore, the reader is advised to find this information at the ADAAG website.

SPACE ALLOCATION AND CIRCULATION

Allocating space and planning circulation are critical and complex tasks for any size or type of medical facility. An interior designer might be retained to space-plan physicians' suites, but would be unlikely to space-plan hospital facilities other than some

departments based on his or her experience and local regulations. Interior designers should, of course, be part of the design team for healthcare projects.

In order to meet the goals and functional needs of the practice, effective planning is fundamental to the design of physician's suites. In a hospital, the interrelated services that must be provided require efficient design of the spaces in order to provide effective patient care. A key part of this planning is the arrangement of the inpatient rooms and associated nurses' stations. Some design trends place decentralized nurses' stations in the units, making it easier for nurses to reach more patients. This type of design requires greater technological interface and communications.

Medical office suites have many similar space-allocation needs. Waiting rooms, business offices, exam rooms, and physician's offices are the most common. The type of specialty and the number of physicians and other staff will affect the total square footage required. According to Malkin (2002, 2), "Suites can be laid out on either a 4-foot or a 4-foot 6-inch planning grid . . . with a 28-foot bay depth for a small suite." This helps create an efficient double-loaded central corridor for a small suite. Larger suites will require larger bay depths to accommodate more exam rooms and ancillary spaces. Treatment rooms are often larger than exam rooms and impact the planning grid (Figure 10-6).

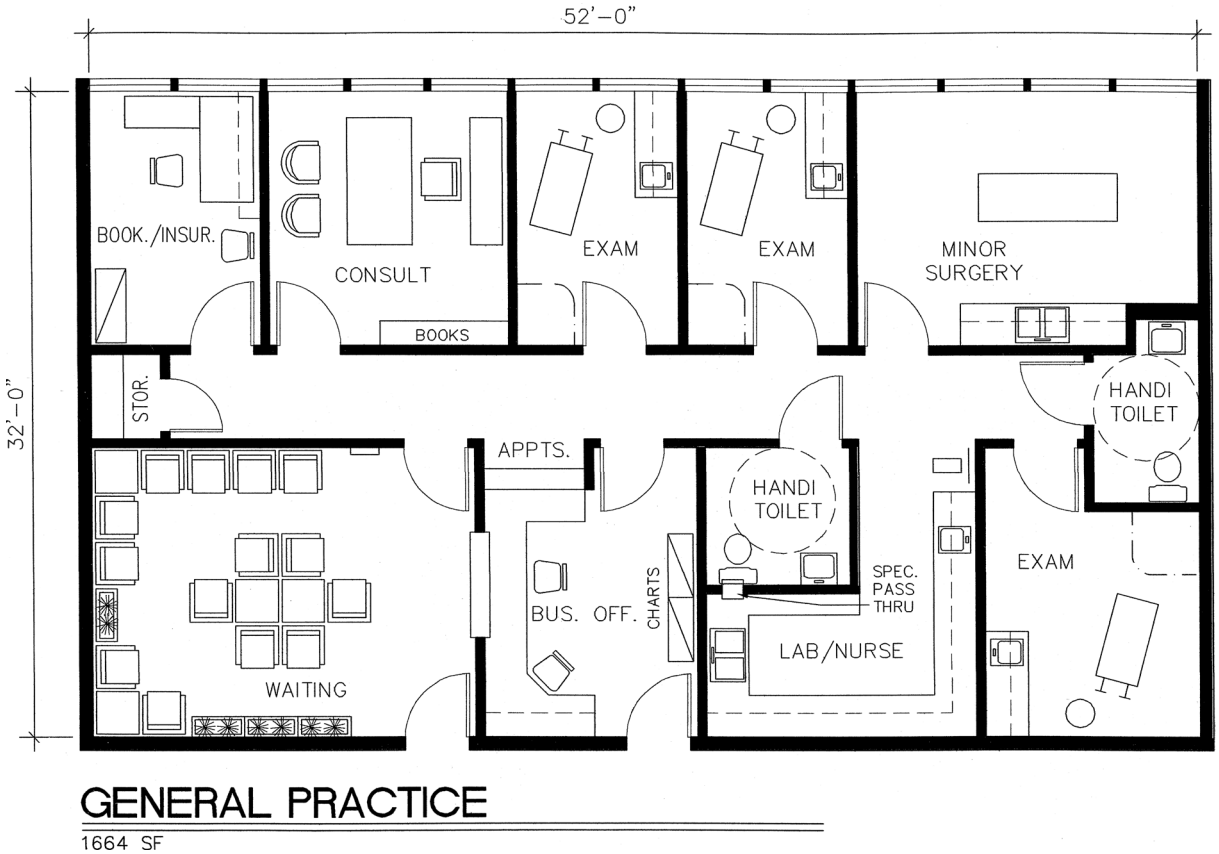


Figure 10-6 Floor plan of a single-practitioner family practice office. *From Malkin 2002, 37. Courtesy of John Wiley & Sons.*

Circulation and corridor planning will be guided by the building. In most cases, interior corridors of suites are required to be 44″ (1118 mm), although this can vary up to 60″ (1524 mm) depending on occupant load. There are few corridors in an office suite that can be less than 44″ (1118 mm). Because the users of those spaces may be ambulatory or nonambulatory in wheelchairs, wider corridors are more standard.

Window placement also impacts the grid and layout of a medical suite. Unfortunately, too many office buildings are designed from the outside so that windows do not always relate to the planning grid for medical suites within them. In general, an MOB will have window placement better planned for the interior space allocation requirements of suites than a nonspecific office building.

Space allowances, adjacencies, and circulation planning are more complex in a hospital facility. Space adjacencies directly affect patient care as well as the overall operations of the medical facility. In a hospital, space allocation will include public and administrative spaces; inpatient rooms of various kinds related to the departments; and specific medical treatment spaces such as surgery and diagnostic imaging.

In a hospital, wide corridors—often 6–10′ (1829–3048 mm), depending on code requirements—are needed to move traffic and medical equipment such as patient gurneys. Layout of the major corridors is closely tied to the type of facility and specialized services provided. Many mandatory requirements affect the layout of a hospital, both in general and within the departments. Architects and designers must be fully aware of client goals as well as these regulations. Efficiency of planning to assist staff in their jobs is important to help with treatment and care of patients.

Nursing units are designed and planned around circulation patterns emphasizing shorter distances from the nurses' station to the patient room clusters. Trends in hospital care and hospital design have seen the change in inpatient rooms from two patients to a room to single-patient rooms. This can increase the number and/or affect the location of nurses' stations. However, with the increased number of outpatient clinics and treatments available to the public, and with insurance companies dictating the amount of time the patient stays in a hospital, the number of patient beds per hospital has been trending down.

WAYFINDING

Finding the right corridor in a large medical office building or a hospital is not easy. Due to the complexity of the plan of a hospital, wayfinding techniques and signage play very important parts in the overall planning undertaken by the architect and the interior design team. Wayfinding, as you will recall from Chapter 7, is the use of signs, graphics, and directional arrows to help individuals find their way around complex properties and building interiors.

Once an individual enters an unfamiliar medical facility, they will look for directories, maps, and basic directional information to help them find their desired physician suite or department (Figure 10-7). The lack of signage, directories, and maps creates frustration in patients and visitors who are already stressed.

Naturally, the front entry will be the first location of any wayfinding system. In hospitals, it is very common for an information desk—often staffed by volunteers—to help guide individuals to various areas of the hospital. This information desk might also be a feature of very large medical office buildings as well.



Figure 10-7 Signage at the entrance to a large medical facility aids patients and visitors in wayfinding.
Photograph courtesy of APCO Graphics, Inc. Atlanta, GA.

In most cases for a medical office building, a wall-hung directory will help people move to the proper floor. On each floor, the directory can be repeated. A floor map that indicates suite room numbers will be necessary. In some layouts, information on the wall with directional arrows will be necessary—just like trying to find your room in a large hotel!

Cues, signs, and other indicators to help visitors to a medical office building or hospital find their way are very important parts of the overall design. Medical office building developers seem to be the most remiss in the provision of wayfinding signage. This topic should be discussed with the developer and physicians when doing the programming for the facility.

FURNITURE

Furniture in a healthcare facility falls into three types of product categories. The first is furniture used by patients that could be nonmedical, such as seating in the waiting room. There is also furniture that has a medical use, such as the bed and seating in an inpatient room in a hospital. Then there is more purely medical-use furniture, such as exam tables, carts, and other items related to the treatment of a patient.

In medical facilities, furniture and equipment is also classified as either movable equipment or capital equipment. *Movable equipment* items are general furniture items

THE HEALING ENVIRONMENT

An important evolution in the design of hospital spaces involves the creation of a healing environment through design. A *healing environment* blends the elements of nature with the design of the building and interiors to reduce stress and support healing.

The healing environment approach to planning a hospital became an important trend in the twentieth century. Such a planning philosophy creates comforts for patients and staff, often resulting in improved healing and less stress. To heal is not necessarily to cure. Patients can heal themselves with strong psychological acceptance of a health issue, but they cannot cure or perform actual surgery themselves. A patient can gain great comfort from time spent in a garden or viewing the outdoors from inside the hospital room. Unfortunately, considering some of the views from patient rooms and lack of outside views in medical office suites, this is not always an option in the design of the facility.

Patients and family members are stressed whenever they visit the doctor—whether for a checkup or in relation to a serious medical condition. Reducing stress can create a more positive psychological balance for patients and family members.

A healing hospital environment also incorporates family support space within the patient room and/or ward area, larger windows in the patient rooms, and both natural and artificial light to increase the patient's sense of well-being (Figure 10-8).

Another important design tactic to create healing environments is the inclusion of indoor garden areas and views to the exterior. Nature has a very positive impact on patients and family members. Indoor gardens preferably are natural plants rather than artificial ones. Yet indoor plants and pools or fountains must also meet hospital protocols to limit or eliminate chances for infection and other issues that can be harmful. As reported by Kobus et al. (2008, 247), "Healthcare providers are interested in using materials, finishes, fabrics, ceiling tile, and flooring that contribute to a healthy environment for staff, patients and visitors."

such as chairs, freestanding desks, and other nonmedical pieces. *Capital equipment* items (or fixed assets as defined by accountants) are those that are attached to the building or are movable items that have a high cost and are otherwise necessary to provide the medical service to the patient.

It is beyond the scope of this book to discuss the purely medical-use furniture other than to suggest standard sizes that impact space planning of exam rooms and inpatient rooms. Consultations with vendor specialists will be necessary as advised by the client for the planning of this type of furniture and equipment.

Here are a few thoughts concerning the specification of nonmedical furniture:



Figure 10-8 Family waiting area with view to outdoor garden. Yale New Haven Smilow-Bernard. *Interior design by Cama, Inc. Photographer: Rick Scanlan.*

Much research has been conducted in this century related to the healing environment. The Center for Health Design has extensive information on healing environments and new trends in hospital design on their website. Numerous additional articles can be found on the Internet. It is also suggested that the reader review Malkin (1992). Malkin is an early researcher on healing environments in hospitals.

- Wear and tear and maintenance are important factors in specification.
- Waiting room seating should be predominantly individual chairs rather than sofas or open chairs.
- Chair widths should not be very narrow because they will be uncomfortable for larger-framed individuals.
- Armchairs are preferable in waiting rooms and inpatient hospital rooms so that people can more easily rise from the chairs.
- Tables in waiting rooms should be solid tops—not glass.



Figure 10-9 Radiology department reception area. Scottsdale Shea Medical Center, Scottsdale, AZ. *Interior design by Greta Guelich, ASID, Perceptions Interior Design Group, LLC, Scottsdale, AZ; architecture and engineering by Martin P. Flood, AIA, Architecture + Engineering Solutions, LLC, Phoenix, AZ. Photographer: Mark Boiscliar.*

Note the variety of seating options in Figure 10-9. Details concerning other furniture items in nonmedical and medical areas are offered in the "Design Applications" section.

MATERIALS, FINISHES, AND COLOR

Materials specification is the one factor common to the various types of healthcare facilities. Architectural finishes are selected based on codes, sanitation, how easy they are to clean, allergens, and bacterial growth as well as on aesthetic issues. The comments in this section are general in nature and can be applied—depending on local jurisdictional health department and building code restrictions—to any type of medical facility.

In hospitals and large medical office suites, it is common to include a handrail along the major corridors. This helps patients and visitors walk comfortably and provides a measure of protection for the walls where carts, wheelchairs, and gurneys are used.

Although they can be marred easily, paint and wallcoverings are the most common and versatile wall treatments used in a medical facility. It is desirable that the paints used be low-VOC products. Semigloss and enamel paints are used rather than flat to increase the ability to clean the painted surfaces.

There are wallcoverings that are acceptable by the majority of codes for medical interiors. A textile wallcovering will be more restricted in a hospital or nursing facility because these facilities are considered institutional occupancies. However, always remember that codes must be verified before applying any type of textiles to walls.

Textured, cleanable wallcoverings are often preferred, as they not only facilitate acoustical control but also diminish glare. In areas where wheelchairs and gurneys are used, a more textured, woven wallcovering may be specified below the handrail to help protect the wall.

The majority of window treatments specified for medical interiors are horizontal or vertical blinds—usually neutral-colored—that meet the applicable codes and give a consistent exterior appearance. Window textiles are rarely used in exam rooms, although they may be allowed in inpatient rooms. Cubicle curtains to provide privacy in exam rooms and patient rooms are opportunities to provide a friendlier and less clinical appearance. Any fabric hanging in a medical facility must meet applicable codes. Textiles that are not Class A cannot be used unless treated with fire-retardant chemicals.

Floor finishes in hospitals are often hard-surface and resilient materials in patient areas and high-traffic areas. Durability and maintenance are major factors in this specification, with emphasis on antimicrobial products for exam rooms, treatment areas, and inpatient rooms. As treatment areas and inpatient rooms need daily cleaning, flooring such as a heavy-duty hospital-grade floor vinyl is often specified. For the most part, corridors that experience heavy cart traffic use vinyl flooring. Hospitals use carpeting mainly in public spaces and offices.

A medical suite has more flexibility in material specification for the floors due to its occupancy type. Resilient and commercial-grade sheet vinyl is common in exam rooms, treatment rooms, laboratory areas, and corridors in order to be able to clean these areas. Carpeting might be feasible in some areas if preferred by physicians. Cleanability will always be an issue in specification, however. When specifying carpet, use a low-pile, high-density carpet to facilitate the movement of wheelchairs and wheeled carts or equipment.

Color can play an important part in the healing of patients in healthcare environments. According to Mahnke and Mahnke (1993, 85), "A correct color environment contributes to the welfare of the patient and the efficiency and competence of the staff." Color choices can range from subdued, pale, grayed, or dull tones to saturated color, depending on the type of medical facility and the use of the space. Examples of color effects include soft yellows, which promote healing; blues, which can help reduce blood pressure; and shades and tints of many colors, which create a healing environment.

The designer must present color schemes that are appropriate to the medical practice, have proven use for medical care, and are somewhat time-honored to avoid an outdated appearance. There is an excellent discussion of color usage in medical facilities in Malkin (2014).

The complexity of the design of healthcare facilities, regardless of type, demands that the designer learn all he or she can about these facilities before agreeing to design them. Many excellent resources are listed in the references for this chapter.

MECHANICAL SYSTEMS

For the most part, the mechanical systems planning of a medical facility will be the responsibility of the architect. This is especially true in the case of hospital facilities. There are many regulations by state, federal, and local agencies enforced to ensure control of infectious diseases. The architect will study these regulations and systems will be designed to ensure safe environments, whether for a suite or more directly for a

hospital. Patient safety and comfort need to be carefully considered for any mechanical systems planning.

The interior designer must also work carefully with the physician and architect whenever the suite or hospital area includes specialized medical equipment. Specialty medical equipment in exam rooms and treatment rooms must be identified so planning and other product specifications can be seamless. In a hospital setting, the problem is more serious due to the greater need for infection control.

It is feasible for interior designers to plan—in conjunction with the architect—locations of toilet facilities as well as sink locations in a medical office suite. Hand-washing sinks are required in exam and treatment rooms, laboratory spaces, and employee break rooms. In most cases, a medical office will need restrooms for men and women patients and perhaps a separate one for staff. Some practices place these restrooms off the waiting room. It is also common for a restroom facility to be located in the medical area near the laboratory.

Telephones, intercoms, and data networks are parts of the communications systems in all medical facilities. Interior designers can be of assistance in locating outlets for these items. Physicians are increasingly storing all patient information in their computer systems. Paper charts may still exist in some offices and even departments of hospitals, but electronic patient recording and documentation is becoming the norm.

Standard lighting fixtures in office buildings and hospitals has been and remains the standard 2′ by 4′ (610 mm by 1219 mm) fluorescent fixture. New options have emerged to provide improved lamp choices for better color of light and energy efficiency. Using standard fluorescent lamps can impact the color of skin of patients in exam and treatment rooms. Track lighting can be an option in the reception areas and lounges.

Trends in design of hospitals are efforts to bring more natural light into patient rooms and courtyards in public spaces. Energy conservation will be a high priority in the specification of lighting fixtures in hospitals and medical practice suites. As lighting technology in this type of facility continues to improve, it is recommended to the reader that research be conducted with the advice of a lighting designer and/or manufacturers of lighting fixtures.

Additional generic information concerning lighting is included in the "Design Applications" section below. An excellent resource is Steffy (2008).

Design Applications

Medical facilities come in many sizes and inherently have challenging complexities. A well-designed medical facility can impact the well-being of a patient, ease the anxiety of family members, and increase the effectiveness of staff. Gaining a level of understanding of healthcare as a business and becoming comfortable in the environments he or she might be designing are both important to the designer involved in healthcare interiors. Improper planning and specifications can have negative impacts on all of the facility's users.

The physician, a building developer, or hospital facility manager might hire the interior designer. In some cases, the project may be space planning and aesthetics specification, while in others it might involve product specification with planning of

furniture but not the partition planning. Often, the interior designer will be required to coordinate with an architect and a contractor as well as with the client. Responsibilities will be based on the designer's experience and on regulations in the jurisdiction of the project.

The majority of all medical facilities have similar elements involved in the planning and design of the space. Functional adjacencies will have some similarities in physician's suites, with variations based on the specialty. Issues such as sanitation, maintenance, and bacterial growth on materials and finishes will impact product specification. Building and fire safety code restrictions are critical to the design space plan and specifications as well.

This "Design Applications" section begins with a discussion of specific information regarding the planning and design elements of a typical medical office suite. Brief material concerning some office specialties has been added. Important design concerns for a hospital lobby and inpatient rooms are next. A new section discusses the urgent care center, a growing component of healthcare. Finally, the design of a generic dental office is included. These are the types of healthcare facilities that interior designers and students usually encounter.

MEDICAL OFFICE SUITES

As previously mentioned, medical office suites can be located in many different types of buildings. It is common for more than one practice to be in a building unless, of course, it is a freestanding building housing only one medical practice. It is common for medical suites and MOBs to cluster around a hospital.

Each medical specialty has specific needs and concerns. Understanding the differences is an important key to the success of the designer and the project. Gaining experience with other designers who have specialized in this type of commercial facility and/researching and reading about the medical field are recommended.

As with all projects, the design of a medical office suite begins with programming information, including obtaining and/or helping to develop a feasibility study. For each project, the interior designer must research the specialty as well as interview the physician and staff to understand in detail the daily functioning of the practice. The interior designer may need to consult with medical equipment and supply manufacturers concerning space requirements of medical equipment as well.

The typical medical office suite can be divided into two general spaces: medical and support functions. The medical areas include one or more nurses' stations, examination rooms, laboratory space, and medical storage. Note the floor plans in Figure 10-4 and Figure 10-10. Depending on the specialty, other medical areas could include cardiac testing, physical rehabilitation, or outpatient surgery. Support function spaces include the waiting room, receptionist and secretarial areas, business office, medical records storage area, offices for physicians, restrooms, office supply storage area, break room, and often a small conference room. Generally, the space is planned to keep the patients in the medical areas and restrict their movement through nonmedical spaces with the exception of the waiting area and perhaps parts of the business office.

Building, fire safety, and accessibility codes will impact the space allocation and planning of the suite. Medical office suites are generally considered business occupancies by



Figure 10-10 Floor plan for a pediatrics medical office suite. *From Malkin 2002, 91. Courtesy of John Wiley & Sons.*

the building codes unless attached to or associated with a hospital; then they are considered institutional occupancies.

This section will focus on the interior design needs of a general practitioner's medical office, with additional comments regarding medical specialties where appropriate. Although the singular term "physician" is used, it is assumed that other physicians in the practice would also be consulted on request. This discussion will essentially flow as a patient might flow from entry through exit.

Waiting Room and Reception Area

Codes will require a main entrance that is ADA accessible. This main entrance is also the main exiting door for patients. A secondary private entrance/exit is common by code and as preference by the medical staff. This secondary exit should not go through a closed room, as that would be a violation of the building code.

The waiting room and reception area are where the patient will check in for appointments and wait until it is time for the examination. The design of this space can aid the patient by reducing stress and helping to create comfort and confidence in the medical expertise of the physician. Waiting rooms and reception areas are designed to create an

ambiance of warmth and comfort to put the patient at ease. Furniture and architectural treatments play a role in this endeavor. In planning the layout of the waiting room and reception area, space is needed for ambulatory and nonambulatory patients to enter and exit. A *nonambulatory* patient is one who cannot walk on his or her own without assistance.

A clear traffic path should be provided to ensure easy access to the receptionist's area, to seating, to restrooms if there are any off the waiting area, and to the door into the medical part of the suite.

Many medical office suites are designed with a waiting area for healthy and sick patients. This is especially important for practices that treat patients with compromised immune systems and/or contagious diseases. This can be done by splitting the seating into two areas or placing half-height walls between the sections.

Family practice medical suites may also find it practical to include an area for parents to wait with children separated from adult patients. This separation can be achieved with something as simple as planters dividing spaces. The physicians may also want to provide a small amount of easily cleaned toys or play areas for children.

The majority of medical suites have some form of divided space between the waiting room and the receptionist. An opening with a sliding window or a counter with no window can separate the receptionist area from the waiting area. This helps to divide the waiting room from the medical areas. The receptionist must have visual control of the entry and waiting area. In many situations, the patient will also check out with the receptionist after the examination is complete. This is done to provide privacy and security of medical areas.



Figure 10-11 Waiting room at Atlanta Women's Obstetrics and Gynecology, PC.
Interior design by Rabaut Design Associates. Photograph: © Jim Roof Creative, Inc.

Currently, most reception areas are open rather than being enclosed by a wall and window (Figure 10-11). With the height of the cabinet or a partition wall being 40–42″ (1016–1067 mm), the reception area still maintains privacy and control. This height helps to mask computer monitors. ADA regulations need to be considered in the design of the reception cabinet. A lowered section is required in most instances. However, some physicians still request a window between the receptionist and the waiting room.

A door adjacent to the reception desk/counter from the waiting area to the exam rooms prevents individuals from independently entering the medical areas. This is a security issue. Nurses escort patients from the waiting area to the exam or treatment rooms. However, patients normally are not escorted back to the waiting area to exit. Signage is needed to assist exiting patients.

There are numerous considerations in the specification of the waiting and reception area. This list provides the key elements:

- Wear and tear and maintenance are important factors in specification.
- Seating in the waiting room consists primarily of small sturdy chairs with or without arms. Armchairs provide a psychological and physical barrier between patients and are helpful for getting up from the chair.
- Some practices will request a sofa or loveseat so that family members can sit together.
- Typically, 36″ (914 mm) minimum is provided for circulation behind a group of chairs (Panero and Zelnik 1979, 268–69), which allows for mobility of a wheelchair. Thirty-two inches (813 mm) should be allowed in front of the chairs, which allows for ambulatory movement.
- Remember, 36″ (914 mm) should be allowed for wheelchair clearance, and 5′ (1524 mm) should be provided for wheelchair turnaround.
- Waiting room seating arrangements generally follow the contours of the space with additional seating placed in the middle if the overall waiting room is large enough.
- Fabrics on seating units must be commercial grade and preferably antimicrobial, allergy resistant, and durable as well as aesthetically pleasing. Depending on the specialty, fabric textiles and vinyl or even leather might be used. Small patterns rather than solids provide design aesthetic and help mask some stains. (Refer to the "Materials, Finishes, and Color" section for suggestions on this part of the design.)
- Accessory side tables are needed for magazines. Wall hangings or pictures, a television, and even a fish tank might be included in the waiting room.
- Lighting is often a combination of overhead fluorescent fixtures and ambient lighting provided by wall sconces, spotlights, or track lights around the perimeter of the space. Naturally, the type of medical specialty will dictate the lighting specified for the waiting room.

Receptionist Area and Business Office

It is the responsibility of the receptionist to greet patients, make appointments, answer the phone, and perform the other support duties the practice requires. Depending on

the size and space plan of the medical suite, the business office may be adjacent to the receptionist's area or in a separate location. Generally, larger medical practices will have separate rooms for reception and the business office, while smaller ones will have a space with combined functions.

The business office itself can include several individuals. There will be someone responsible for checking on patient insurance, billing and collecting, and perhaps in a large office a secretary to transcribe doctors' notes. Another business office worker could be someone other than the receptionist who collects copays at time of service and sets up appointments. Figure 10-4 and Figure 10-10 show different planning norms of a business office.

Here are some of the most important design elements and products concerning the receptionist and business office:

- The receptionist desk/area is generally custom millwork. The cabinet must be well organized and efficient.
- Ergonomic seating is ideal for the receptionist and business office personnel.
- A system of small shelves or organizing systems are needed to store records/files of patients having appointments that day.
- A copy machine and printer is required.
- Business office areas can be furnished with freestanding desks. Office systems furniture using panels can divide the work areas.
- Finish specifications must include durable, cleanable surfaces such as laminates, sealed wood, solid surfaces, and some stones such as granite.
- Light-toned work surfaces will create less eyestrain.
- Chair textiles should be durable and cleanable, as well as antimicrobial and nonallergenic. Patterned and solid textiles are both appropriate selections for this seating.
- Architectural finishes in the receptionist/waiting area include most items that are used in any professional office.
- Flooring in the business area should be carpet to help with acoustics. Tufted, low-pile carpets are preferable in the business office areas, although the client might select other resilient and hard-surface materials.
- Computers in the business office are linked to terminals in the receptionist area, exam rooms, physicians' offices, laboratory, and other areas of the medical suite. Careful planning and specification of outlets for computers and other electronic equipment is a high priority.
- Lighting is likely to begin with overhead fluorescent fixtures or in combination with downlights and tasks light. The Illuminating Engineers Society recommends 150 footcandles for these office areas.

Although the majority of physician offices store patient records using technology, many still work using a paper system. In addition, state laws may require that the office

maintain paper records. This is especially true for patients who saw the physician prior to the practice converting to electronic record keeping. Thus, storage of medical records is another design issue for the interior designer.

Primary care physicians will maintain more detailed patient records than specialists who see patients on referral. The primary care physician has records of the patient's visits, as well as copies of visits to specialists and other related medical facilities. It is obvious that the standard vertical filing unit or the lateral file cabinet would not provide sufficient storage for these medical records.

Open filing units have been designed and developed for medical office record keeping. Open filing units are open shelves that allow storage of side-tab file folders, with the tabs often identifying the name and possibly the type of treatment or diagnosis of the patient. The shelves can be stacked six or seven high, providing more storage than the standard lateral file and a less expensive solution for the small practice (see Figure 6-23). Chapter 6 has a brief discussion on these types of file units.

Examination Rooms and Treatment Rooms

It is important to remember that not all exam rooms will follow the guidelines discussed here. The exact dimensions, equipment required, and layout of the rooms will vary based on the specialty and even the combination of specialties working as one unit. Careful programming with the physicians and other appointed staff are critical to design these very important areas to function for the client and provide appropriate spaces for the patient's well-being.

As patients are escorted to the exam rooms, their first stop is to be weighed by the nurse. This is done in a small alcove for this function near the entrance to the exam areas or elsewhere in the medical area.

Depending on the specialty and the functional layout preferred by the physician, the passageway might take the patient past the nurses' station. Clustering the nurses' station and exam rooms together makes it easier for the nurses to control patient traffic flow.

The basic examination room is fairly standard in size. They are generally rectangular, approximately 12′ by 8′ (3658 mm by 2438 mm). Some practices will require a larger exam room (Figure 10-12). Treatment rooms that combine the exam and treatment into one space will be larger. Whenever possible, the door into the exam room is hinged on the jamb opposite that of a typical door opening. This ensures more privacy for the patient on the exam table.

A cubicle curtain or changing area in exam rooms ensures privacy when patients must change into a gown. Hooks, clothes hangers, a mirror, and stool or chair are also necessary in each exam room. An extra chair for a family member is usual. To reduce the patient's stress, magazines, medical literature, and artwork are provided. Guest and patient chairs are usually provided with or without open arms; they are commonly covered in hospital-grade vinyl or a tightly woven commercial fabric.

The basic examination room will also include a sink cabinet of approximately 4′ (1219 mm) in length and 24″ (610 mm) deep; usually positioned as shown in Figure 10-12. It can be either 36″ (914 mm) high as a standing work area or 30″ (762 mm) high for a sitting area. The counter surface should be smooth, stable, and durable to provide sanitation and accurate recording of notes and writing of prescriptions if computers are not used for these purposes.

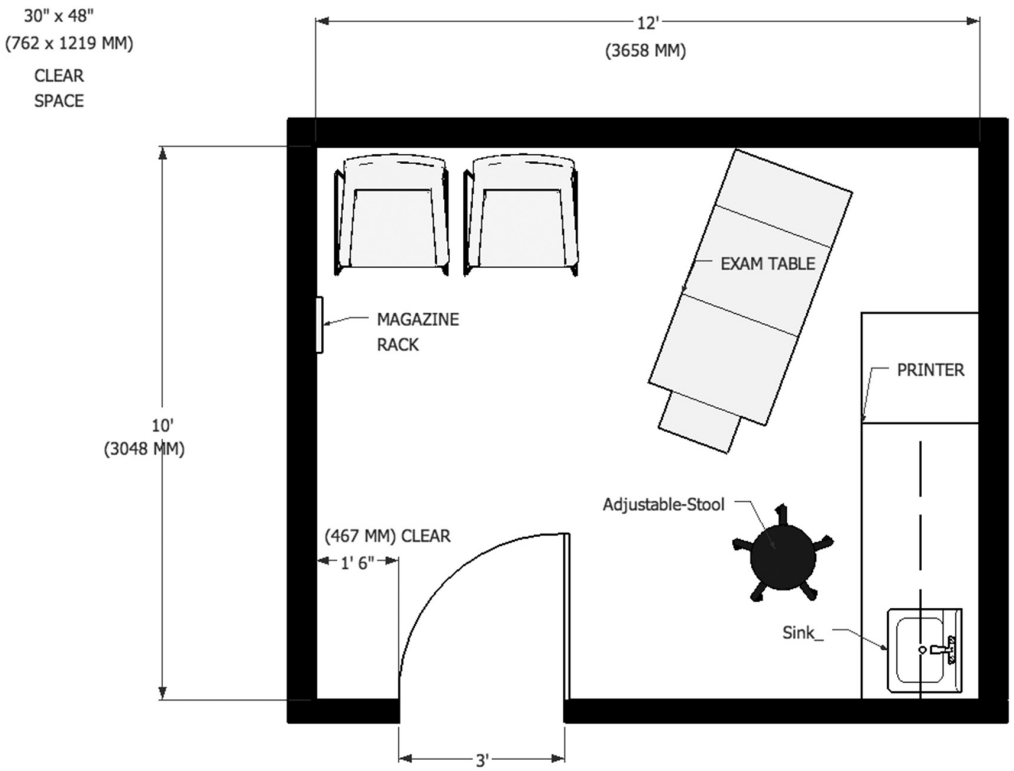


Figure 10-12 Sample floor plan of a typical physician's suite exam room.
Drawing by Esther Gonzalez, ASID.



Figure 10-13 Examination room in the Contra Costa Regional Ambulatory Care Center. The full window view aids in promoting a healing environment.
Photograph courtesy of Ashen + Allen. Photographer: Robert Canfield.

The cabinet may have a knee space; drawers or shelves are placed below and closable cabinets are placed overhead. These cabinets also serve to hold the computer monitor and keyboard, which are used to record patient information and perform other needed tasks at the patient's side. The small armless stool on casters for the physician is usually covered in a hospital-grade vinyl.

Space must be provided on either side of the exam table for the doctor and nurse. The standard size of the exam table is 27″ (686 mm) wide by 54″ (1370 mm) long, with a pull-out extension and possibly stirrups at one end (Malkin 2002, 58). These typical exam tables are also supplied with a built-in step to allow the patient to easily sit on this raised table. Exam tables are designed with a height of 29–36″ (737–914 mm), which allows the physician and nurse to examine the patient easily without placing undue stress on their backs when leaning over the patient. The physician, depending on his or her specialty, may need other types and sizes of exam tables. The designer needs to discuss this issue with the physician and medical equipment supplier to ensure space is provided for any atypical exam table.

Here are several tips concerning finishes and ancillary needs in exam and treatment rooms:

- Paint is an economical and versatile finish that provides many choices. It is easy to clean and maintain when semigloss is specified.
- Wallcovering for the exam room must be cleanable, scrubbable, and meet code requirements.
- Heavily textured wall surfaces in exam rooms—or other areas, for that matter—are more difficult to clean.
- With the small size of exam rooms, any patterns should be small and applied to only one or two walls.
- Flooring in an exam room is most often a resilient hard surface such as a commercial-grade vinyl tile. The primary considerations in flooring specification are ease of movement for wheeled equipment and sanitation.
- Lighting specification in the design of an exam room calls for approximately 100 foot-candles as general lighting, supplemented by task lights as needed by the specialty. Mobile exam lights are often included in each exam room.
- As most medical suites are provided with fluorescent ceiling fixtures for general illumination, the designer will need to suggest the specification of lamps that do not change the color of skin tones.
- Accessories are kept to a minimum because the physician may want to display informational posters. Magazine racks are often installed on one wall, and photos, prints, and other drawings add calming touches.
- Hospital-grade vinyl will be specified for the the exam table from a selection of fabrics available from the manufacturer.

Colors in the exam and treatment rooms—as well as other areas of the facility—can impact the patient's feeling of comfort. Muted colors are common in exam rooms to

help alleviate the patient's stress. Cool colors are also more calming that warm colors. Highly saturated colors are not advisable in exam and treatment rooms in most cases. They can impact skin tone and influence diagnosis. They can be used as small accents, however. Light colors also help make the exam room seem larger. Color schemes replicating nature provide a feeling of familiarity and warmth. When using muted and neutral colors, remember that more aesthetic interest can be achieved by using more than one value of the neutral. Perhaps the lower part of the walls can be a slightly deeper value than what is used on the upper part of the walls.

Nurses' Station and Laboratory

Many tasks are conducted at a nurses' station and laboratory areas. It is a critical area in conjunction with the exam rooms. Exactly which tasks are conducted there depend on the size of the practice. Tasks performed by the nurses either in the nurses' station or in the laboratory include:

- Monitoring patient and visitor flow in the medical areas
- Recording test results and updating patient charts
- Consulting with physicians and other staff
- Preparing or dispensing medications to be administered in the exam room
- Performing routine office tasks
- Communicating with patients via telephone
- Sterilizing instruments
- Giving injections
- Drawing blood if a lab is not included in the plan
- Performing routine lab tests
- Weighing babies if the practice involves pediatrics
- Conducting other tasks dependent on the practice specialty

A separate lab area can be provided where several types of basic samples can be tested and examined if in a large practice. Depending on the size of the practice, the nurses' station can be located very near the reception area or farther back in the suite. Of course, it also needs to be located close to the exam/treatment rooms and laboratory. The exact adjacencies will be determined in consultation with the doctors and staff. If the size of the medical practice warrants, more than one station can be provided.

The size of the nurses' station will vary. At its simplest for the smaller practice, a nurses' station can be a sit-down or stand-up length of counter with appropriate storage above and below the countertop. In a larger practice, the station will be larger, perhaps as much as 100 square feet (9.3 square meters). In the larger station, cabinet/counter heights will be both 40–42″ (1016–1067 mm) high and 30″ (762 mm) high.

Room for one or more computer monitors and keyboards will be required. If nurse practitioners and physicians assistants (PAs) are part of the staff, they will require space at

the nurses' station or perhaps in a private office. Physicians as well as other medical personnel use the station, so it must be planned accordingly. You can also see the relationship of the nurses' station to the exam rooms and other areas in Figure 10-4 and Figure 10-10.

Depending on the wishes of the physicians, the nurses' station can be configured with custom millwork or office systems items. If the station is open at the end viewable by the patient, that side will be the higher-height front, possibly with a lower-height countertop below. This helps to protect information from being viewed by unauthorized individuals. Storage cabinets below the countertops and along the back wall provide space for numerous items needed at hand in the nurses' station. Note that some of these cabinets will have to be lockable for security purposes. Tall counter-height stools and/or small posture chairs as needed should also be specified, depending on heights of work surfaces. These may be upholstered in commercial-grade vinyl or tightly woven fabrics that meet codes.

There are several equipment items or areas that need to be in or near the nurses' station. They include:

- A small refrigerator for medical uses only
- At least one sink
- Telephones
- Space for doing paper work
- Space for consultations with physicians and other staff

Finishes on cabinets and countertops should coordinate with other like items in the suite. Flooring can be hard-surface materials such as are used in the exam rooms. Cleaning, general maintenance, antimicrobial, and bacteria control are all critical factors in the specification of materials in the nurses' station. It may be feasible to use some strong splashes of color here, but those colors should not impact color rendition of any lab tests done in the station.

Adjacent to the nurses' station, or in close proximity, is the laboratory. Depending on the testing done in the in-house laboratory, additional codes and regulations enforced by federal, state, and local agencies will impact the design of this space. Due to stringent requirements, laboratories in medical office suites are often small and capable of performing only basic blood, urine, and other minor tests. However, larger medical practices may have a separate laboratory conducting a greater number of tests. This is an important issue to discuss with the physician in order to space-plan and specify appropriate laboratory facilities that meet health department regulations and codes in the jurisdiction.

The main furnishings item will be cabinets and countertops. Once again, this is a space that can use millwork or systems furniture. Here are key considerations for the laboratory space:

- Counters can be stand-up or seated height.
- At least one section needs knee space to use microscopes.
- A double-compartment sink is required.
- A refrigerator should be designated for medical supplies only.

- Counter space needs to be supplied for the various testing equipment (sizes specified by the medical equipment vendor).
- Upper and base cabinet storage should be specified with some lockable.
- There should be room for a blood-drawing chair and supplies. The space should provide for patient privacy.
- Ideally, the laboratory space should be located adjacent to a toilet to provide transfer of patient specimens from the toilet facility to the lab via a pass-through compartment. This would be a different toilet from that located in the front of the suite and will be restricted to patient use within the medical areas. This toilet must meet ADA accessibility and size requirements.

Finishes, materials, and color choices should be in keeping with the rest of the suite. White, off-white, and other low-value neutrals are appropriate so as not to negatively impact viewing slides and other tests. Upholstery on seating should be commercial-grade vinyl that will have antimicrobial properties. Avoid materials with VOC off-gassing. Depending on the tests conducted here, the laboratory must have special venting and air quality control required by OSHA or other health department standards.

Lighting in the laboratory is paramount to proper testing. Overhead ceiling lighting is usually provided, as well as task lighting for specific areas. Ideally, the laboratory will have no windows, or a very durable blackout window treatment must be used. The nature of the laboratory is such that the interior designer must thoroughly research regulations and codes related to this space.

Physician's Private Office

The physician's private office—also called the consultation room—is a retreat for study, to review business matters, or to relax and rest (Figure 10-14). Depending on the specialty, the physician may prefer this private office for consultation with patients because it is less clinical in design and atmosphere. This space is generally 10′ by 10′ (3048 mm by 3048 mm) or 12′ by 12′ (3658 mm by 3658 mm) and is generally planed toward the back of the suite, although the actual location will depend on physician preference and use. Offices are commonly planned on an exterior wall to take advantage of natural light.

Furniture will be specified to meet the physician's preferences. Items might include:

- Executive-size desk or wall-hung desk space to accommodate a computer and paperwork areas
- A credenza or storage unit
- Additional shelves and lockable file cabinets
- Possibly a safe if requested by physician
- Ergonomic desk chair or other executive-style desk chair
- Two chairs for patients at the desk
- Possibly a small conference table with four chairs

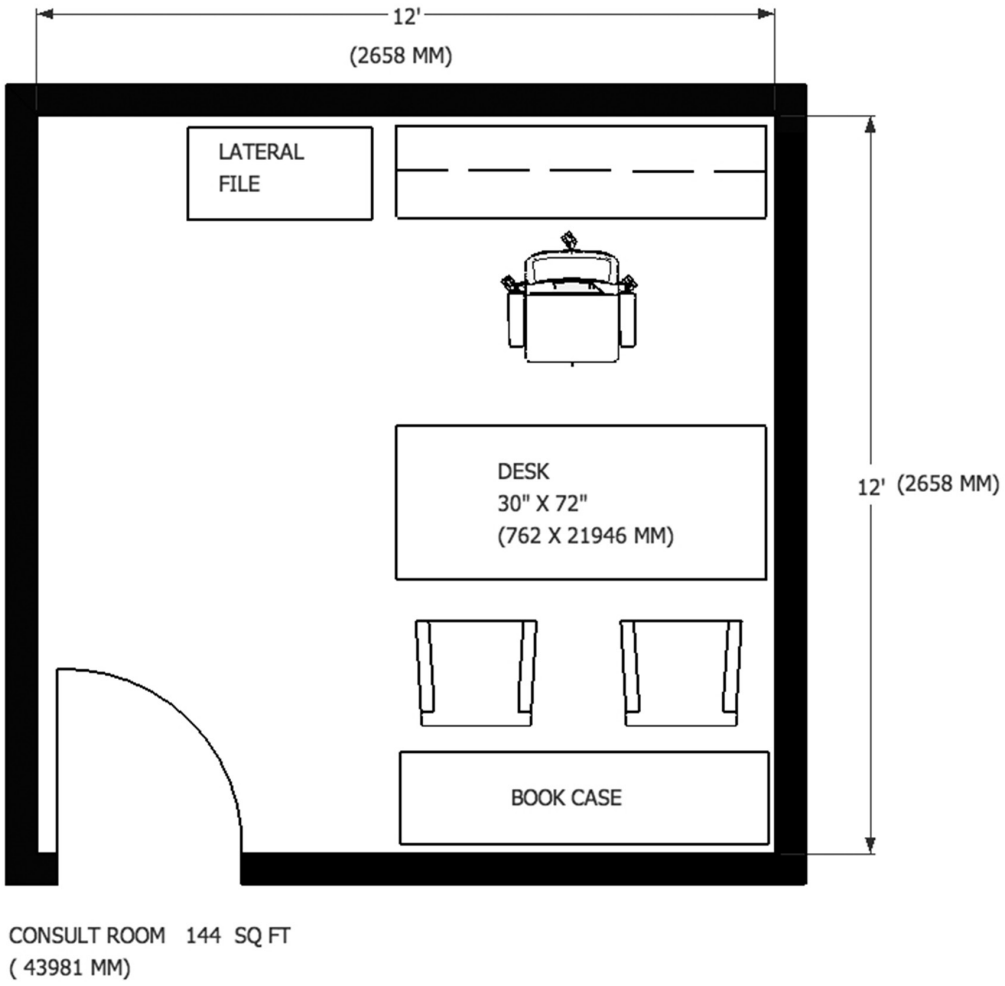


Figure 10-14 Sample floor plan of physician's private office.
Drawing by Esther Gonzalez, ASID.

A private entrance to the suite through a back corridor is often planned. Remember, this exit cannot be through a room with a door that can be closed. This second, private entrance is for the physicians and staff and is included in the plan so that the physician and staff can enter the suite without going through the waiting area. The secondary entrance could also be where supplies can be delivered.

The office should have an atmosphere similar to that of an executive office if desired. Finishes can be upgraded from those used in other business areas of the suite. Carpet is standard in this office. Upgraded wall treatments are also a common request by the doctor. Space should be planned for x-ray view boxes and computer monitors large enough to view digital files from patient tests. General and task lighting will be provided to again reduce the clinical feeling of other spaces. Ceiling fluorescent lighting can be softened with special reflectors.

Support Spaces

Various kinds of support spaces may be required based on the size and specialty of the practice. Let us look first at medical spaces. Specialized treatment rooms, minor surgery spaces, and imaging areas may be needed. For example, in a cardiologist's office special treatment rooms may be needed to conduct cardiac stress tests using a

treadmill, a treatment table, and other testing equipment. Some practitioners will want to take simple x-rays in the office. For example, an orthopedic surgeon may want to take simple x-rays at the time of the examination rather than waiting for the patient to visit an imaging facility. An oncologist may have spaces for infusion injections for chemotherapy. Many general practitioners and internists have a small surgery room for simple outpatient surgical procedures. Any of these specialized rooms may involve specialized equipment, storage capabilities, and construction guidelines.

In addition to the space needed for tests or procedures, specialized treatment rooms will need room for storage cabinets, work surfaces, sinks, medical portable light fixtures, and possibly a changing room for patients. Finishes will be similar to those used in an exam room. Lighting will be dictated by the function of the space.

Multiple well-functioning storage spaces are necessary in a medical suite. The facility will need to store quantities of medical supplies such as patient gowns and many other kinds of items. Medical supplies and pharmaceuticals need special storage consideration to prevent theft and outdating. Naturally, a stock of office supplies and medical forms will be needed. Housekeeping storage requires space for paper towels, cleaning disinfectants, toilet paper, and mops, which need to be readily available. Many leased spaces have a central cleaning crew provided by the owner(s) of the building.

A lunchroom or break room for staff is included in all but the smallest medical office suites. This space frequently functions as the staff meeting room. If at all possible, it should be located away from all medical areas. Items such as kitchen cabinetry with space for a refrigerator, sink, microwave oven, recycle bins, tables, chairs, a telephone, and a magazine rack are common. Often, a television with a DVD player is provided to view educational materials. In a large practice, an employee locker room with secure lockers is provided for the staff. Sometimes lockers are included in the break room. Materials specification for lunchrooms could include easily cleanable surfaces, fibers for acoustical control, and wallcovering for sound absorption. The materials selected must not absorb cooking odors.

Patient and staff restrooms are necessary. As previously mentioned, some practices provide a patient restroom off the waiting area, while a smaller practice will place it within the medical space. A large practice will also have restroom facilities within the medical space for the staff. The number of restroom facilities depends on the number of occupants and on code requirements. Separate facilities are planned for males and females. A restroom space may be a single-user space with only one water closet and lavatory or a larger space to meet code requirements. The restroom naturally must be accessible. Finishes must be specified for easy maintenance and must meet code requirements.

SPECIALIZED MEDICAL PRACTICE SUITES

There are, of course, a large variety of specialized medical offices targeting patients in need of specialized care beyond that provided by the primary care physician. It is not possible to discuss all the planning and design needs of all these different specialties. This information provides brief comments on design elements of the medical suites of several specialties that might be assigned for student projects. These comments are an introduction to the design needs, not a complete descriptive narrative.

If your design project involves the planning of a specialized physician's suite, it is important for you to understand the practice and research its needs prior to beginning any design work, including sustainable design impacts, codes, and general safety issues. Careful discussions with the physicians and staff will also be necessary to uncover all the needs in terms of space plans, types of spaces needed, and product specification.

Pediatrics

This specialty treats children from birth to approximately age 18. Although some parents take their young children to family practitioners, others prefer to work with a pediatrics specialist in a separate practice.

Parents will check in with reception staff as in any other type of medical office suite. Waiting-room time can be long and noisy unless designed distractions are provided. Waiting rooms should be divided in some way to separate sick or contagious children from healthy ones. Pediatrician offices often include a small play area in the waiting room.

Exam rooms must be designed and furnished to accommodate the various age groups. Some are needed for babies and small children and will require a different type of exam table than is used in an exam room for older children. In the latter case, the exam room will be similar to one in an adult practice. Pediatric practices will also have space for a centrally located nurses' station, a consulting room for the doctors, office functions, and toilet facilities that will include baby changing stations and/or toddler seats.

Color is quite feasible in the waiting rooms and exam rooms to create a cheery atmosphere. Artwork or wall graphics that create a playful atmosphere help to calm the anxiety of young children. Hard-surface floorings are recommended for exam rooms, while carpeting is feasible in the waiting room and some other areas.

Breast Care Centers

These facilities provide specialized services primarily to women for comprehensive breast wellness and medical treatment. Breast care centers are predominantly housed in or near a hospital. They provide education, diagnostic imaging, diagnosis, and support. The type of care and range of services provided will depend on the size of the facility.

A waiting/reception room is required for check-in, as appointments will require medical insurance arrangements. After check-in, patients are escorted to a changing area and then a gowned waiting area. The changing area requires lockers for storing some clothing and purses. The gowned waiting area is where patients will wait in a gown or robe until time for their particular test. Most of the other spaces in a breast center house the diagnostic imaging equipment such as for mammograms, breast MRIs, and ultrasounds. Additional spaces for film or digital review of tests, staff rooms, business offices, consultation rooms, and perhaps a small library for educational materials are all common space needs.

The design of a breast care center is very important, as anyone who goes to this facility comes with built-in anxiety. A calming interior with elements of nature is always appropriate. Many breast care centers use pink as a major color since pink has become associated with breast cancer survival. However, some patients may not care for the association. Other pastel colors are also appropriate. The design of the gowned waiting

room should be more like a living room than a doctor's waiting room. In fact, so should the main waiting room, as spouses or others often accompany patients. Subdued lighting in these areas also helps to relieve stress.

Orthopedic Surgery

This medical specialty deals with fractures, diseases, and injuries to bones and joints. Although sports medicine is another specialty, a patient may visit an orthopedic surgeon rather than a sports medicine specialist for a sports injury. Patients check in at the reception desk and wait to be escorted to an exam room.

Waiting rooms should have regular seat height chairs as well as a small number of higher-height stools. Chairs should have arms to make it easier for patients to rise. Some patients may prefer the higher seating due to their medical situation. Extra space should be allowed for wheelchairs because more of these patients might arrive in a wheelchair.

Exam rooms are generally a little larger than basic primary-care exam rooms. They will have an exam table that is more padded or an exam table similar to what is in a PCP office. The table may be angled or against a wall, depending on physician preferences. Other spaces can include a room to do casts, radiology for some simple x-rays, business offices, accessible toilet facilities, nurses' stations, and consultation rooms for the physicians.

Since patients could be from any age group, it is best that the interior design make all age groups comfortable. This often means color schemes will be neutrals with accent colors rather than large expenses of bright colors on walls and floor. Except for the cast room and x-ray room, flooring can be carpeted with any type of carpet that will not impede someone in a wheelchair or on crutches. Wall finishes can be paint, but commercial vinyl is practical in corridors that can be marred by wheelchairs. Keep in mind that a key design component is that patients are likely to be in wheelchairs, using crutches or canes, or otherwise less mobile than in other types of offices.

Physical Therapy

A physical therapy suite can be directly connected to an orthopedic surgeon's practice or a separate suite. Physical therapy suites can be of any size and offer different types of services, and therefore have different space needs (Figure 10-15). Some will include water therapy and a swimming pool, spa, or therapy whirlpools. Some will include hot and cold therapy. Others will have exercise space and spaces for massage tables, exercise equipment, and other treatment and therapy needs. The designer needs to carefully discuss with the client all the types of treatments and space needs during programming.

These practices require a waiting room with space to accommodate one or more wheelchairs and other chairs. A reception desk is needed for patient check-in and other normal reception services. Seating should have arms and be sturdy so that rising from the chair is easy.

In the therapy space, visual control by the staff is very important. At times patients will be working independently, but must be visually supervised by a staff member. Some treatment areas should be in an enclosed space or have a curtain for privacy. Because patients may need to change clothes, a locker room or space for lockers is often included to store personal items. Of course, accessible toilet facilities for patients are also required.

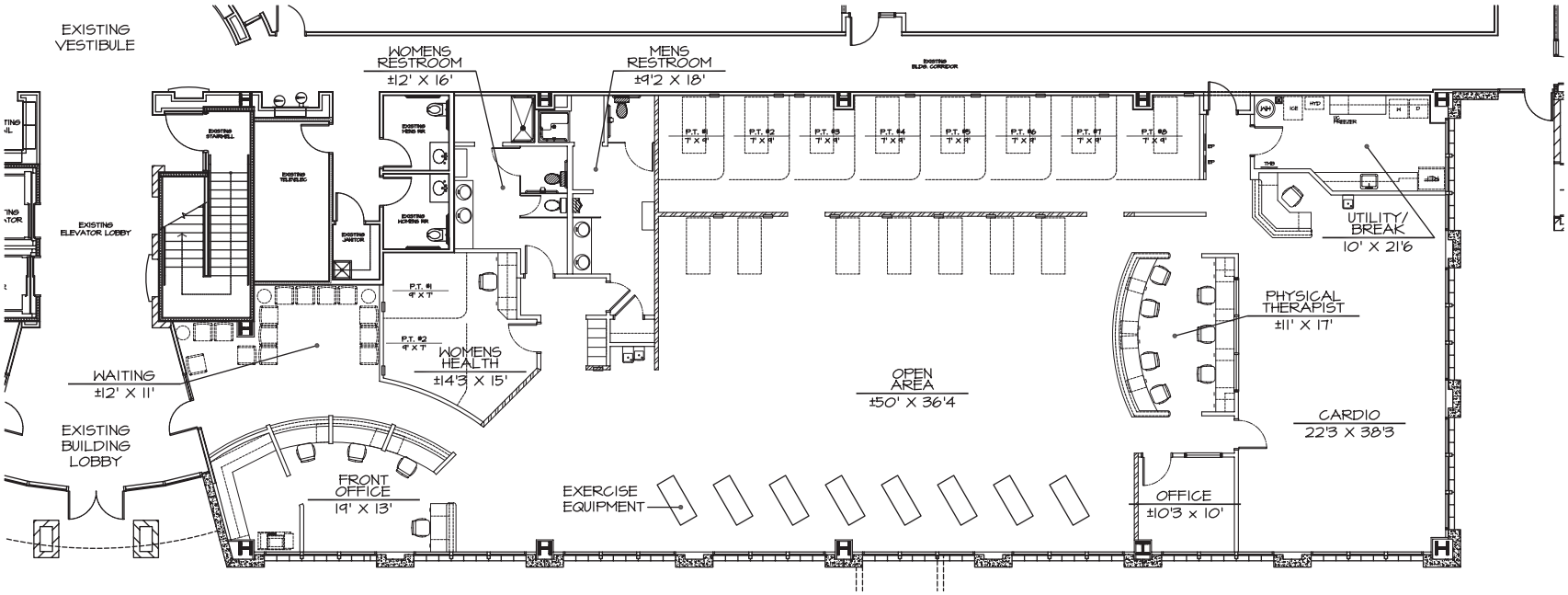


Figure 10-15 Floor plan of a physical therapy specialist.
Drawing courtesy of James Tigges, IIDA, ASID.

Materials should be stain-resistant, easy to clean, and not susceptible to causing slipping or falling. Many of the gym and exercise spaces should be finished in a hard-surface flooring, while other spaces can use carpeting. Preferences should be discussed with the management of the suite. With the exception of where massages are done, color schemes can be bright if the spaces are large enough. Massage spaces are better designed with neutrals and light pastels.

Oncology

Oncology specialists treat patients who have been diagnosed with some form of cancer. Patients are referred to an oncological specialist based on what type of cancer has been detected or is believed to exist. Oncologists will specialize in types of cancer, such as those that treat gynecological, breast, or skin cancer. Some treat more than one kind of cancer. A radiation oncologist is a specialist who manages and administers radiation therapy for the cancer. A large number of oncologists manage and treat patients with chemotherapy infusions. Be advised that both men and women might be patients of the same oncologist.

This brief discussion focuses on an office facility for an oncologist who provides chemotherapy infusion along with consultation. A bit more detail is provided, as fewer readers will be familiar with this type of practice space. It is important that the design for this type of specialty practice facility be calming and reassuring. The space plan for the facility will vary depending on wishes of the oncologist physicians but will have some similarities.

Patients enter a waiting reception area. Depending on the patient's visit, his or her first stop after the waiting area will be an area set aside for taking weight, blood pressure, and pulse. If the patient has not had a blood test prior to arriving at the oncologist's office, blood will be drawn to check for various blood indicators. Then the patient will be escorted to a consultation or exam room or to the infusion area where the chemotherapy will actually be administered (Figure 10-16). The design of exam rooms and consultation rooms are generally similar to those in any other physician's office. However, some oncologists prefer a consultation room with a recliner/lounge chair rather than an exam table in some of these rooms. Some specialty equipment or storage may be needed in the exam rooms.

The practice requires a nurses' station, business office, storage, a small laboratory, and often a secondary waiting area for family members. The practice usually has an infusion nurse who specializes in administering the chemotherapy drugs. Other nurses take patient history, and often a physician's assistant helps the physicians.

The exact planning of this space will vary with the size of the practice and the number of physicians involved in the practice. The room where the infusion treatment is administered is different. In most cases, comfortable reclining lounge chairs are provided for the patients. Space between chairs is needed for mobile trays and other mobile equipment. Space at each infusion station for a small guest chair for family members is also common. This room also requires a sink cabinet. The nurse who administers the chemotherapy must have good visual control of this area; therefore, either a window is placed between the nurses' station and the infusion area or a 42–48″ (1067–219 mm) high wall essentially surrounds the area on one side. It is also best to plan one accessible toilet facility for this area. Depending on the size of the overall office, this may be separate from the toilet facility other patients use.



Figure 10-16 Chemotherapy infusion suite at George Washington University Medical Center, Medical Faculty Associates, Washington, DC. (Katazan Cancer Center). *Interior design by Huelat Parimucha. Photography by Joseph Parimucha, AIA.*

Chemotherapy treatments can take three or more hours. The comfort of the patient is very important. Small televisions can be provided on carts for each chair or the patient may want to sit at a table to work or visit with relatives. Patients can move around, although they have to maneuver a mobile dispensing unit to which they are connected for treatment.

There are no special finish requirements for this type of specialty, except in the lab, toilet, and perhaps the nurses' station where drugs are prepared. Flooring should be hard surface or resilient in the infusion area because spills may occur. These types of flooring also make it easier to move the mobile dispensing units to which the patient is tethered. The materials on the chairs in the infusion area should be easy to clean in case of spills. Soothing lighting and taking advantage of any natural light or outdoor views are appropriate in the infusion room.

One last thought concerning an oncological suite is that the staff must treat the chemicals used for chemotherapy carefully. Special design considerations must be taken into account because of these hazardous products. The designer must be sure that all these regulations are incorporated into the space plan and product specification of the suite.

HOSPITALS

Hospital interior design is multifaceted, involving many critical technical and functional considerations along with appropriate aesthetic specifications. An interior designer who wants to focus on hospital design must do considerable research on hospital functional areas and practices. Because many projects involve systems and structural design, an interior designer with this interest area should affiliate with an architectural firm specializing in hospital design.

In addition to providing medical treatment spaces, hospitals are multifunctional facilities. Those treatment spaces provide a wide variety of services, including inpatient, diagnostic, and various types of interventional and therapeutic care. Hospitals also include office complexes housing admitting, billing, medical records, and other office functions. They provide meals to patients and food service facilities for visitors and employees. Gift shops, floral shops, and the receiving and distribution of supplies are also part of the overall operation of a hospital. Referring to a hospital as a complex design problem is an understatement.

Hospital design has evolved over many years. Previously, many hospitals created a cold, antiseptic, sterile institutional environment lacking warmth. Since the 1980s, hospital design has focused on a less sterile, nonclinical approach using concepts familiar to hotel design and yet maintaining the strict guidelines for sanitation and extreme cleanliness required for patient care. Adherence to codes is mandatory and is applied with scrupulous attention to today's hospital design.



Figure 10-17 A section of the lobby of the High Point Regional Medical Center, High Point, NC. *Interior design by Huelet Parimucha, Photography by Joseph Parimucha, AIA.*

The interior designer must understand the administrative structure, the chain of command, and the financial responsibilities of the hospital and how these impact the process of design. For example, if the designer is involved in a remodeling project that does not require new construction, the interior designer will work directly with the department head of the area to be remodeled as well as the purchasing department and the physical plant supervisor. When construction work involving partition walls is part of the project, the designer will also work with an architect and other hospital stakeholders. Constructive, efficient working relationships with these various entities affect the design process, delivery, installation, financing, and client satisfaction.

As previously discussed, hospitals have many layers of practitioners involved in providing service to patients. These include:

- *Administrator*: The overall manager of the hospital or healthcare facility.
- *Ancillary departments*: Support functions in a hospital, such as housekeeping.
- *Attending physician*: A hospital physician who is responsible for the diagnosis and treatment of the patient.
- *Intern*: A medical school graduate who is working to gain practical experience in the hospital.
- *Resident*: A physician who has finished an internship and is receiving extended training in a particular specialty.
- *Salaried physician*: An attending and/or consulting physician who is an employee of the hospital.
- *Nurses*: Both registered nurses and licensed practical nurses were previously defined.

These terms are also important concerning the design of a hospital interior:

- *Acute care patients*: Those requiring immediate or ongoing medical attention for a short period of time.
- *Ambulatory care patients*: Those able to walk around.
- *Critical care units* (CCU): Inpatient units for patients requiring intensive care.
- *Inpatient*: A patient who has been admitted to a hospital for medical care and must spend at least one night.
- *Medical treatment spaces*: Spaces within a hospital where treatment of a patient occurs.
- *Nursing unit*: A cluster of patient rooms
- *Outpatient*: A patient who does not require admittance to a hospital for medical care or treatment.
- *Urgent care*: A term related to walk-in patients primarily at urgent care centers requiring immediate care but not serious enough to require care in an emergency room.

Medical areas such as surgery areas and intensive care units continue to require a sterile appearance for maintaining sterile conditions. Other medical areas, such as the maternity, diagnostic imaging, and physical therapy departments, now emphasize design elements such as color and texture, making them more patient friendly.

The changes in the design of inpatient areas are part of what has made hospitals less stress-inducing. Hospital design has not duplicated residential design in patient rooms but rather has added some familiar elements to create a more inviting environment for the patient.

In collaboration with an architect or hired directly by the hospital administration, an experienced interior designer might be involved in the design planning and specification of virtually any area of a hospital. The planning and design of many clinical areas require greater knowledge and experience in healthcare design than the design, let us say, of the lobby. Thus, this section will focus on the main lobby, patient rooms, and the nurses' stations—spaces that will more commonly be the interior designer's responsibility.

Before discussing specific design elements of specific hospital areas, it is important to point out other areas of a hospital. Some of these areas may be design problems for professionals. Please note that the discussion here provides a brief introduction and is not intended to be a complete analysis. A good source of additional information and design application material can be found in Kobus et al. (2008) and Malkin (1992).

Ancillary departments provide support for the delivery of services to the clinical inpatient and ambulatory care of patients. First among these is the administrative department. In this area, patients are admitted and discharged; financial issues are addresses; overall hospital business functions are handled; and medical records are stored. Many hospitals include patient education services within this department and might include a library. Other public services under this umbrella would be a gift shop and spaces for volunteer services. This department is primarily housed on the main floor of the hospital, but some sections may be in other areas.

Diagnostic departments include spaces for radiology and diagnostic imaging, and various imaging services such as MRI (magnetic resonance imaging), PET/CT scans (positron-emission tomographic/computed tomographic), mammography, and basic x-ray scanning. This department requires careful design because powerful imaging equipment emits intense x-rays in this area.

There are other units common to almost all hospitals today. All of these departments provide services directly to inpatients and outpatients. Definitions of these departments can be found in the two references mentioned above or on the Internet:

- Emergency room
- Obstetrics
- Surgical suites
- Clinical laboratories
- Medical pharmacy
- Physical therapy

- Therapeutic departments
- Outpatient services
- Food services
- Maintenance

Main Lobby

Let's face it. When people enter a hospital lobby, they are stressed. It doesn't matter what the reason for the visit. Creating an environment that is as free from stress as possible is a very important task of the interior designer. For nonemergency patients, family members, and visitors, just about everyone's first encounter with the hospital interior is through the lobby.

Yes, hospitals do have a main lobby. This space should be warm and friendly, designed to dispel the sterile environment often associated by many as what a hospital lobby will look like. It must also be logically planned so that visitors can easily find their way to the appropriate areas associated with a lobby or to other areas of the hospital (Figure 10-18).

It is a hub for visitor, staff, and patient traffic. Initially, someone entering a hospital lobby will be met by a greeter or will find their way to a reception desk. Greeters are often staged in the lobby to help incoming patients and family members locate admitting desks or other departments. These same greeters help visitors find their way to a family member or friend who has already been admitted.

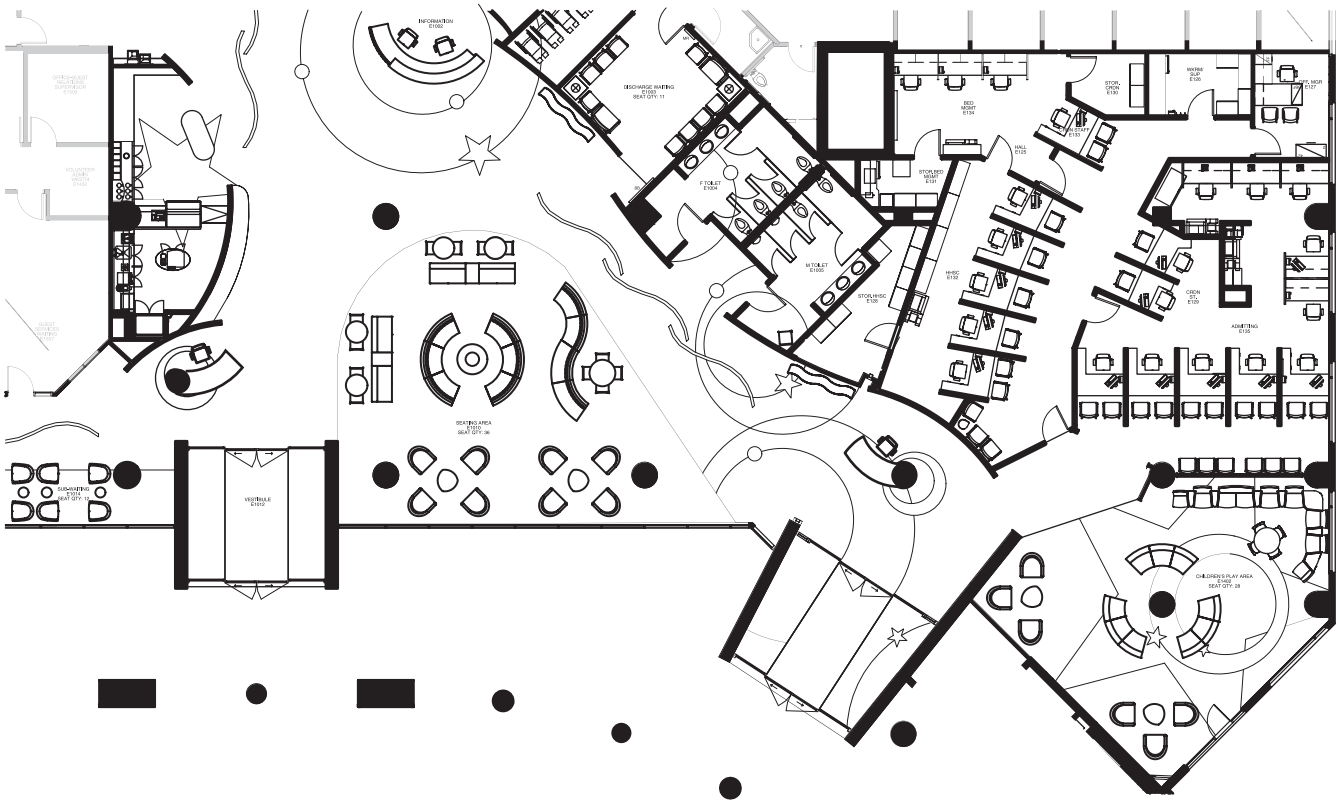


Figure 10-18 Floor plan for the shared entry between the University Medical Center and El Paso Children's Hospital, El Paso, TX. *Drawing courtesy of KND Architects and Cama Inc.*

The lobby serves several functions:

- Allowing for the greeting of visitors
- Admitting nonemergency patients
- Waiting area for visitors
- Access to a gift shop
- Access to elevators

One of those functions is admission reception for nonemergency incoming patients. Privacy is crucial in this function so that admitting areas are separated from other lobby seating and functions. They are often divided into several cubicles, allowing a patient and family member to have privacy when answering questions related to the admission. Some hospitals preregister patients by phone prior to arrival, thereby reducing much of the initial exchange of personal information; however, privacy in the admitting area remains a critical concern.

Another important function of the hospital lobby is as a place for quiet visiting by family members. Furniture items are placed throughout the space and coordinated with the overall traffic patterns. These furniture groupings allow families to gather, relax, and talk outside patient's rooms. Depending on the overall size of the lobby and concepts proposed by the hospital staff, seating might be soft seating units as might be found in a hotel lobby or simpler arm chairs and tables. It is important to keep major traffic paths separated from the seating areas so that privacy and quiet conversation can occur. Plants, sculpture or other artwork, fireplaces, and sometimes fountains are used in an effort to alleviate anxiety. Low-wattage lighting and seating units positioned under spotlights help to create the residential/hotel setting desired by most hospitals today. Keep in mind that ambulatory admitted patients may choose to visit with family members in the main lobby.

Hospital lobbies are often designed with large windows to admit as much natural light as possible and thereby help to create a healing environment. Refer to Figure 10-1 to see how this design concept creates the environment of a hospital lobby. Often, a healing garden is accessible through the main lobby or on a lower floor. Healing gardens include plant life aesthetically placed, water feature fountains, and places to sit. They focus on the senses of sound, sight, smell, and touch. The healing garden is also effective if the patient can view it, or parts of it, from his or her room. Refer to the sidebar on the healing environment earlier in this chapter.

Gift shops are located adjacent to the lobby. They provide a place for visitors to purchase flowers, cards, books, and other small gift items. Volunteers often staff gift shops, but the revenue generally goes to the hospital. The hospital staff will determine the size of the shop and the merchandise to be offered. The designer will assist in layout planning, display product specification, and architectural finishes.

Additional lobbies in the hospital are positioned near the individual diagnostic and treatment areas. For example, the surgical suite has an admitting desk for the patient, as well as a small lobby and waiting room for family and friends. Patient nursing units may be planned with a small lobby by the elevators, or a lobby or visiting room elsewhere on the floor where patients and visitors can meet outside the patient's room. These areas

are usually furnished with chairs, end tables, televisions, and refreshment areas, as well as accessories such as art and plants. They should be designed with a residential aesthetic without the use of residential-quality furniture and materials.

Wayfinding and cue-searching techniques, which help the patient and visitor easily locate various areas, are very important parts of the design of the lobby and throughout the hospital. Building maps and signage that meet ADA guidelines are needed in the lobby as well as other locations in the hospital. Maps, signage, and graphic symbols at each elevator lobby are also necessary (see Figure 10-8). Another form of wayfinding involves the use of color for the various departments. Each department can emphasize the use of a certain color, or an accent color can be used to identify a department. Interior landmarks also aid in wayfinding. A landmark might be nurses' stations, small lobbies, or wall designs.

Inpatient Rooms

Inpatient rooms are hospital spaces used for patients whose condition requires an overnight stay of one or more days. Inpatient rooms are also considered acute care rooms. They are called acute care because the patient is receiving immediate or ongoing medical attention for a period of time due to surgery or some other urgent medical condition.

When a patient is treated and not kept overnight, the patient has received outpatient care. Outpatient care has increased over the years due to the regulations set by Medicare and some insurance plans. An outpatient individual would not see the type of spaces described in the rest of this section unless something has occurred to require the patient to be kept overnight.

If a patient is at the hospital for a surgical procedure, for example, he or she is escorted first to a preoperative preparation area (called pre-op) in the surgical department after the admitting process has been completed. After the procedure, the patient is moved to a post-op area for initial recovery before being taken to a patient room. There the patient will go through various procedures to prepare the patient for the surgery or other treatment. Family members may be allowed in this pre-op area after the initial tests and preparations are completed. After the procedure is completed and the patient has recovered sufficiently, he or she is sent to an inpatient room related to the care required.

Patient rooms are grouped into nursing units related to the procedure, treatment, or condition of the patient. For example, there will be units of patient rooms for those who have undergone some sort of general surgery, maternity areas for birth delivery, and intensive care for patients who are in very serious condition.

A trend in new hospital design is for patient rooms to be single patient spaces rather than shared. This allows more space to better accommodate patient families in the room. Functionally, this also allows patient rooms to be more universally designed, meaning more than one kind of medical issue can be housed in a room. Yet, many facilities still see the advantage of grouping patient rooms by procedure or treatment (Figure 10-19).

A typical nursing unit consists of a nurses' station, several inpatient rooms, one or more treatment rooms, and other ancillary spaces, depending on the nature of the nursing unit. The tasks at a nurses' station include recording all medical information

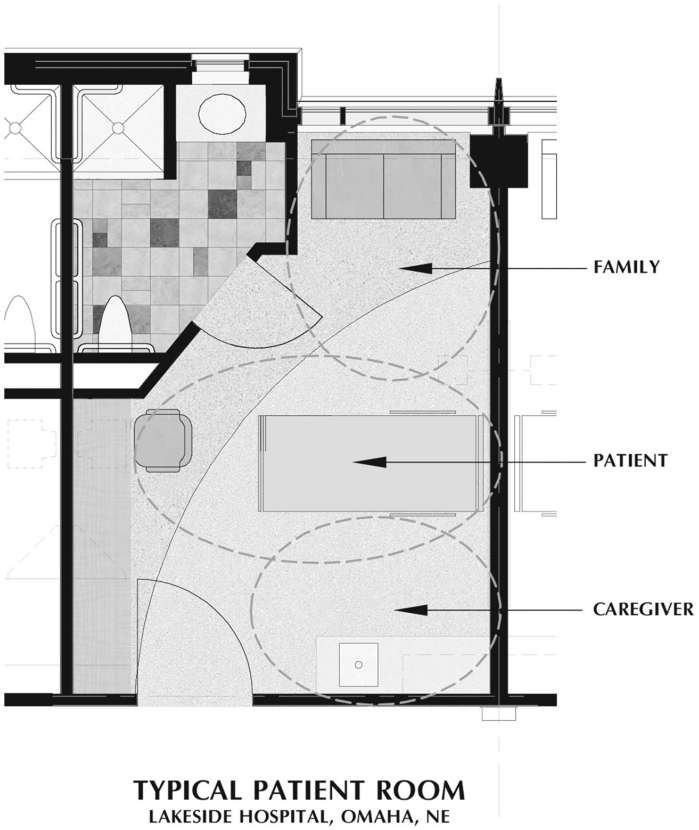


Figure 10-19 Floor plan of a private patient room in Alegent Lakeside Hospital. Note the zoning of spaces for the caregiver, patient, and family. *Floor plan courtesy of Leo A. Daly.*

on patients; providing communication between physicians, nurses, and other medical personnel; and preparing medications. It is also an area for filling out forms, scheduling staff shifts and staff meetings, and communicating with members of the patients' families. Additional information on the nurses' station is found in the section at the end of the discussion of inpatient rooms. Let us now look at the design elements impacting basic inpatient rooms themselves. Note that some units of patient care will have different requirements in terms of space, equipment, furniture, and layout.

A patient room can be a private room housing one patient or a semiprivate room accommodating two patients. A *ward* is a space accommodating more than two people, perhaps four to six. Wards with multiple patients in the same room are less common today. The term "ward" can also be used to define a specific type of treatment or care, such as a maternity ward. Patients prefer a private room for privacy, room for visitors, and a private restroom. The type of room a patient gets will be directly related to their insurance coverage (Figure 10-20).

Hospital corridors in these areas and most others where patients are cared for are required to be a minimum of 8′ (2438 mm) wide. This space is necessary to easily move the equipment that might be needed for treatment in a patient room as well as maneuver the bed and *gurney*, which is a wheeled stretcher or bed used to move patients in a hospital. Due to the increasing concerns for infection control, materials on the floors in corridors and patient rooms have gravitated away from carpeting of any kind unless it has provable infection control elements in the product.



Figure 10-20 A typical hospital private patient room.
Courtesy of Herman Miller, Inc.

The door to the patient's room is usually 4′ (1219 mm) wide to allow a gurney to be moved in and out easily. Per code requirements, the door must swing into the room, not outward into the corridor. Space allowances must be planned to permit considerable room around the sides and at the foot of the bed so that staff may treat the patient.

The medical furnishings in a private room include the hospital bed, a nightstand with drawer space or, more commonly, a freestanding nightstand on casters for mobility. A movable food tray and a headboard or *headwall* unit with plug-ins for monitors, lighting for the patient, and oxygen supply are also common. The room will also be furnished with a recliner chair for the patient and one or two small guest chairs for visitors (Figure 10-21). Depending on the hospital and many concept factors, other furniture such as a small sofa might be included along with a desk and chair.

Today, private inpatient hospital rooms are provided with a telephone, clock, task lighting, Internet access, a small flat-screen television, a bulletin board for the patient's use, and a bulletin board for nursing staff use. Controls for some of these items, such as the television and lighting, will be on a control unit accessible to the patient. A built-in cabinet with a few drawers and a small closet are common for storing personal items. Cubicle curtains hanging from the ceiling surround the bed for additional privacy. Other small medical supplies or spaces for other equipment might be included in the room based on the needs within that nursing unit and of the individual patient.

The private patient room will include a private bathroom. Doors into private bathrooms must be 3′ (914 mm) wide or wider. The bathroom includes an accessible toilet, grab bars, a nurse's alarm button, a sink, and a roll-in shower with a seat. Accessories



Figure 10-21 QC chair used in hospital patient rooms for patient and visitor use. This type of design is very common and includes reclining mechanism and footstool. *Photograph courtesy of La-Z-Boy, Inc., Monroe, MI.*

such as towel racks and hooks, as well as a paper towel dispenser and soap dispenser, are also included.

The typical semiprivate room has two beds separated by a cubicle curtain for privacy. Each bed is provided with a headwall that can contain lighting fixtures and connections for medical gases such as oxygen, similar to what is provided in the private room. Each patient will have at least one chair, an individual television with volume control, light controls, and a closet. Both patients share the same bathroom.

Architectural materials in patient rooms will be similar for private and semiprivate rooms. Of course, some hospitals provide upgraded private rooms for patients who are willing to pay extra for a homier atmosphere. These upgraded rooms are rarely available to most patients through their insurance.

Materials specification that creates a noninstitutional appearance while still abiding by all hospital codes is important in providing a healing environment. Color selection for patient rooms can vary, focusing on creating a restful, positive environment. Color schemes that create a secure, cheerful ambience are used today, in contrast to the earlier white and pale green, which were considered calming, antiseptic colors in the early twentieth century.

Lighting for the patient is included in the design of the headwall unit. Room lighting will include overhead and vanity lighting and a nightlight. Patients who must spend a few days in a hospital especially appreciate daylight filtering into their rooms. Windows are commonly covered using fire-rated drapery or curtain materials, or blinds.

Corridor architectural treatments are of the highest importance for fire safety and must be selected carefully. Usually materials in corridors must be Class I, while those in smaller spaces can be Class II. Textiles used for curtains in exam, inpatient, and treatment rooms need to be fire retardant. Usually, the manufacturer or the furniture representative can provide information about the fire and life safety measures regarding



Figure 10-22 The medical/surgical visitors' waiting area at Sentara Northern Virginia Medical Center. *Interior design by Huelat Parimucha. Photographer: Anne Gummerson.*

their particular product. In addition, in states that have adopted CAL 133 or TB 133 regarding seating units, fabric and seating unit specification will be carefully monitored by the local fire marshal.

Nursing units typically include spaces for family members and visitors. A visitors' lounge centrally located on each patient floor is typical. A lounge on each floor and a small kitchenette for family use gives families a place to congregate without disturbing or stressing patients. Some comfortable soft seating such as armchairs or sofas are common. A table with four chairs is also typical. The size of these areas and the configuration of furnishings will vary greatly based on the type of medical unit (Figure 10-22).

A hospital and all of its public areas must be accessible and designed in accordance with the ADA guidelines or other accessibility guidelines in effect. Toilet rooms in patient bedrooms must be ADA compliant.

Hospital Nurses' Stations

Each patient unit will include a nurses' station for the unit. They are generally centrally located so that the distance from the station to a patient room is relatively short. It is an area where staff will fill out forms and where staff meetings will be conducted. It is a communications point for physicians and nurses, and for communicating with family members. The actual plan of the nurses' station will vary with the type of patient admitted to the unit. (See Figure 10-23.)

The needs at the station will be quite different in an intensive care patient unit than in a general-surgery patient unit. However, there are some key design elements for a nursing station:

- The station enables staff to greet visitors.
- Nurses' stations are compact areas located close to a cluster of patient rooms.



Figure 10-23 Nurses' station on a medical/surgical unit. This renovation created a warm comfortable environment versus the previous clinical appearance of the spaces.
Photograph courtesy of Elissa Packard, ASID, interior designer and Vintage Archonics, Inc. Photographer: Lisa Tyner.

- A 40–42″ (1016–1067 mm) high counter divides the nurses' station from the corridor. Counters at 29–30″ (737–762 mm) high will be on the inside for use by staff.
- Computers, patient call signals, patient monitoring equipment, and crash carts—small, mobile carts equipped with medications and equipment to handle extreme emergencies—will be incorporated into the nurses' station.
- Storage for some treatment supplies will also be needed, including some pharmaceutical items.
- Architectural finishes will coordinate with those selected for the patient rooms. Materials that can take the abuse and traffic of various carts, chairs on casters, and foot traffic should be specified.

URGENT CARE FACILITY

Urgent care facilities have developed as an alternative to the emergency room for non-life-threatening medical issues. An *urgent care facility* (also sometimes called immediate care) is a walk-in medical facility that a patient may choose to go to rather than the emergency room and when their primary care physician's office is unavailable. According to the American Academy of Urgent Care Medicine, urgent care centers are patterned after hospital emergency rooms, but not focused on care for life-threatening issues (AAUCM 2014).

The patients who use this type of facility are considered ambulatory patients, meaning they walk in or perhaps use a wheelchair but not a stretcher. They are not facilities to go to when someone is having life-threatening issues such as a heart attack or uncontrolled bleeding.

This type of facility is often found in strip shopping centers, although they may also be in a stand-alone building. In some cases, physicians create an ownership group, and others are owned by corporate entities. Some physicians groups affiliated with a hospital may include the concepts of an urgent care center in their practice with hours that are outside those of the physicians themselves.

Staff generally will include one or two physicians who specialize in urgent care medicine or emergency care, nurses, and perhaps a physician's assistant. An office staff member may be part of the staff, but the office functions could also be the responsibility of a nurse or other staff.

The treatment and care options offered are regulated by states, although not all states have specific regulations. Less severe medical conditions are treated in this type of facility, and only simple tests such as pregnancy and simple x-rays are generally available. More acute cases are referred to a hospital emergency department. What must be included in the facility—which relates to treatment options—is regulated by the states. These regulations are gradually being enacted, but many states do not have specific regulations. Generally, besides exam rooms, they also must have a small laboratory and radiology space.

They are often about 3000 square feet (279 square meters), which will accommodate at least two to three physicians (Fortenberry 2014) (Figure 10-24). An urgent care facility will need to have space for a waiting room with reception counter, a business office, exam rooms, a nurses' station, toilet facilities that meet ADA guidelines, and, ideally, it will also include a small office space for the physicians. As with any suite in a medical office complex, the radiology room must have lead-lined shielding.

Figure 10-24 Floor plan of the Brookdale Urgent Care Center. *Drawing courtesy of and © Dattner Architects.*





Figure 10-25 The reception area and lobby at Brookdale Urgent Care Center.
Interior design by and © Dattner Architects.

An important issue in this type of facility is patient privacy. Because so many urgent care facilities move into strip shopping centers or small office buildings, it is important to specify that partitions be built to the ceiling surface, not to the dropped ceiling. This provides additional privacy in exam rooms because they also serve as consultation rooms.

Essentially, the urgent care center should be designed along the lines of a physician's suite (Figure 10-25). Depending on where the facility is actually located, it will likely be considered a business occupancy in the building code and a mercantile facility in the Life Safety Code. Corridors and door openings must meet ADA guidelines, with corridors being at least 44″ wide and door openings being 36″ wide. Surfaces on counters should be easily cleaned; flooring should be slip resistant and carpet can be used if the pile is tight to allow easy movement of wheelchairs and other rolled equipment; and fabrics on seating should be stain resistant and easy to maintain.

Information about urgent care centers can be found through the American Academy of Urgent Care Medicine (AAUCM). This is a physician practitioners group rather than one of the corporate urgent care groups. There are several reference items on urgent care facilities in the chapter references.

DENTAL FACILITIES

Dental offices are another type of medical facility the interior designer may want to consider as a specialty. The knowledge required for the planning and specification of all the spaces within a dental practice suite goes beyond creating an aesthetically pleasing environment. Understanding this area of healthcare is necessary to plan and design any kind of dental office. Dental facilities require specific information pertinent to the profession, and the interior designer needs to access that data through research about the profession and from client interviews.

The interior designer needs to make certain that the design solution not only is functional but also provides a calm and reassuring environment to ease patient discomfort and fear of dental treatment. The designer will be required to coordinate planning and design with the client and his or her staff, equipment suppliers, the architect, and other consultants who may be involved. Inaccurate planning can affect service in the treatment rooms, thus negatively impacting patient care.

Most dental practices focus on general dentistry with perhaps a secondary specialty. General practice dentists, for example, may also provide care related to cosmetic dentistry, which will involve implants and dental crowns. There are other practitioners who focus on a specialty such as endodontics—root canals; periodontics—gum diseases; orthodontics—application of braces and treating misaligned teeth; and pedodontics—dental care for children.

A few other important terms related to dental treatment and design of dental facilities include:

- *Asepsis*: The methods used to prevent infection
- *Crowns*: A covering of porcelain or gold to cover and restore a damaged tooth
- *Delivery system*: The method the dentist prefers to use to work with a patient
- *Operatory*: The dental treatment area

Except for certain emergency situations, dentistry is an elective medical treatment. Creating an environment for the office that is more comfortable and less stress inducing while still maintaining the rigors of disease control will be an important goal for the designer. With this focus and the increases in dental technology, a dental practice puts emphasis on quality of life for patients. Dentists also provide education to their patients about dental care.

The staff of a dental office will include office personnel and clinical personnel. The number of staff members will depend on the size of the office and the number of dentists working in the practice. The office staff will include those who will greet patients, make appointments, follow up with insurance and billing, and take care of other office business functions.

In addition to the dentists, the clinical personnel can include dental assistants who provide assistance to the dentist during procedures; a *registered dental assistant*, who has additional training and is authorized to take dental x-rays along with more specialized procedures and other assistance to the dentist; and a *dental hygienist,* who performs cleaning and polishing and performs other tasks to assist the dentist and dental assistants.

Ideally, a dental practice will have three treatment chairs per dentist within the operatory space (Malkin 2002, 444). In addition to this major area, a room or area specifically for the dental hygienist is required. There will also be spaces for preparation of materials for procedures, a lab, a specialty x-ray space, spaces for staff, storage for patient files, and toilet facilities. Other spaces may be needed depending on the specialty and number of dentists in the practice (Figure 10-26).

As with any type of medical facility, numerous codes and regulations must be reviewed by the designer and integrated into the interior design of the office. Dental offices are considered business occupancies by the International Building Code and

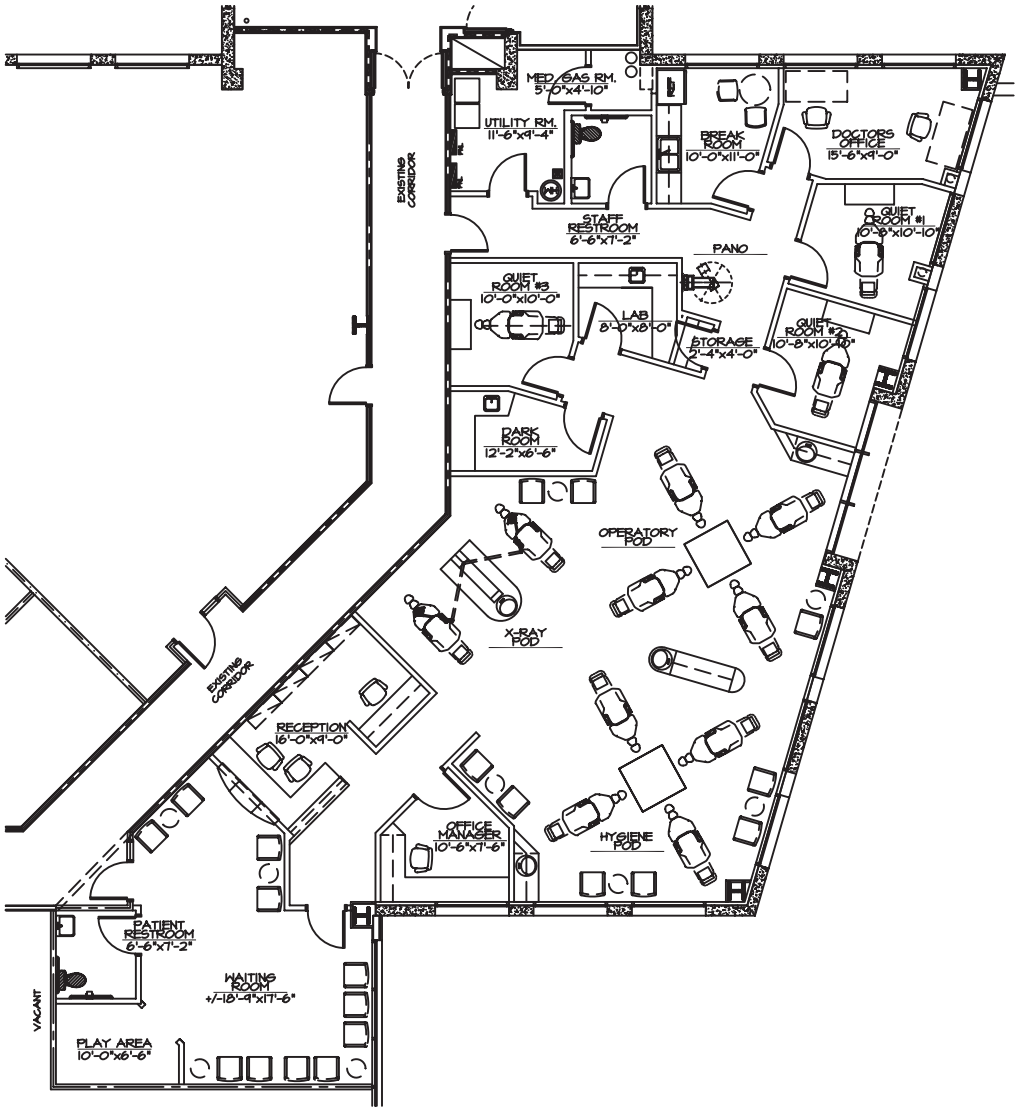


Figure 10-26 Floor plan of children's dental office. The openness of the plan in the operatory areas is less stressful than the typical closed operatories of most dentist offices. *Design by James Tigges, IIDA, ASID.)*

as mercantile occupancies by fire safety codes. Exact requirements will vary based on the number of occupants, although most dental practices will have an occupant load under 50. Architectural finishes in corridors and exits must be Class A, while those in operatories and most other areas may be Class B materials. Corridor and doorway sizes must meet the accessibility and building code requirements for business occupancies.

At least one public restroom must be accessible, and at least one operatory must be ADA accessible. All other ADA requirements for commercial public spaces will also need to be applied especially to new construction and major remodeling projects. The interior designer should consult with the local building official with jurisdiction to ensure proper code compliance.

In addition to the building, life safety, and ADA codes and regulations, the interior designer needs to understand the dental community's emphasis on infection control. Dental procedures involve bleeding, and control of the bleeding as well as protection of staff and patients from asepsis is critical. *Asepsis* relates to the methods used to prevent infection and cross contamination. In addition, because the practice involves x-rays

and film processing as well as the disposal of amalgam and mercury from old fillings, and other hazardous wastes, care must be taken in the design of other clinical rooms. Practitioners must use stringent safety and control measures to protect the patients and staff, and many of these environmental controls will impact the materials that can be specified in the dental office.

Technology has made a major impact on dental office design. Computer monitors replace x-ray view boxes to study dental x-rays in the operatory. Patients can use these same monitors to view television shows or educational films while the dentist works. The technological changes in the operatory chairs and equipment necessary for the dentist to do his or her work affect the design of the operatory and other exam rooms. The computer also allows dentists and staff to record and chart progress notes; to use digital radiology, whose images can be viewed on a monitor; and to use intraoral and digital cameras for greater magnification.

Make certain that all architectural finishes and general lighting fixtures are in place prior to the installation of the dental chairs and all other large pieces of medical equipment. This will ease the final installation of large pieces of equipment and create a cleaner interior installation.

Traffic Flow

This design application section will focus on the interior design of the general dentistry practice. Many of the design elements and concepts discussed apply to a dental specialty practice. Patient traffic flow is simple and similar to other types of medical offices. A patient enters a waiting room and moves to a reception window or counter similar to that in any medical office. A clinical staff member escorts the patient to a treatment room, also called an operatory, to wait for the dentist or other staff member who will make the initial exam of the patient.

Waiting and Reception

Furnishings and layout of the waiting room and reception area are similar to other types of medical offices. Some dentists prefer a somewhat more residential appearance than is found in other medical office waiting rooms. This emphasis helps to reduce the stress of the patients—an especially important aspect of an office focusing on children. Small armless or open-arm chairs are the most common seating solution. A few dentists may request a loveseat for families. Accessories such as a magazine rack, artwork, plants, and a television monitor for educational videos often are placed in the dental waiting room (Figure 10-27).

Because dental offices are often small, it is not unusual for the reception desk and business office to be a combined area. Most dental practices will have a low counter for the reception desk rather than a counter with a window, as is often found in medical offices. If a higher counter is preferred, it will be 40–42″ (1016–1067 mm) high to provide some privacy for the staff. The staff usually works at a 29″ (737 mm) high workstation, which can be custom built or specified with systems furniture.

Acoustical control is important in the dental office. There is usually a door between the waiting room and the corridor leading to the operatories, although this is not always the case in a small practice. However, because the operatories themselves rarely have doors, hearing ambient noise can be a problem for patients. A good sound-masking



Figure 10-27 Waiting room in a children's dental office. The open receptionist desk and contemporary design help relieve children's anxiety.
Interior design and architecture by Margo Hebald, AIA, architect. Photographer: Bruce Barnbaum.

system throughout the suite, sound-absorbing carpet, and acoustical wallcoverings can help reduce ambient noise. In addition to control acoustics, do not locate the operatories adjacent to the waiting room. Placing the dentist's office, the conference room, or storage closets adjacent to the waiting room wall, thereby reducing the noise, can provide some needed acoustic control within the suite.

Treatment (Operatories) Rooms

The average size of treatment rooms is 100 square feet (9.3 square meters). However, some dentists require a smaller space of approximately 8′-6″ by 8′-6″ (2591 mm by 2591 mm). The size of this space is directly related to the working preferences of the dentist and the equipment that will be utilized in the space (Malkin 2002, 435). Work counters and storage space, along with pull-out trays and counter space, are needed to hold sterilized tray setups for antiseptic practice and storage of instruments and supplies. At least one sink is needed as well.

Ergonomic issues are a major part of the planning of treatment rooms; therefore, the delivery method preferred by the dentist will impact the layout of the treatment rooms (Figure 10-28 and Figure 10-29). The designer must discuss this issue with the dentist to be sure that the size of each operatory and layout of those spaces meets the needs of the dentists. For a detailed discussion of the functional design of operatory and dental treatment rooms, the reader should review Malkin (2014) or other works listed in the references.

Creating pleasant surroundings for the patient, as well as functional spaces for the dentist and staff, is very important. One design tactic that many dentists try to have



Figure 10-28 Contemporary dental operatory. Windows provide daylight and retain patient privacy. *Photograph courtesy of Designs by Ria. Ria E. Gulian, ASID. Photographer: Danelle Stukas.*

their design team incorporate is access to windows within the treatment room. Dentists with a ground-floor suite may ask that a garden view be available from the treatment rooms. If windows are not present, landscape prints, murals, or other artwork on the walls, and sometimes on the ceiling, help to relieve stress. In addition, natural light is also helpful in color matching fillings and crowns.

Wall treatments in these areas are often easy-to-clean commercial-grade vinyl with minimal texture or semigloss paints. Care should be taken in specification of vinyl wall-coverings to avoid VOC effects. As for colors, neutrals and soft pastels are preferred, with only small accents of more intense colors. Large patterns are inappropriate due to the small size of the treatment rooms.

The dental profession uses a combination of lighting in the operatories in addition to natural light. Overhead lighting using fluorescent ceiling fixtures is often provided in leased spaces. The interior designer should specify lamps that best replicate natural light; full-spectrum lamps are a suggestion. Task lighting for the dentist is part of the dental equipment purchased through medical equipment and supply houses. The lighting design should ensure that the space is free of shadows. Dentists use halogen light where greater clarity is required.

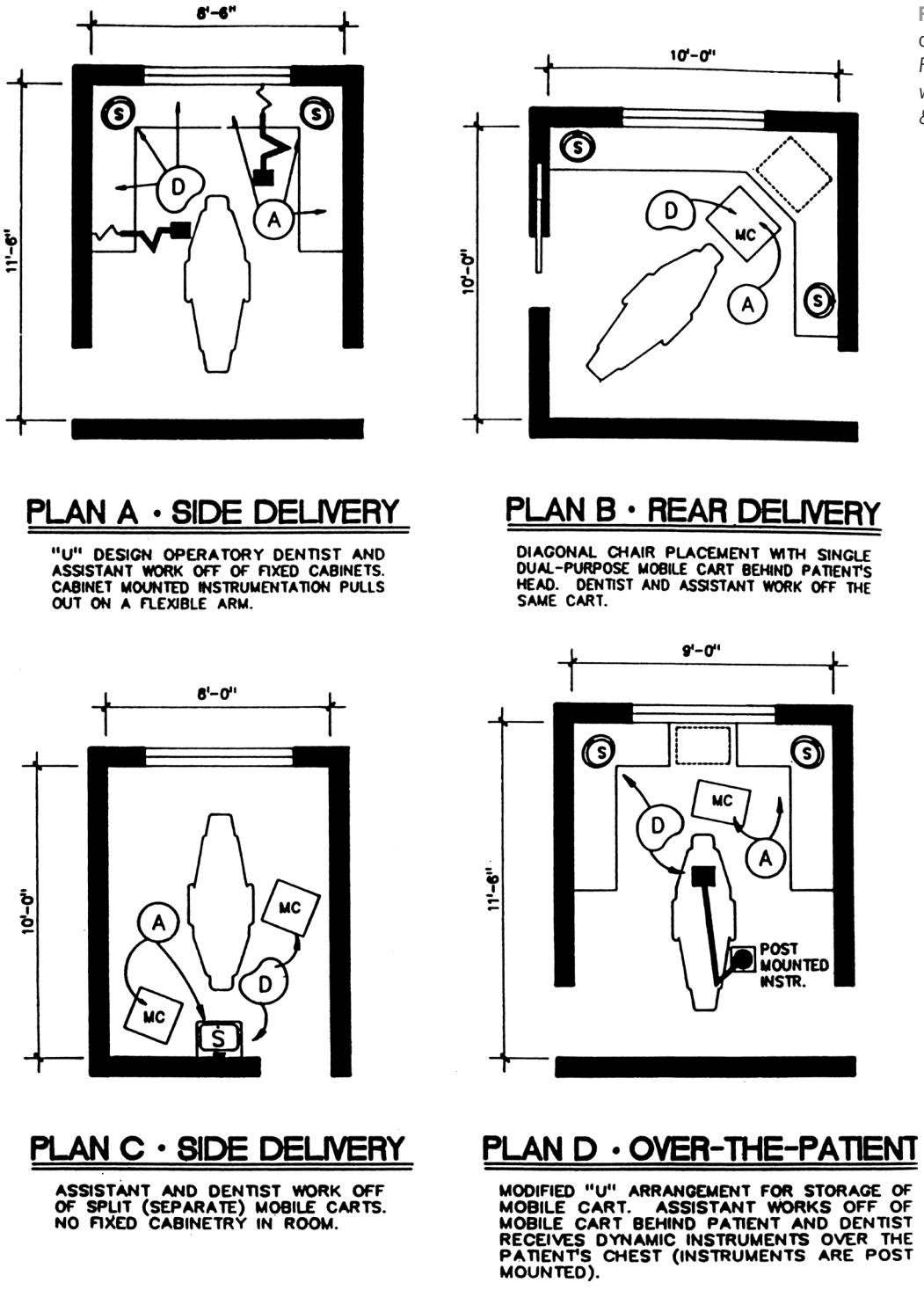


Figure 10-29 Four plans for dental operatories.
From Malkin 1990. Reprinted with permission of John Wiley & Sons.

Other Areas

The designer will have additional planning and specification issues in a dental office. The proper design and shielding of x-ray equipment as well as the location and layout of the darkroom must be carefully addressed. A centrally located laboratory for sterilizing instruments and preparing some compounds will increase the effectiveness of the staff. Sinks are necessary, and special ventilation may be needed in the lab and the prep

room. Public and staff restrooms, as well as the location of support spaces such as storage areas and staff lounges, are all important to the general dental practice.

A dentist's private office can be specified with furniture and finishes similar to those of any business office. Furniture items should allow the dentist to work on the computer, do paperwork, read, and possibly consult with staff or patients. Materials and colors should appeal to the dentist while retaining the principles used throughout the clinic.

It is likely that even the smallest office will have a small space dedicated to staff use as a lunchroom or conference room. It should include cabinets with a sink and small refrigerator. Lockable cabinets or lockers can also be included for the staff's personal items.

Summary

The design of a healthcare facility is a complex task that requires experience and interest in healthcare. It is very important for interior designers who engage in any area of healthcare facility design to become familiar with medical terminology and understand the business of healthcare. Specialized knowledge of medical practice is critical to produce a successful project that meets the needs of the client, the project's stakeholders, and the patients who will utilize those spaces.

Interior design impacts humans both physically and psychologically. In healthcare facilities, these issues become intensified due to the treatment and healing processes involved. Research has shown that well-designed and comforting facilities will help the wellness and healing process. Considering the complexities of healthcare design, it is imperative that the designer use this chapter as a guideline only and conduct considerable research by reading additional works focusing on the specific area of the healthcare design project.

To provide the reader with a comprehensive overview of healthcare facilities, this chapter has presented an overview of the field of medicine, including the typical facilities an interior designer might encounter in a design project. It has also provided specific guidelines on the design of the most common healthcare facilities for the professional and the student who may have a healthcare assignment.

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INTERNET RESOURCES

ADA Accessibility Guidelines (ADAAG): www.access-board.gov

American Academy of Health Care Designers (AAHID): www.aahid.org

American Academy of Urgent Care Medicine (AAUCM): www.aaucm.org

American Dental Association (ADA): www.ada.org

American Hospital Association (AHA): www.aha.org

American Medical Association (AMA): www.ama-ass.org

Americans with Disabilities Act (ADA): www.ada.gov

Architectural Barriers Act (ABA): www.access-board.gov

Canada Green Building Council (CAGBC): www.cagbc.org

Center for Health Design: www.healthdesighorg

Centers for Medicare and Medicaid Services: www.cms.gov

Green Guide for Healthcare: www.gghc.org

Healthcare Facilities Symposium and Expo: www.hcarefacilities.com

International Code Council (ICC): www.iccsafe.org

Medicare information: www.medicare.gov

National Fire Protection Association (NFPA) and Life Safety Code: www.nfpa.org

U.S. Green Building Council (USGBC): www.usgbc.org

CHAPTER 11

Senior Living Facilities

It is quite likely that the reader knows someone who is considered to be a *senior citizen* and may even reside in one of the facilities mentioned in this chapter. According to the United States Census of 2010, there were over 40 million people 65 or older, with a projection of over 80 million by the year 2050.

These individuals are often retired from full-time work, as many industries have mandatory retirement at an age of between 60 and 65. Of course, many "seniors" are still very active physically due to better healthcare and wellness efforts in preceding years. Many are also only semiretired (or not retired at all), wanting to work or needing to work for economic reasons.

Today's healthy seniors have many options for where to live, ranging from remaining in their homes (often called aging in place) to living in one of numerous independent living options. Seniors with physical and health issues also have several choices. The design of homes and facilities for seniors is part residential interior design and part commercial interior design. This chapter does not deal with design issues of the strictly residential part—that of single-family homes and many apartments for independent living seniors. Instead, its focus is on facilities that are part of commercial interior design—the facilities for seniors who have health issues such as physical limitations and reduced mental clarity.

Not all seniors have the advantages of healthy senior years and the ability to live independently. Many will need special care that cannot easily be provided in the home environment. The creation of places for seniors who need special care is not a new idea but has been in existence for centuries. Fortunately, today's senior living facilities are much more humane in design than those of centuries ago.

There are many factors that impact the design planning and specification of facilities specifically for seniors. To provide a successful design for senior housing, the interior designer must understand the health issues of senior adults, as well as the planning and specification issues for these interior environments.

This chapter begins with a very brief introduction to the history of senior housing, followed by an overview of the industry and a brief discussion of the many different types of facilities offered. General interior design issues are covered, as well as specific design applications of assisted-living and dementia facilities.

Before we begin, a few definitions are in order:

- *Aging in place*: The ability to remain in one's own home as one ages.
- *Assisted-living care*: Care provided for those individuals who need some daily care, but not 24-hour nursing care. They can live independently to some degree.
- *Dementia*: A disease that leads to gradual deterioration in mental capacity and functioning due to diseases or damage to the brain beyond normal aging.
- *Geriatrics*: A branch of medicine that specifically treats the aging population and deals with the diseases of old age.
- *Long-term care*: Care provided for individuals who can no longer live independently and frequently need nursing care—though not in a hospital.
- *Respite care*: Care provided to give the primary caregiver temporary relief from caring for the senior. It is often provided by an adult daycare center.
- *Senior citizen*: Someone over at least the age of 60.

Historical Overview

Throughout history, families provided home care for their aging members. Some people did not have family support, and society provided minimal housing through the efforts of religious organizations, governments, and charity groups. For many decades, the quality of the accommodations and care for seniors provided by many of these groups was extremely poor.

In the seventeenth century, the first English "poor laws" were established, which led to the provision of care for the elderly and sick in institutions throughout England (Social Welfare History Project 2014). Early homes for the poor were often referred to as *almshouses.* The conditions in these almshouses were very poor in quality and care. The American colonies largely copied the English method of caring for the sick and elderly, providing homes for the aged.

In the nineteenth century, groups—especially those affiliated with churches and women's groups—began to establish homes that were privately owned and provided better care than the almshouses. As the century progressed, government and private interest spending on these institutions grew and conditions improved.

In the early twentieth century, the Western world began to seriously create programs for the care of the elderly, and the first privately owned institutions began to be developed. In the 1930s, the New Deal promoted the concept that the aging should receive federal support based on individual need. The first legislation enacted to promote this concept was the Social Security Act of 1935, signed by President Franklin D. Roosevelt (SSA 2014). However, at first these benefits were not established to pay for elder care. Thus, privately owned old-age homes became available for those who could pay the fees of these institutions.

After World War II, almost every community needed modern elder care facilities. Federal legislation in the 1950s offered subsidies to construct nursing homes, resulting in a large increase in the number of these facilities. Amendments to the Social Security Act required states to license nursing homes. At this time, the federal government also declared that federal funding could be provided to residents of nursing homes.

Medical care in nursing homes began to improve significantly in the 1950s when the federal government provided grants to build nursing homes closer to hospitals. This proximity improved care in these facilities, and their design became more similar to that of hospitals. This also meant that a nursing home was now thought of as part of the healthcare system rather than the welfare system.

When the Medicare and Medicaid legislation was passed in 1965, the nursing home and elder care industry expanded. This was due to the ability of the elderly to use these government programs to pay for resident care in public facilities. Of course, privately owned elder care facilities also continued to be constructed in increasing numbers. Unfortunately, residents in many commercial (privately owned) facilities did not always receive proper care. Once again, these facilities were viewed as the previous almshouses—not a place for someone to have to live their latter years.

Regulations for increased standards of care and facility conditions continued to affect nursing homes and the senior care industry. New standards were developed by the federal government in order for federal reimbursements to be made in the 1970s, creating better care (FATE 2014).

Changes in Medicare, Social Security, and federal regulations of nursing and other senior care facilities continued in the late twentieth and early twenty-first centuries. Developments in care of the elderly and disabled—who are also covered under Medicare and Social Security—continue to challenge the senior-living-facilities industry and healthcare providers.

Today's senior care is a multibillion dollar industry combining private commercial facilities with those operated by government agencies. Seniors today live longer and are in better health, having the opportunity to live on their own longer than seniors in the nineteenth century. Those who require care beyond what can be provided in a family home have many options today.

Overview of Senior Living Facilities

As the reader can see from the history section, facilities for senior living have changed dramatically over decades if not centuries. There are many choices now, and even within these choices there are choices. The health of the senior citizen will impact the selection of where to live or be cared for when it is no longer practical to live independently.

As you may recall from Chapter 5, the generations impacted by this chapter are the G.I. generation (called the Greatest Generation by some), born between 1901 and 1924; the silent generation, born between 1925 and 1945; and the baby boomers, born between 1946 and 1964. These different generations will have varying expectations of a home environment, abilities to pay the fees for the residence, and needs for nursing care versus independent living. Because people are living longer, the need for options other than living at home is steadily increasing. Yet some want to age in place and remain in their homes as long as possible. For many seniors, living at home or even with children is the only option due to finances and the costs of senior living facilities.

A topic that the designer of this type of facility should understand is that of geriatrics. *Geriatrics* is a branch of medicine that specifically treats the aging population and deals with the diseases of old age. A *geriatrician* is a physician who specializes in the



Figure 11-1 Reception area and lobby of the Carlsbad by the Sea active-senior living facility. *Interior design by SJVD Design. Photographer: Henry Cabala.*

diseases of the senior citizen. *Gerontology* is the field of medicine that focuses on the aging process.[1]

The aging process involves many biological and social changes as well as environmental challenges. Part of these changes can be related to healthcare needs due to aging (Perkins 2004, 8). The term *dementia* is associated with the deterioration of mental capabilities characterized by memory loss, confusion, and an inability to perform basic skills such as reading. The two most common brain disorders that affect the aging population are *infarct dementia*, in which blockage of the arteries causes small strokes, and *Alzheimer's* disease, which destroys brain cells. There are geriatric outpatient clinics that provide medical services to older adults. Geriatric clinics are not housing facilities, but a type of medical office focusing on medical services needed by senior citizens.

A facility for seniors must continue to review its standards of care along with the standards for the design and planning of the facility. Older facilities will need to be remodeled to better serve the demands of residents and their families. Senior living facilities must be designed to enhance a senior's quality of life, independence, health, and dignity. The healthier environment of green design and sustainable options is also growing as a reflection of an effort for facility owners to be more energy efficient, save money, and appeal to family members. At the same time, affordability is an issue as senior citizens have a fixed income. They are often living off the residuals of their many years of work plus potentially an income from a source such as Social Security or a retirement plan from work.

Moving a senior to a facility that provides any type of services and care can be quite expensive. That is one of the reasons many seniors who are healthy or reasonably so

[1] *World Book Encyclopedia*, 2003 ed., s.v. "gerontology."

choose to age in place. According to a research study by the American Society of Interior Designers, to age in place means "to remain in one's current home rather than relocate to new quarters, a senior community or, if need be, a care facility" (ASID 2001, 2). Many seniors strive to remain in a private residence, whether it is in the original family home or a new location such as a retirement community, as long as possible. Interior designers can do much to help seniors make small modifications to their homes to allow that to happen and keep the aging resident safe.

For many seniors, a time comes when living alone in a private residence is no longer an option or even desirable. Many move to one of the various types of senior living facilities that provide companionship, ease of home maintenance, and needed medical or nursing care. For the majority of seniors, healthcare is provided and paid for to some degree by Medicare, a federal program associated with the Social Security system.

Medicare is administered by the federal government and pays for part of the medical care of persons aged 65 years or older. Medicare Part A covers hospital expenses, and Part B covers medical expenses such as visits to the doctor's office. The senior citizen is required to pay a monthly premium to Medicare, which covers expenses from Part B. If the person has contributed to Medicare while working, the fees for Part A are covered by the government. Medicare does not pay for long-term care, however. The costs of a residence for a senior are their personal obligation. This is a very important factor in the choice of senior living facility for the resident and family members, and it also impacts the organizations that develop these facilities. The reader may want to review information about Medicare and its benefits by searching the Medicare website.

Long-term-care insurance is offered by many insurance companies to help people pay for housing in a skilled-nursing care facility or another type of medical-related senior housing. However, not all seniors elect to carry long-term-care insurance. Lack of this type of insurance can cause undue financial stress and bankruptcy if an extended stay in a nursing facility is required.

Senior living facilities are owned by nonprofits, for-profit corporations, or the government. They are also commonly included as part of a retirement community, generally owned by an organization other than the developer of the community. How the property is designed, amenities offered, and interior design will vary with ownership. This will also impact the level of care provided as dictated by licensing within the state. This means, for example, that the level of care in an Alzheimer's and dementia unit will be greater than that in a retirement resort with adult apartments.

There are several groups that represent or otherwise are associated with seniors and senior living. Among the most well-known are these:

- American Association of Retired Persons (AARP)
- Gray Panthers
- Service Corps of Retired Executives (SCORE)
- Retired Senior Volunteer Program (RSVP)
- Elder Care

It will be useful for the designer to understand the types of issues that a resident and family member will research concerning selection of a senior living facility. Here are some of the primary issues as reported by Victor Regnier (2002, 4):

1. The building should have some residential features and blend with the neighborhood.
2. Each resident room or apartment should replicate some residential features such as a kitchenette, a living room, a bedroom, and a fully accessible bathroom.
3. Spaces for walking and activity areas for developing upper- and lower-body strength are paramount to maintaining good health for the seniors.
4. Common spaces where the resident and family members can spend time together outside of the resident's room or apartment should be planned.
5. Multipurpose rooms will serve many purposes for residents.

The interior design of senior living facilities for those who are not living independently is diverse and complex. It is not simply a matter of designing a residence with grab bars in the bathroom or lever handles on the kitchen and bathroom sinks. To specialize in this area, the interior designer should be educated and experienced in the design of medical facilities and other areas of commercial design such as hospitality, food and beverage, and entertainment facilities, as well as residential interior design. Because the design of senior living involves more than housing issues, it is also impacted by the medical needs of the aging population. The designer also needs to understand the senior and health issues of seniors.

FORCES IMPACTING SENIOR LIVING DESIGN

A force that will always impact senior living design will be the economy. As individuals age, the amount of money they have been able to save from past earnings will impact what they can afford in terms of a facility. Privately owned facilities charge more and can provide more aesthetically pleasing interiors. Government programs do not universally provide funds directly to individuals to pay for senior living costs.

The number of elderly individuals who may choose by want or necessity to live in senior living facilities will continue to grow. As the number of elderly increase, so will the senior living industry. Future residents are likely to demand more amenities along with safer environments and care. Luxury-style facilities offering this type of choice to seniors with greater retirement incomes already exist around the country.

Yet, value-conscious seniors will also grow in numbers. Not everyone can afford a luxury-styled assisted-living or long-term care facility. Another trend that will continue to grow is the concept of aging in place. Many seniors who are healthy want to remain in their homes rather than move to an adult community. This becomes more possible with the growth of assistance services available to the home-living senior. Instrumental activities of daily living (IADL) services offered by independent providers—including things such as housekeeping, meal preparation, and bathing—allow seniors to remain at home. There are also visiting-nurse services that can provide assistance with some types of medical needs in the home. Of course, in some cases, the home may need to

be modified with larger door openings, changes in faucets and door handles, and other minor remodeling tactics to accommodate the individual residents.

Another trend is the growing attention to sustainable design concepts. As we have already seen, much of the attention to sustainability in a facility is on the building itself and on its mechanical systems. However, designers need to become well acquainted with sustainable and green products so that what is specified for a facility is healthier. Reducing the number of things that off-gas toxic fumes is a big issue, as these fumes can be particularly harmful to older adults.

Integration with the wider community is another trend. Most active adult communities were formed with age restrictions so that families with children were not allowed to live in the community. They also restricted the use of their recreational options to residents and their guests. The trend today is to open up the community—perhaps not selling houses to families with children, but allowing nonresidents to use the recreational facilities. Other types of facilities are also bringing in more wellness and lifelong learning opportunities from outside the staff. This is an important change, as seniors do enjoy having contacts with younger adults and even children—well, at least from time to time!

These are only a few of the trends that are impacting the senior living facility. The reader can check the Internet for articles about these trends by searching "senior living trends" in a search engine.

Types of Senior Living Facilities

A large variety of senior living facilities and/or housing choices are available. These options provide choices based most often on personal needs related to health conditions and age.

The following list of terms provides brief definitions of these types:

- *Active adult communities*: Residences for older people who are usually 55 years of age and older and who are physically active. The community also provides active recreation, entertainment, and educational opportunities.
- *Adult daycare*: Provides an individual plan of care during the daytime hours.
- *Assisted-living residences*: Provide housing and activities of daily living (ADLs) for those who do not need 24-hour nursing care but require some daily care.
- *Congregate housing*: Housing for the elderly that includes one meal a day, housekeeping, and some activities.
- *Continuing care retirement community* (CCRC): Provides housing for assisted living through skilled nursing facilities.
- *Geriatric outpatient clinic*: Clinic that focuses on medical needs of the elderly.
- *Group home*: Provides care and support to the elderly or infirmed who want to be cared for in a residential setting rather than a continuing care or assisted-living facility.
- *Hospice*: Facilities and/or home care for individuals who have a terminal illness and whose chances of recovery are minimal.

- *Independent living*: Living in housing without health service. Age restrictions usually require the resident to be over 55.

- *Long-term care units*: Twenty-four-hour housing and skilled nursing care for those who are medically ill. Also referred to as nursing homes (although that term is less commonly used today) or skilled nursing facilities.

- *Naturally occurring retirement community* (NORC): Senior living facility that is created when an apartment building or condominium is converted to a retirement living facility.

One group of senior living facilities is for people who require nursing care, including 24-hour skilled nursing units such as assisted-living residences. The second group of senior living facilities is for those adults who are healthy or essentially healthy and require little nursing care, such as an active adult community for independent living. The independent living types of senior facilities are listed second because they are more often residential interior design projects rather than commercial interior design projects.

Assisted-living residences have been created to provide residences for those who are no longer able to live safely on their own and need personalized assistance including some nursing care. They are also called personal-care homes and adult homes. The number of this type of facility has grown. This type of facility has also experienced an increase in upscale designs. Residents of assisted-living facilities are generally elderly, although some are younger adults who have suffered life-altering injuries or illnesses. Assisted-living facilities vary in size and services. They also vary in ownership, including nonprofit organizations, for-profit groups, and some publicly owned facilities. They are licensed by the state.

Residents generally do not require constant care as in a nursing home facility. These facilities provide a measure of independent living while providing some nursing care. Residents most often have their own apartments or rooms, and staff members are there to meet residents' needs as they occur. All meals are served by the staff in common dining rooms.

Long-term care facilities are for the frail and elderly; for those who have serious illnesses or traumatic injuries; and for those cannot live independently and require skilled nursing care. A long-term care facility (also called a skilled nursing facility and comprehensive care facility) usually provides 24-hour medically based care by nursing professionals and other trained personnel. These facilities are commonly called nursing homes, and the patients are primarily elderly. However, some long-term care facilities are for younger patients who have suffered a serious injury such as a brain injury. Patients in a long-term care facility require nursing care to the point that they cannot live at home, but no longer are appropriately placed in an acute care hospital environment.

These are highly regulated facilities in terms of care, planning, and subsequent design issues, and they are licensed by the each state's department of health. Nonprofit groups, public groups, and for-profit organizations own them. The design treatments and amenities will vary, depending on ownership. These facilities can include group dining and activity areas, rehabilitation spaces, and other spaces as required by the type of patients served and services provided by ownership.

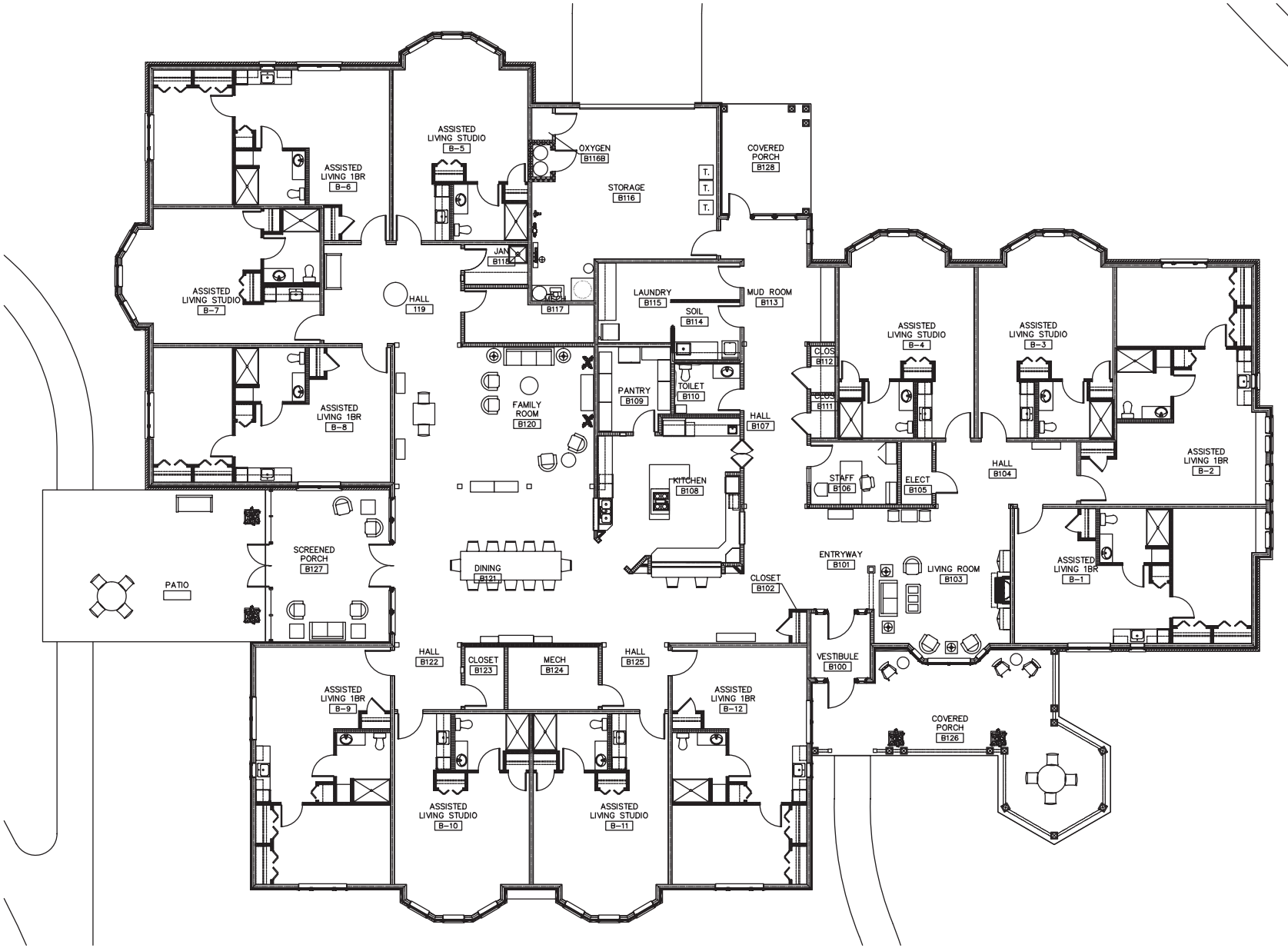


Figure 11-2 Floor plan of the assisted-living wing for the Homeplace at Midway in Midway, Kentucky.
Design and architecture by Reese Design Collaborative, Inc., Louisville, KY. Reproduced by permission of Reese Design Collaborative.

Special care units (SCUs) are a type of long-term care unit focusing on the care of individuals with dementia and Alzheimer's disease. These facilities—which are freestanding care units or parts of assisted-living facilities—are also called *memory care facilities*. Dementia is a gradual deterioration in mental functioning that can include memory loss, confusion, and impaired reasoning due to disease or damage to the brain. According to the Alzheimer's Foundation of America (ALZFD 2015), "Alzheimer's disease is a progressive, degenerative disorder that attacks the brain's nerve cells, or neurons, resulting in loss of memory, thinking and language skills, and behavioral changes." Alzheimer's disease is one of the most commonly diagnosed forms of dementia.

SCUs provide an environment that to some extent replicates the home, in that the overall facility is planned with a living room or lounge space, a dining area, and patient bedrooms with toilet facilities. Other functional areas–such as nurses' stations, the dining room, and common areas—are designed to provide a measure of normal life and are included in the plan. This type of facility is owned by for-profit and nonprofit groups often associated with assisted-living or long-term care facilities.

Group homes, or residential care homes, are a type of care facility that provides care and support to the elderly or infirm who want to be cared for in a residential setting rather than a nursing home or assisted-living facility. These homes are usually owned and managed by entities that have received a license to operate from the city and state. The group home is most often a residence in a residential area. Depending on state restrictions, perhaps four to six patients will live in a group home with a trained caregiver who lives in the residence. Larger group homes can exist with a larger staff.

These facilities offer a residential environment because they are actually in homes. Besides a private bedroom with or without a private bath, the residents share the use of a family room, and meals can be accommodated in the private room or a shared dining space. A visiting-nurse service or possibly the facility manager can provide limited medical care.

Hospice care facilities are licensed to provide care to individuals who have a terminal illness and whose chances of recovery are minimal. "Although the word hospice can refer to a building designed for this purpose, it generally refers to a concept of care to support terminally ill patients and their families" (Malkin 1992, 195). Most patients will be elderly, though not all. In this type of facility, the staff and family try to make the patient as comfortable as possible without the use of the extra efforts applied in a hospital. This type of care is often referred to as palliative care. In this case, *palliative care* means "that heroic life support systems and measures are not used to try to extend the patient's life. Instead, everything is done to make the patient feel comfortable and to reduce pain, so that the patient may die naturally" (Malkin 1992, 197).

The modern hospice-care model began in London in 1967 (Perkins Eastman 2013, 61). A hospice can be home-based—that is, the patient remains in the home with a care provider visiting as needed. This provides the care and comfort of being in the home. Hospice care is also provided in a section of a nursing home, a hospital, or a freestanding facility. The atmosphere of this type of facility should be calming, provide privacy, and be as homelike as possible.

The geriatric clinic is another type of facility for the care of seniors. These are not overnight facilities, but akin to outpatient services offices. These clinics provide healthcare services to seniors with various kinds of physical and mental problems. Geriatric

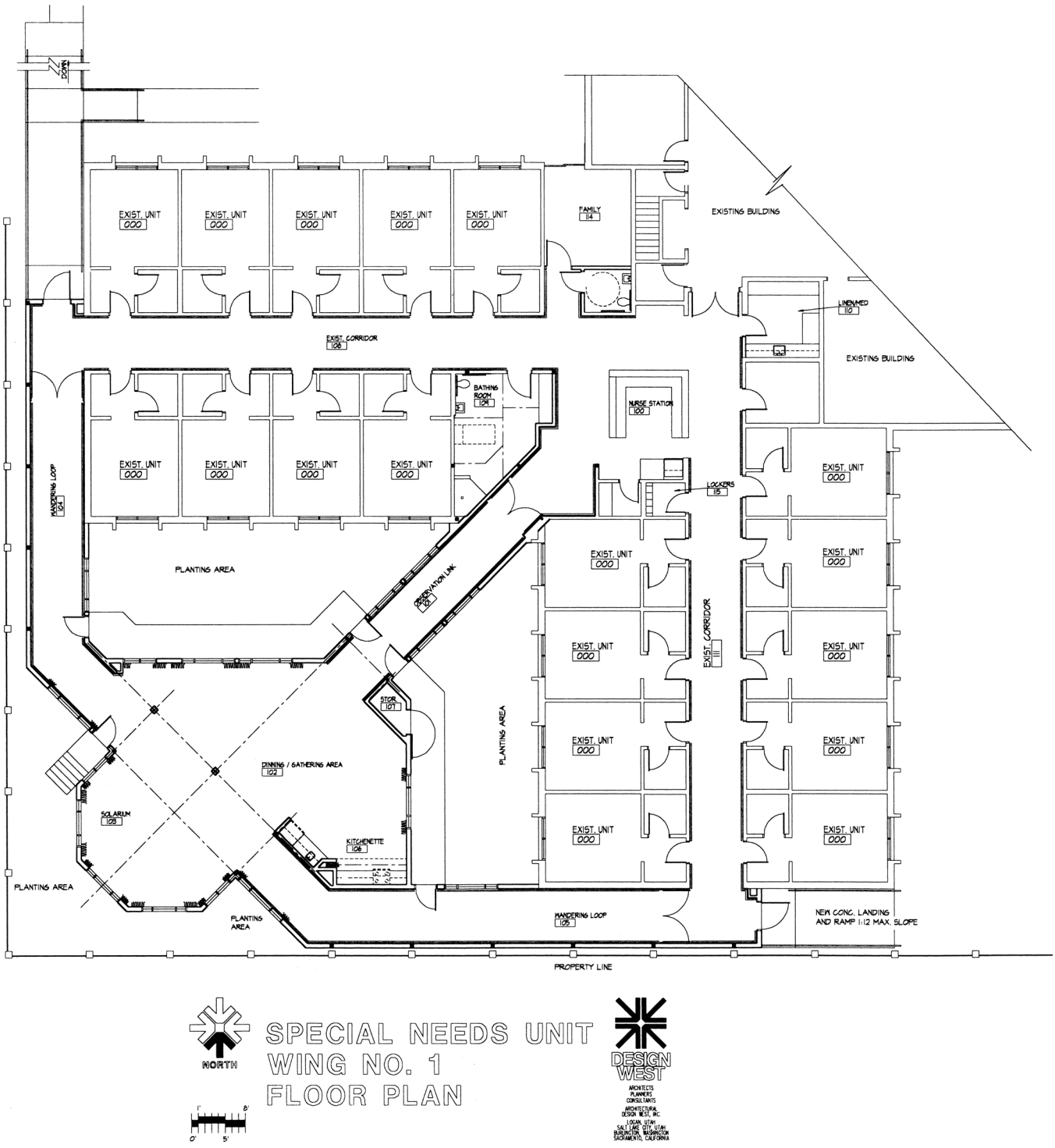


Figure 11-3 Floor plan of an Alzheimer's unit. Note how corridor allows movement of the residents who like to walk. *Plan courtesy of Architectural Design West.*

clinics may be located within a senior housing facility or campus and provide general exams as well as other medical services such as ophthalmologic and dental exams. Physical therapy services might also be available.

The geriatric medical clinic has more visitors than average due to the family members or staff members needed to accompany the patient to the exam. The patient will pay for services through a variety of resources including Medicare, Medicaid, supplemental insurance, and personal funds. If the clinic is associated with some form of senior housing, it may cover the cost of the medical treatment as part of the fees already paid by the resident.

Geriatric clinics are licensed in most states through the state department of health services. Licensed clinics must meet local and state requirements in order to receive reimbursement for services. If the facility is associated with a hospital program, it has to meet high standards for monitoring patients. If the clinic is located in a MOB, it may be classified as a business and, therefore, will not be as highly regulated as clinics affiliated with a hospital.

Another type of senior care facility is the adult daycare center. "Adult day care is a group program that provides health and social services during a limited daily time frame to physically or cognitively impaired persons over 65" (Perkins Eastman 2013, 24–25). A variety of services might be offered including medical care and rehabilitative services. The adult daycare staff provides activities throughout the day geared to the patient/client's interests. Other services include meals and snacks, as well as assistance in using the bathroom. This type of facility offers specialized services during daytime hours to those who still live at home or with family.

Many of these programs are offered by nonprofit or public entities. Many are associated with an assisted-living facility, a skilled nursing facility, a medical center, or complexes such as a medical office building or rehabilitation center. Adult daycare allows a respite for the family member who acts as a caregiver. Often, it allows the family caregiver to maintain a day job while the senior family member receives care during the day. The advantage of an adult daycare facility is that it allows the senior to remain at home with family members instead of being housed in a senior residence.

Adult day care should not be confused with the senior centers provided by many cites. Senior centers provide many programs such as social activities, meals, and counseling. However, they do not provide medical care. The National Institute of Senior Centers is a resource for this type of facility.

Some types of senior living facilities place more emphasis on community. Active adult communities (AACs) are the most well-known type. AACs are a lifestyle choice for those who no longer want to live in a large home. In many cases, buyers are empty nesters whose children are living independently. This type of senior living choice is sometimes referred to as a *retirement community,* although not all residents are retired. It is marketed to persons 55 and over, and many of these communities are age-restricted to a minimum of 55. The resident is generally in good health and self-sufficient, enjoying the recreational activities planned as part of the community. Residents are charged fees for the use of the recreational activities. These types of communities reinforce the concepts of independent living.

Active adult communities are often planned as self-contained communities with grocery stores, retail stores, and professional offices. They also include a variety of recreational activities within the community such as golf courses, tennis, swimming, crafts club facilities, and other choices. The larger of these planned communities almost always include medical office suites, hospitals, fitness centers, and other medical service providers. One of the most famous is Sun City in Arizona outside Phoenix.

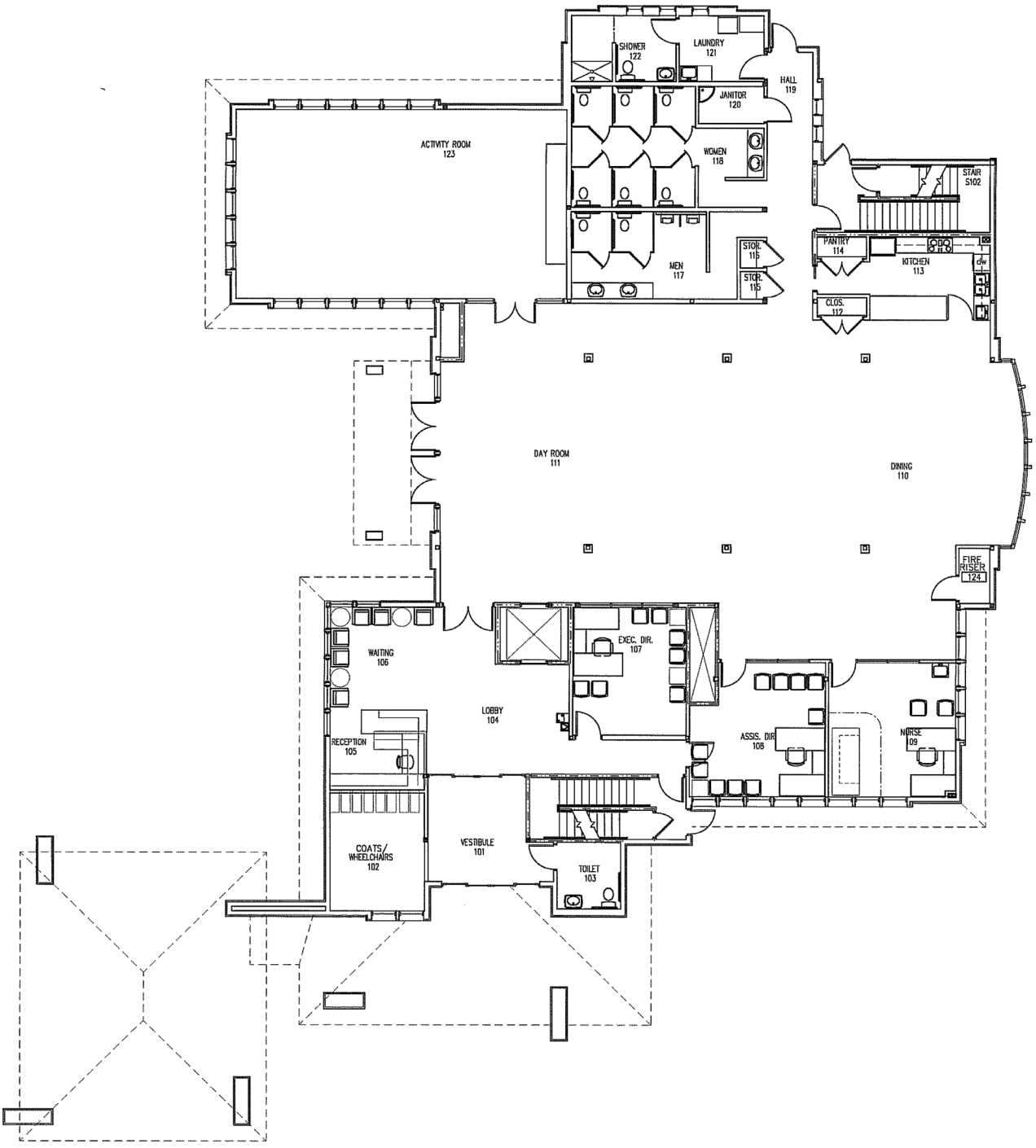


Figure 11-4 Floor plan of the main level of the K.C. Wanlass Adult Day Care Center. Note the zoning of spaces.
Plan courtesy of Architectural Design West.

A variety of housing choices are available in the larger of these communities. The homes are generally owned by the resident, with the exception of apartment choices. Single-family dwellings, duplex units, and condominiums are common choices. Sizes of residences vary with the community. Smaller AACs might consist of mobile-home developments or townhouses. These smaller AACs provide fewer recreational amenities and are located near retail and healthcare services, which are not included in the actual community boundaries.

Another type is the *naturally occurring retirement community* (NORC). It is a subtype of the active adult community and occurs when an apartment building or condominium is converted to a retirement or age-restricted facility. Usually, these facilities are located in urban settings and situated in any residential area. Services are those that are normally in any neighborhood, not specifically for the NORC. In fact, the age-restricted apartment building may be adjacent to non-age-restricted single-family homes. Depending on services, they may require licensing by management but generally are not licensed.

Another independent-living facility is the *congregate care retirement community* (CCFs), or congregate living facilities. These can also be thought of as independent-living apartments or senior apartments. These facilities often provide one or two meals a day in a common dining room, as well as housekeeping services. Other activities or amenities such as a swimming pool are also common. Transportation for shopping and doctor's appointments as well as other services are provided to maintain the independence of residents who no longer want to drive. Residents are usually older than those in active adult communities and may need some health services. Thus, health service assistance is available on a limited basis should an emergency arise. Congregate housing is not licensed, as are other types of senior housing; however, it does have to meet consumer protection laws. This type of facility may be affiliated with an assisted-living or long-term care facility on the same complex.

A transitional type of community is the *continuing-care retirement community* (CCRC). These communities provide a continuum of care from independence for older healthy residents to assisted living and long-term/skilled nursing care for those requiring greater degrees of health care. Nursing care, along with personal care for bathing and dressing, is available to residents. There is a common dining room, as well as recreational and social activities in a common area. These residents are older than those in the CCF-type facility.

Planning and Interior Design Elements

The planning and interior design elements of senior living facilities vary considerably with each specific type. This section discusses interior design elements that apply to the majority of these facilities in a generic sense. It is focused on design elements of those facilities that are not considered independent-living facilities such as residences in active adult communities.

The interior designer's responsibilities will vary, depending on the facility. He or she may be hired by the facility's management to remodel spaces or be part of a team designing a new facility. The designer might also be hired by the patient's family to



Figure 11-5 Living room area of the Carlsbad by the Sea Senior Living Facility.
Design by SVJD Design. Photographer: Henry Cabala.

help downsize furniture from a home into a senior apartment of some type. Design treatments for apartments or patient spaces will be limited in most situations to standards established by management. As with the majority of commercial projects, interior designers work with other design team specialists such as architects, engineers, and contractors on a senior living facility when designing multiple units.

FEASIBILITY STUDIES

As with any new commercial facility, the design and construction of a new or remodeled senior living facility or development begins with a feasibility study. It is important for the developer and owner of the property to study the practicality and prospects of a new facility in order to determine whether or not the project is financially sound.

Such things as a program and objective, a market and financial feasibility report, budget, timeline, and issues concerning government approvals will be part of this study. Financial and market analysis are critical to obtain necessary funding for the project. For an existing facility, the study will look at costs concerning remodeling, some form of adaptive use, or the possibility of demolishing the facility and building a new one.

The feasibility study will be conducted by a consultant and will include input from the developer or owner. The study group will also include an architect (who may be the consultant), an interior design team experienced in the design of senior living facilities, and medical personnel who can provide input on specific medical needs. The feasibility study will include a written report as well as exhibits providing information that will help the design team in the planning and interior design of the facility.

SUSTAINABLE DESIGN

Seniors are increasingly becoming interested in sustainable design. This is due in large part to the baby boomers who participated in early Green Movement programs. Now

many are looking for facilities that pay attention to sustainable design. Some may even prefer a LEED-certified facility.

Many sustainable efforts are beyond the interior designer's responsibility, as pointed out in other chapters. Yet the interior designer does have an impact on this issue. Of course, products selected for a senior facility should be selected related to reduced VOCs, as these odors can be harmful to the residents. Although low-VOC materials may have a slightly higher initial cost, the reduction of irritants to residents should be a factor that the client will appreciate for the good of the residents. Additionally, the designer can investigate life cycle costing of products selected in this type of facility (as well as any commercial facility) when considering green materials and products specifications.

Naturally, for a senior facility, the designer must weigh the green material against the necessity of cleaning and maintaining those materials. Upholstery and flooring especially will be susceptible to staining from incontinence issues of residents in some facilities. Criteria that the material is easy to clean may be more important than the fact that it is a green material. Recycled materials/products should be used cautiously because they may contain materials that give off VOCs.

Careful attention to window treatments is also part of sustainable design. Designers can help by specifying natural materials that are easy to maintain and by not specifying window treatments that block the view. Remember that too much light—whether from windows or fixtures—can cause glare and be hurtful to aging eyes.

SECURITY AND SAFETY

Anyone who has a serious illness or otherwise feels physically inadequate to take care of himself or herself needs assurance that the place they live is safe and secure. Family members are also concerned about the safety of their elderly parents. Tactics to provide safety and security will be the responsibility of the architect in the way the facility is designed. However, the designer needs to be aware of some of these tactics to gain a better awareness of the many challenges that are part of designing a senior facility.

A reception desk or counter in the lobby is an important part of overall security. This person can monitor who enters and check to see if they really have a legitimate reason for entering the facility. Limiting access in the facility to those who do belong is another reason that the offices of the management staff are located adjacent to the lobby. The receptionist can take the place of impersonal access doors from the entry into the living room. Notice that the reception desk's position in Figure 11-1 provides visual control of the senior living lobby.

Visual security will also be supplied by staff in the dining room, activity areas, and other spaces in the facility. Locking systems that meet code requirements are also needed at doors to the outside—for example, doors from a general corridor or commons area to an outdoor garden area. Security cameras in appropriate areas and keycard access to rooms that residents should not enter are other security measures that can be utilized.

Rooms for residents will be planned with nurse call and emergency call systems, telephones, fire alarms, and smoke detectors. Emergency call buttons will be included in bathrooms as well as bedrooms. Long-term care facilities will have greater code requirements for call systems than assisted-living facilities.

In Alzheimer's units, a security alarm system, referred to as an elopement-prevention system, helps monitor residents by tracking their location. Understand that Alzheimer's and dementia patents tend to wander, and this type of security system alerts staff if a resident wanders somewhere where they should not be.

A few other safety strategies include providing telephones in resident's rooms with buttons that have larger than average numbers; providing access to the Internet as a means of communication for residents; providing residents with fall-detection devices in case a resident falls out of the sight of a staff member; use of pocket pagers instead of speaker systems to "call" staff, providing a quieter and less institutional environment.

Of course, all these security measures can be taken as harsh and maybe even intrusive. Yet, properly designed with the consultation of staff and security suppliers, these measures will provide a safer environment to vulnerable seniors. Security systems are meant to bring a sense of well-being to the patients' families as well as care for the resident.

CODE REQUIREMENTS

Senior living facilities are considered institutional occupancies in the International Building Code. Requirements will vary depending on the type of facility, however, as there are three categories of institutional occupancies. The designer must be sure that he or she is preparing design plans and specifications based on the correct occupancy classification. The Life Safety Code and NFPA 5000 code classifies senior living facilities as healthcare occupancies.

These are the codes the designer starts with when preparing designs. Of course, additional code requirements might be required by a state or local jurisdiction. Research is needed to determine current state codes related to senior living facilities. An Internet search will lead the designer to the state regulations regarding the project. Remember that the code that is applicable is for the location of the project, not the location of the firm. It is also important to point out that the local codes may be stricter than the basic building and life safety codes.

Of course, the ADA for accessibility will also apply to these facilities. There are specific guidelines for long-term care and nursing facilities under the category of medical care facilities. Other types of facilities will be required to meet accessibility regulations under other definitions within the ADA. There are also licensure regulations, department of health standards, building codes, and other testing procedures. Obviously, this is a highly regulated type of commercial facility. The exceptions are single-family dwellings in active adult communities. These are only required to meet the codes applicable to a residence.

Planning for the aging requires adjustment to some code minimums. For example, seniors lose upper-body strength, and not all codes take this into consideration. Grab bars are necessary in toilet and restroom spaces, and they should be located in accordance with the ADA guidelines. In planning senior housing, ramps should be limited unless many residents are in wheelchairs or use walkers. Flooring material should be consistent and level from one area to another, and higher light levels should be applied appropriately to aid the senior in seeing.

Discussions with the local fire marshal concerning specific requirements implemented during planning and construction will be necessary. This will include a discussion concerning protection devices such as fire sprinklers, smoke and heat detectors,

alarms, areas of rescue, and nurse call systems. The fire department will also review space plans and potentially require changes in plans.

Codes will also impact the selection of architectural finishes. Depending on local jurisdictional requirements, these will generally match those for medical facilities. Remember that corridors will require a higher level of protection than the materials specified for patient rooms. Living room and dining room/activity areas will require a higher level of restricted materials based on occupancy load.

SPACE ALLOCATION AND CIRCULATION

Space allocation and circulation are especially important to the planning of any of the senior living facilities that are not categorized as independent-living facilities. Many of the residents do not have the strength to walk long distances and must use wheelchairs or walkers to get around. Confusing plans can make it difficult for residents to find their way around the facility. This is especially true for facilities focusing on Alzheimer's and dementia residents. The configurations and length of corridors are critical in providing proper resident care and allowing residents to move easily within the facility.

Discussions during programming with the owners and staff of the facility will aid the design team in assessing the functional and collaborative use of the overall spaces. Each area or department will have special needs that must be identified to produce the best design outcome. Room functions, adjacency, and dimensions impact the overall plan. A functional program and space plan should be developed on space adjacencies to aid in resident care, overall operation of the facility, staff requirements, and design concepts.

Space will be needed for nurses' stations where staff will monitor residents and accommodate other nursing needs. Common areas such as the living room, activity spaces, dining spaces, and kitchen areas are also required. They are, however, placed differently depending on the type of facility and the type of plan the facility has chosen to embrace. Staff will also require support spaces of various kinds. Of course, the resident units or rooms must be planned. Once again, depending on the type of facility and plan program, these are grouped differently.

Today's plans for these facilities rely less on the nurses' station as the center of the floor plan than in the past. Technology allows nurses' stations to be smaller and spread out along the areas of resident units. However, a centralized staff space is likely to be required to house medications and supplies needed in larger quantities than can be stored in these smaller stations.

There are several different models that relate to how the resident spaces can be space-planned. In fact, as might be expected, there are two or three different models for each type of senior living facility. We will briefly discuss only one model per type of facility due to space limitations.

In an assisted-living facility, a neighborhood plan is often used. This means that a group of resident units is clustered with common areas for dining, kitchens, living room, and support spaces. Resident rooms are of different sizes, and the specification of the number of each of these sizes naturally impacts overall space allocation. This will be explained in more detail in the "Design Applications" section on an assisted-living facility. It is common for there to be 12 to 20 resident units in each neighborhood (Perkins Eastman 2013, 76).



Figure 11-6 Notice the screened-porch areas and centrally located kitchen in the skilled nursing section at Homeplace at Midway in Midway, Kentucky.
Design and architecture by Reese Design Collaborative, Inc., Louisville, KY. Reproduced by permission of Reese Design Collaborative.

In a long-term care facility, the traditional model is the nursing unit model. In this case, the residents' rooms are clustered around the nurses' station and supporting spaces, including the dining room, kitchen, and living room. Resident units project into wings from the central core in varying configurations. In this case, it is common for there to be 40 to 60 resident units in the model (Perkins Eastman 2013, 36). Different models will have different numbers of resident units per each nursing core.

Alzheimer's and dementia units also use the neighborhood model for planning. In this case, the resident units are clustered with the common areas similarly to the assisted-living facility. Due to the greater need for care, the groupings of resident rooms are smaller, with 10 to 14 being common. Nurses' stations in an Alzheimer's facility are designed to be less obtrusive and less institutional-looking.

Circulation paths need to lead to common areas and areas that create more socialization for the resident. Corridor distances should also be limited between the common areas and the resident units due to the diminished strength of the senior citizen. If corridors longer than 150′ are part of the design, it is common to include small seating alcoves along the corridor where a resident can rest (Figure 11-7). Because corridors need to be 6–8′ wide, seating areas along corridors should not be benches along the wall because that would affect the path-of-travel dimensions. These small alcoves also provide places where family members or staff can sit and visit with residents.

When allocating space, planning circulation, and designing the facility, keep in mind that residents can become confused if corridors lead to dead ends or away from familiar spaces. This can also be true in a facility that does not focus on Alzheimer's residents. Make sure that the design includes visual cues, signage, handrails in corridors, and other ADA guidelines for the type of facility. Artwork and accessories can be placed in corridors for aesthetic reasons and as a method of wayfinding for the resident.



Figure 11-7 Corridor treatment at the Alta Vista assisted-living facility in Prescott, AZ.
Reproduced by permission of Thoma-Holec Design, LLC.

As part of the space allocation discussion, wayfinding design techniques are very important in senior living facilities. At first, residents will feel somewhat uneasy in their new surroundings. Almost everything once familiar to them—other than the items that might be in their bedrooms—will be strange. Finding their way around will also seem intimidating to one degree or another. Easily finding one's way in this somewhat strange environment will add to the resident's sense of security.

Finding one's way is not simply a matter of strategically placed signage as in other types of medical facilities. The residents are the key to a good wayfinding program because they will be the ones potentially confused in the facility. Signage, color cues, lighting cues, finishes, placement of artwork, and flooring all play parts of wayfinding in these facilities. Visual cues are important in developing a wayfinding program. The use of the same flooring in common areas rather than the flooring material used in the residents' units is an example. Too many changes in materials, however, will be confusing.

Placing artwork or displays at intersections can help guide patients in the right direction. Accent walls are also helpful in directing patients and others around the facility. In an Alzheimer's unit, Dutch doors at the residents' rooms assist residents with room recognition and provide some privacy. Avoiding dead-end corridors in an Alzheimer's unit is also important for resident wayfinding.

Landmarks, visual cues, and cues such as changes in flooring at important junctions or areas will all help create effective wayfinding in senior facilities. Although not specifically focused on wayfinding for senior facilities, Arthur and Passini (1992) will be a useful reference.

FURNITURE

When specifying furniture and finishes, the designer needs to address problems encountered by many seniors. Loss of muscle strength and balance, hearing impairment, and decreased visual acuity impact what can be specified in senior living facilities.

Furniture specifications can vary considerably depending on the type of facility. For example, in active adult retirement communities, residents generally provide their own furniture. In facilities such as a long-term care unit or an Alzheimer's unit, the ownership sponsor will provide the basic furniture. A few additional items of personal ownership are likely allowed. This discussion concentrates on furniture items specified for units where it is less likely that residents/patients will bring their own furniture.

It is very important to specify furniture items that seem more residential than institutional. Maintaining a home environment, regardless of the type of facility, has been shown to improve residents' disposition, mental health, and recovery from illness. Different facilities will have specific requirements for types and sizes of furniture. When the management supplies furniture items, they should come from manufacturers who specialize in medical and healthcare furniture. This type of furniture is built to different standards from residential furniture. Specification of products should consider maintenance, safety, and ease of residents' use of furniture.

In the common living room, furniture groupings are similar to those found in personal residences or perhaps a hospitality lobby. They are placed to encourage interaction between residents and residents and their guests. Common areas are designed to entertain guests if residents do not want to use their own units. Groupings might also be needed for watching television or movies, as some types of facilities will not have

televisions in the residents' rooms. A fireplace can serve as a focal point in the arrangement of the living room space. Regardless of an item's location, rounded corners should be specified to avoid the safety issue presented by squared corners.

There are also some specification details to consider with seating items. The height and depth of sofas and chairs in the living room are important for comfort and use. Seating for seniors must be higher than average because of the loss of muscle tone in the thighs. A greater seat height makes it easier to sit and rise from chairs and sofas. Arms on sofas and chairs should be full length from the front edge of the seat to the back to provide more support. In addition to seat height and arm height, seniors require less depth in seating than average. Therefore, "the seat height should be a maximum of 19 (inches); seat depth a maximum of 21 (inches); and arm height a maximum of 26 (inches)" (Perkins Eastman 2013, 296). In specifying sofas, the designer must make certain that the seat cushions are not too soft. A firm foam cushion with a Dacron wrap is sufficient to provide comfort and maintain the seating height. These same principles apply to the selection of dining chairs.

In the common dining room, space planning should include tables of various sizes, such as those for two, four, or six people. Square or rectangular tabletops are most often specified in order to facilitate grouping tables. These tables can be grouped for larger parties such as family gatherings for birthdays. If meals are served on trays, a 48″ square (1219 mm by 1219 mm) table is recommended; if the waitstaff serves meals, a 42″ square (1067 mm by 1067 mm) table will accommodate four residents.

Round tables are considered friendlier and are preferred by some facilities because of the lack of corners. There are round tables that have drop leaves that make the table square. Some tables have adjustable-height tops. Table tops can be wood or laminates as is fitting for the project. The planning of tables in the dining room must be designed so that diners in wheelchairs can easily be seated at the tables. Some facilities include booth seating for four in the dining room for those with fewer mobility problems.

Dining chairs need to be very stable and durable. Wood frames are acceptable and should be designed to be very stable. Seat heights of chairs should be a maximum of 19″ (483 mm), with an arm height maximum of 26″ (660 mm). The arm should extend to the end of the seat whether fully upholstered or open. Apply the dimensional conditions noted above for sofas to dining room chairs and remember to specify chairs with arms, either open arms or fully upholstered units. Upholstered seating and backing of dining room chairs will provide some acoustical control. If casters are used on the dining chairs to assist senior residents in moving them, make certain that the casters are used only on the front legs (Perkins Eastman 2013, 296–97).

As for chairs in other areas, avoid folding chairs that can pinch and hurt a senior. Although senior citizens like rocking chairs, this type of furniture can be a hazard in that a resident could trip over the back rockers and some rockers can easily tip. However, recliners are very common seating units in resident bedrooms. Lounge-style chairs in resident bedrooms should have a higher seat height with a firm cushion and fully extended arms to make rising easy. Chairs with arms are an excellent choice because the arms help residents rise more easily.

Depending on the type of facility, more personalization and personal furnishings are used in the resident's room or apartment. In many assisted-living facilities, residents bring their own furniture and furnishings. However, in long-term care facilities, most



Figure 11-8 Dining room design uses easy-to-move chairs on casters. The artwork adds interest. *Reproduced by permission of Thoma-Holec Design, LLC.*

of the furnishings in the resident's room will be supplied by the facility because the bed will likely be some type of hospital bed. In an Alzheimer's unit, a few pieces of furniture belonging to the resident are included to assist memory identification.

Key issues in specifying upholstery in common areas and residents' rooms in many senior living facilities are maintenance and cleanability. Many fabrics that are appropriate in a residence are harder to maintain in high-use areas or resident spaces due to possible illnesses or incontinence of the residents. Therefore, care should be used in the specification of textiles in any seating unit in any of these facilities. Incontinence is an issue that will impact specification of seating upholstery. Chairs with arms are necessary to help residents rise easily.

MATERIALS, FINISHES, AND COLOR

Materials and architectural finish specifications, along with the development of color schemes, are important tasks for the interior designer in completing a senior living facility. In specifying these materials, the interior designer must avoid a sterile, institutional appearance while providing materials required for commercial installations. The environment of senior housing should be a safe, comfortable space that will help senior residents live comfortably while maintaining their independence and dignity. There are many codes and regulations that must be considered and applied in the specification of architectural materials and finishes in assisted living, long-term care, special care units, and other similar types of senior living facilities.

Let us begin with wall finishes. The designer must be sure that the wall finishes specified meet code requirements for the particular use of space and the type of space. Paint is one of the most popular materials, as it is versatile and easy to change. It allows interior designers a great deal of flexibility to produce color accents and backgrounds. Painted walls can be durable and require very low maintenance, especially with the

use of latex semigloss paint. Flat paint, however, does not clean easily. If possible, the designer should use paint that is VOC free.

Due to their durability, vinyl wallcoverings that are stain and moisture resistant are often preferred for certain areas such as bathrooms and kitchen areas. Vinyl wallcoverings can also provide nice accent walls in patient rooms. If wallcoverings are common in each unit, plan the space so that no two adjacent rooms have identical wallcoverings. This will help residents identify the rooms and provide individuality for these separate spaces. Specification of vinyl wallcoverings with antimicrobial properties is important because it protects the residents from mold, bacteria, and fungi, all threatening to their diminished health.

Vinyl wallcoverings are durable and affordable and can provide interior ambience. When specifying these wallcoverings, check the building codes to make certain the proper weight is selected. For example, a 12- to 22-ounce material is best for corridors, assuming they also meet fire safety codes. Remember that Type I and II vinyl wallcoverings may be required by code for corridors. Here are a few additional tips on specifying corridor wall surface amenities:

- Handrails (also called crash rails) along the corridors must be comfortable for the resident to grasp, must be easily cleaned, must be durable, and must be able to sustain the use of antibacterial cleaning agents. These should be placed to meet ADA guidelines.

- Wood trim can be used on walls, which creates a residential environment, but wood paneling, except in spaces such as the living room, are generally cost prohibitive.

- Corner guards should be used in corridors to protect against damage from wheelchairs and carts.

- Special attention should be paid to the specification of materials below the handrail due to their susceptibility to damage.

- Doors should be installed with accessible hardware such as lever-style handles, which are easier for seniors to operate.

- It is imperative that all wall materials in corridors meet code restrictions.

- The ADA guidelines will also require grab bars in toilet facilities.

Window treatments can help provide the residential environment of the living room, dining room, and resident apartment/bedrooms. Patterns in fabrics should be avoided because they might cause confusion. Fabric curtains and drapes that can easily be opened should also be specified to be sun resistant and easy to maintain. Window treatments will need to meet code, which can limit fabric choices. Blinds and roller shades are also options; however, they require more cleaning and can be difficult for residents to operate.

Windows that receive a lot of sunlight definitely should be specified with a window treatment. The glare from an uncovered window can be overpowering to a senior resident. Another point to remember is to balance natural and artificial light within a room by using window treatments in combination with artificial lighting.



Figure 11-9 The flooring used in the fitness room at Generations is designed to add design interest to the large floor surface without being overwhelming.
Reproduced by permission of Thoma-Holec Design, LLC.

Floor coverings can provide important aesthetic enrichment. Yet they must be specified with careful attention to the safety of the residents. Any type of hard-surface flooring must be slip resistant. Codes will also impact what can be used in many areas, especially corridors and common areas. There is more flexibility related to codes for flooring in residents' apartments and bedrooms.

Carpeting is the most popular flooring material specified for the common areas. Carpeting is also common in dry areas of the residents' rooms or apartments for comfort and to provide a residential environment. Broadloom has the advantages of lower cost and fewer seams than carpet tile, but it will cost more to replace if the carpet is damaged. Carpet tiles have the advantage of easy replacement if damaged. Dense level-loop surfaced carpet will be easy for residents to walk on and use walkers or wheelchairs. Face materials should be easy to clean and backings should be moisture resistant. Low-VOC materials are best.

Many seniors walk gazing at the floor rather than looking ahead. Most have some sort of loss of visual acuity. Thus, it is important to avoid busy flooring patterns, as these might confuse the resident as depth perception changes with age. Also, avoid dark colors and contrasting patterns and colors, which can cause confusion. Contrast between the wall and the floor should be present to draw attention to the change of planes and the boundaries. Borders are not recommended because they create one more pattern that might be interpreted as a step. Careful installation is needed when flooring changes from one type to another to avoid spots where someone could trip and fall.

Hard-surface flooring is specified in areas where frequent cleaning or water is used, such as bathrooms, kitchens, and utility areas. Vinyl sheet flooring is popular because it can be installed without the use of separate baseboard if a flash-cove base is used. In this case, the flooring is turned up without a seam at the wall to create a baseboard. This

is especially helpful with the mopping of floors. Care must be used when the floor is on grade to ensure that the vinyl materials are designed with a moisture-barrier.

Other materials such as ceramic tile, stone, and wood can be used if properly specified and the installation is appropriate. All these materials can give a very nice residential appearance. However, they are also materials that can cause more slipping. Therfore, only slip-resistant materials should be specified. Residents can also trip on the grout lines. Grouts for ceramic tile and stone installations need to be treated with additives to retard liquids from penetrating and staining the grout.

Color specification must be done with the knowledge of how color is perceived by older individuals. As the eye ages, color recognition is decreased due to the yellowing of the cornea from cataracts. This disease causes white tones to appear yellow and blue colors to appear gray.

Here are several important guidelines concerning color usage in senior facilities:

- Neutral colors can be used to make doors and other items that the staff does not want residents to utilize seemingly "disappear" when the adjoining wall is the same color.
- Floors can be darker than walls, and the materials used for the wall and the floor should have some contrast to indicate the change in planes.
- Color is also an excellent tool for enhancing wayfinding throughout a facility.
- Warm colors can be used in areas where socialization is expected to occur, and cool colors can be used where relaxation is emphasized.
- A contrasting color behind the sink and toilet in resident bathrooms will help the resident find those items.
- Yellow is not a good choice because people who have cataracts will have difficulty seeing in that space or seeing items placed against that color of wall.
- Strong colors and primary colors can become tiring—use with caution.
- Colors with warm undertones are easier for the senior eye to see, and incandescent lighting produces more warm tones than fluorescent lightning.

MECHANICAL SYSTEMS

Lighting specification and acoustic control are key mechanical systems that can be impacted by the responsibilities of the interior designer. Lighting design is very important due to the deterioration of a senior's vision. Seniors generally need three times more light than younger persons in order to see clearly. It also takes their eyes longer to focus on an object. The majority of seniors have cataracts, reducing their ability to see full color as well as the degree of light on a surface. Thus, the designer needs to find the right balance in specification and locations of lighting solutions.

Improperly planned lighting can be hazardous to residents who might trip or run into objects. Poor lighting can even impact balance. Very bright light, which might seem like a proper solution, produces glare and can cause visual difficulties for many seniors. Nonglare lighting should be evenly distributed on the floor to avoid pockets of light.

Fluorescent lighting is usually preferred for senior facilities for its energy efficiency and cost. There are many choices of lamps that can provide full-spectrum lighting. These can be frequently used in common areas. Downlights and cove lights can also be used in these areas. Facilities that have replaced incandescent bulbs with CFL bulbs now also have the choice of utilizing more energy-efficient LED bulbs.

Decorative wall sconces as accent lights can be used in many areas rather than spotlights or downlights to produce good low lighting without glare. Indirect lighting in corridors produces less glare and fewer shadows and light "spots" on the floor. Plan the lighting fixtures so that lighting does not create shadows and spots, which might cause some seniors confusion.

Table lamps in common areas, as well as patient rooms, can provide a feeling of a residential environment. Be sure these lamps do not tip easily and that they are placed so that the bare bulb is not seen when sitting. Patient rooms will require bedside lamps as well as nightlights. Bedside lamps can also be table lamps rather than the type of fixtures found in hospitals. Over-the-bed lighting can be hidden in soffits so that extra lighting is available for bedside medical examinations. Some recommended light levels are shown in Table 11-1. Additional information on recommended lighting levels can be obtained from the Illuminating Engineering Society of North America (IESNA) or similar groups in other countries.

Another issue related to mechanical systems involves acoustics. The National Institute on Aging states that one third of persons between the ages of 65 and 74 have hearing problems; this prevalence increases to one half by age 84. The acoustics in a senior facility must be considered to reduce the issues of hearing problems with residents. One important issue to remember is that senior residents with diminished hearing talk more loudly than younger people. This characteristic should be kept in mind when designing common areas.

Hearing problems involve excessive noise, lack of privacy in the resident units, transmission of noise from one area to another (e.g., from kitchen to dining room), and the difficulty of hearing conversation due to background noise. The design team should eliminate as much background noise as possible. To reduce noise, architects should plan the facility with attention to the way sound travels through it. The interior designer can help by specifying acoustically absorbent materials.

Two areas where multiple people will use the space are the living room and dining room. In the living room, separate the area where television viewing is located from the conversation areas. Remember, with residents with hearing loss, the television will likely be tuned higher in this facility. If hard-surface materials have been used on the

Table 11-1 Recommended Lighting Levels for Senior Living Centers

General Recommended Light Levels	Foot-candle (FC)
Active corridors	30
Dining areas	50
Resident rooms	30, with additional task light
Living rooms/activity rooms	30, with additional task light

Source: Perkins Eastman 2013, 266–67. Reprinted courtesy of John Wiley & Sons.

floor, inset carpeting for lounge groupings will help with acoustics. Area rugs could cause tripping by the residents.

It should be easy to understand that the dining area will produce a lot of noise. Conversations during meals, chair legs scraping, walking with canes or walkers, and the use of carts and wheelchairs all contribute to noise in this area. The hard surfaces in the dining room also bounce noise rather than absorb noise, adding to the problem. One solution is to subdivide the dining room into smaller areas with partial walls and some booth seating to help break up the noise. Other solutions to help reduce sound in this area include the use of carpeting, resilient vinyl flooring where requested, curtains and/or draperies at the windows, upholstered seating, linens, and possibly acoustical cloth on portions of the wall.

The reader may want to review the section on acoustics and the terminology offered in Chapter 5 in connection with understanding acoustic issues.

Design Applications

This section provides brief information concerning specific interior design elements for four types of senior living facilities: assisted living, long-term care, Alzheimer's facilities, and hospice care facilities. These concepts will help introduce the student and other designers to the design of these facilities. The discussions are generic in scope, as many levels of facility can be found in each category.

ASSISTED-LIVING FACILITIES

The number of assisted-living facilities continues to increase. Assisted living is an option for those seniors who cannot or choose not to live on their own. For many seniors, this is the next step when it necessary to move out of a personal home or apartment due to a health issue. The resident may require some nursing care, but not 24-hour care, which would make them a candidate for a long-term care facility. Nursing care in an assisted-living facility is available through on-call staff. Residents in an assisted-living facility have more independence because their health condition does not generally make them bed-ridden. They also have more social interaction with other residents than would likely be the case in a long-term care facility.

Residents are primarily in their eighties or older. Many of the residents have special needs or problems: 30 percent are incontinent, 40 percent use wheelchairs or walkers, 50 percent have some form of memory loss, 60 percent need assistance in bathing, and 25 percent need toileting assistance (Regnier 2002, 4). These types of special needs impact space planning and design specification decisions for the facility.

An assisted-living facility has public spaces such as common areas, a living room for socialization, and a dining room. If the facility is large, additional common areas will be planned to provide more of these spaces grouped with each resident unit or floor.

Resident apartments come in many sizes to accommodate resident needs and desires. It is common for an assisted-living facility to have a combination of small studio apartments, semiprivate rooms, or even two-bedroom apartments. These options help meet the needs of seniors on many levels, including financial.

In addition to the basic common areas, an assisted-living facility can include space for, or assistance for, such tasks as laundry and housekeeping. There will be a mailroom, perhaps even a beauty shop/barbershop, swimming pools, and transportation for shopping or to a personal physician.

As might be expected, the interior design of the facility will be influenced by the ownership and cost of fees for residents. Not all assisted-living facilities will have luxury products used for finishes and furniture. Yet the interior designer must endeavor to plan and specify the patient apartments and common areas as pleasantly as possible within the budget. They should also not look institutional, but have a residential—even a hospitality quality—to the interior design. A pleasing environment will be a very important point to a patient and his or her family in choosing a facility. It is not just the common areas that need to be pleasingly designed, but all areas.

Let's begin by briefly discussing the design needs of the *common areas:* entry and living room; dining room; and activity room. These are the spaces off the main entry and are for use by all the residents and their guests. They provide a place for residents to meet with family members and gather as a group for social interaction. This section will also discuss the design of a resident's room.

Family members and guests arrive at the front entry and lobby. A receptionist or greeter is generally positioned in the lobby to assist visitors and to monitor the door. An aesthetically pleasing office desk can be used or a custom cabinet can be designed as directed by the management. Space for a computer terminal, multi-button telephone, desktop space, and appropriate storage are required. Residents like to sit near the entry to watch visitors come and go or to wait for family to arrive, so some seating is specified in the lobby.

Staff offices are adjacent to the entry so that they are easily accessible to the residents and visitors. The lobby transitions to a living room or a gathering space, much like a country club or hotel. The dining room is often located close to the lobby and may be somewhat visible from that space. (See Figure 11-10.)



Figure 11-10 View of the family room in the Shaker-style assisted-living facility at the Homeplace at Midway, Midway, Kentucky. *Design and architecture by Reese Design Collaborative, Inc., Louisville, KY. Reproduced by permission of Reese Design Collaborative.*

Here are several design sensitivities for the main lobby and main dining room in an assisted-living facility:

Living Room

- Group seating encourages interaction with residents and guests.
- Sofas with two to four sturdy lounge-type chairs are appropriate.
- Avoid coffee tables, as they can create a hazard for walking.
- End tables with tabletop lamps are needed.
- A fireplace creates a great focal point.
- A table with four chairs for conversation and gaming might be requested.
- A television is also a common feature, although it should not interrupt private discussions.
- In specifying seating, keep in mind that residents will have less strength in arms, so rising from seating should be easy.
- The living room may also function as a library, so storage shelves at a height comfortable for seniors are provided.
- A small area in the living room or closely adjacent to it for a computer for use by residents is also appropriate.
- Carpeting is appropriate for the living room and dining room.

Dining Room

- Square and rectangular tables seating two, four, or six are most common.
- Tables are usually 42–48″ (1067–1219 mm) in depth and 29–30″ (737–762 mm) high.
- Booths can be appropriate seating if requested by management.
- Low partitions to break up the space can create more intimate dining areas.
- Overall ambience should mimic a full-service restaurant.
- Chair heights need to be 20″ (508 mm) at the seat, with open full arms.
- Discuss with ownership whether or not chairs should be on casters.
- Spacing must allow for the passage of wheelchairs and people using walkers.

Activity rooms are another kind of space in the common area. These are important for residents because activities can provide social activities such as crafts and games, educational presentations, and occupational therapy to aid physical well-being. Groups of residents can gather for movies, exercise programs, and other entertainment events. In some facilities, religious services can be provided in the activity room or a separate chapel. A piano with a lockable top might be included in the activity room. Similar activities can occur in the smaller common areas provided closer to the resident units.



Figure 11-11 A variation in the design planning of a dining room in an assisted-living facility, Homeplace at Midway, Kentucky.
Design and architecture by Reese Design Collaborative, Inc., Louisville, KY. Reproduced by permission of Reese Design Collaborative.

These spaces will require storable small chairs and small square tables 36–42″ (914–1067 mm) that can seat two to four or be joined for larger groups. Because crafts may be part of the activities programs, tables and flooring should be easy to clean. A section of the activity space may have larger lounge seating for television watching.

A wide variety of wall finishes can be used in these areas to create a pleasing residential atmosphere. Design highlights can be provided with a simple wallcovering on accent walls in common areas. Subtle patterns and softer colors are most common. Wallcoverings need to be cleanable, but the designer does not need to limit choices to paint. Some commercial textile wallcoverings can be used if they meet code requirements. High-contrast colors and bold prints on the walls may cause dizziness in some residents.

Flooring needs to be nonslip. Vinyl tile or other nonslip hard-surface materials are often specified in these areas due to potential spilling of refreshments served in the activity room. Cabinets for display of the refreshments and utensils will be needed.

In addition to creating that home environment, materials and product specifications should provide for the functional needs of staff in terms of cleanliness and maintenance as much as possible. "Color selections should be based on the functional purpose of the space. Use warm colors (red, yellow, orange) to promote socialization, and cool colors (blue, green, violet) to promote relaxation and foster inward orientation or concentration" (Malkin 1992, 391). Most often these colors are used in pastels rather than concentrated colors.

Resident apartments vary in size and amenities, depending on the facility. Developers of these facilities usually include a mix of apartment sizes to appeal to a broad spectrum of potential residents. Generally, these rooms or apartments are smaller than those found in an independent-living facility. The most common types of apartments as reported by Perkins Eastman (2013, 67–72) are as follows:

- Semiprivate units are still available, although less often a common choice.
- Small studios much like a hotel room.

- Alcove studios, which have a separate sleeping area and a private bath.
- Small one-bedroom units similar to a small apartment with a living room, a bedroom, and private bath.
- Large one-bedroom units with a private bath and perhaps a small kitchenette.
- Double master units with a living room, two bedrooms, and two full bathrooms. Popular with couples.
- Small hotel units patterned on a hotel suite with a bedroom, living room, and one bathroom.
- Bedroom units provide a bedroom and private bath. These are usually clustered with similar units so patients can share the common space.

This section will highlight design elements of typical one-bedroom apartments. Planning elements for other size units will be similar.

The entrance can be contained in a small alcove that can include a closet or entry directly into the living-room space. In some plans, a small kitchenette can also be planned as part of the entry alcove. The kitchenette generally includes a small sink, an undercounter refrigerator, and space for a small microwave. The refrigerator can be installed higher than floor level to make it easier for the resident to use. Cabinets with a countertop are also included. This kitchenette is to allow the resident to prepare snacks rather than full meals, as meals are taken in the common-area dining room.

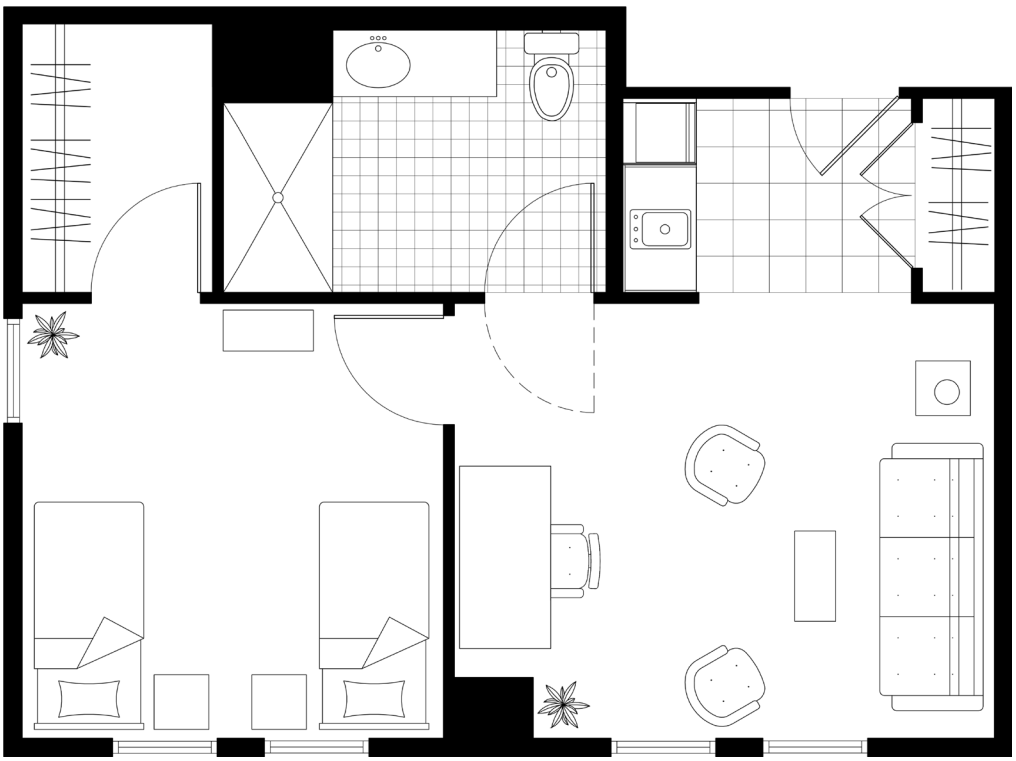


Figure 11-12 Example of a large one-bedroom unit within an assisted-living facility.
From Perkins Eastman 2013, 70. Reproduced with permission of John Wiley & Sons

The living room should accommodate a small sofa or loveseat, end tables, a lounge chair, and a cabinet for a television. An additional cabinet might be included. The resident often provides furniture from their previous home. Space for a small table and one to two chairs for eating are planned into the living room space even in smaller apartments. This table can be used for snacks or activities such as card playing and games. Careful planning is necessary if the resident uses a wheelchair or walker.

In the bedroom, a bedside table and lamp, a dresser, and a comfortable chair are typical furnishings for this space. The resident might also bring the bedroom furniture unless a special bed is needed. Additional furnishings such as bookcases and a cabinet for a second television might be requested. These apartments generally have a walk-in closet.

The bathroom should be planned to accommodate accessibility standards because many residents will be using wheelchairs or require assistance with bathing. Not all of the bathrooms in an assisted-living facility, however, need to be accessible. Management may require the design of the bathrooms to be adaptable so that they can be converted to an accessible arrangement. Some apartments will be planned with roll-in showers to accommodate residents in wheelchairs or a shower with a seat or perhaps a tub. Vertical grab bars are necessary at the entry to the shower as well as in the shower for safety.

Ensure that the door openings into all spaces are 3′ (914 mm) wide. The locations of light switches and plugs should meet code. Resident units will also include an emergency call button. Do not forget to plan a 5′ (1524 mm) turnaround space for a wheelchair as might be needed for the resident.

Treat the interior finishing as a residence. However, consideration for easy cleaning and the possibility of the resident being in a wheelchair or using a walker are issues that



Figure 11-13 Resident room in a skilled care center.
Photo courtesy of Gary Marsh, Masonic Homes of Kentucky. Interior design by Sharon Watkins

are part of the specification process and decision making. Hard-surface nonslip flooring should be used at the entry, kitchenette, and in the bathroom. Carpeting, generally level loop, is appropriate for the living room and bedroom. Walls will most commonly be painted, although the resident may get permission to use a wallcovering. Avoid any surface finish that might be abrasive, as the skin of seniors tears easily. Window treatments are another item that can be specified by the resident or provided by the management.

LONG-TERM CARE FACILITIES

A long-term care facility is created for the resident who needs 24-hour nursing care but not acute care, which would require hospitalization. Units in newer facilities are organized into groupings that manage the care of the residents in a more residential orientation with nursing and staff working as a team. The traditional model is organized with the patient rooms organized around a nurses' station. One of the newer models is the cluster model that decentralizes the nurses' station for quicker access to patient clusters. Another model is the neighborhood model in which the plan decentralizes food preparation, social spaces, and the nurses' station (Perkins Eastman 2013, 37). Other planning models exist as research into patient service continues to evolve.

This discussion focuses on a generic long-term care facility with the attention focused on the design of the residents' rooms and nurses' stations for the nursing units. Designers should apply many of the principles used in assisted living to the common areas of the long-term care facility, with further attention to the residents' diminished health.

Residents' rooms in long-term care facilities are usually shared. Single-resident rooms are becoming more common as residents and their families request more privacy. The size of the rooms or the square footage per person within that space is regulated by codes. Approximately 100–120 square feet (9.3–11.1 square meters) will be required by code for a single person, with 80–90 square feet per person in a multi-bed room (Perkins Eastman 2013, 48). Larger rooms—up to around 150 square feet (13.9 square meters) for an individual room—are more realistic. Accessibility codes can modify these standards, as can state health department standards. Clearances are needed in the resident room to allow staff to approach the resident from either side of the bed and to allow wheelchair access.

There are many variations on the furniture included in a resident room. These comments mention the most common items. Rooms are primarily furnished with hospital-bed styles and a chair—often a recliner or special-purpose chair—that is designed to be easy for a frail individual to utilize. A second chair for family visitors is also included. Nightstands, along with built-in cabinets for storage and display and a closet, are standard features. A television is also standard, placed to be viewed from the bed and bedside chair. Rooms should include large windows, a variety of light sources, and controllable systems for resident comfort. A bedside lamp on the nightstand and cove lighting above the bed are common.

Shared rooms should provide reasonable privacy. Older models simply used a cubicle curtain between residents. New designs utilizing half or three-quarter-height walls provide additional privacy without requiring a large amount of square footage of floor space (Figure 11-15). Acoustical privacy in a shared room is an issue because people



Figure 11-14 A model plan for the bedroom space in a memory-care apartment. Patients in memory care units often bring furniture from home for more comfort. *Reproduced by permission of Thoma-Holec, LLC.*

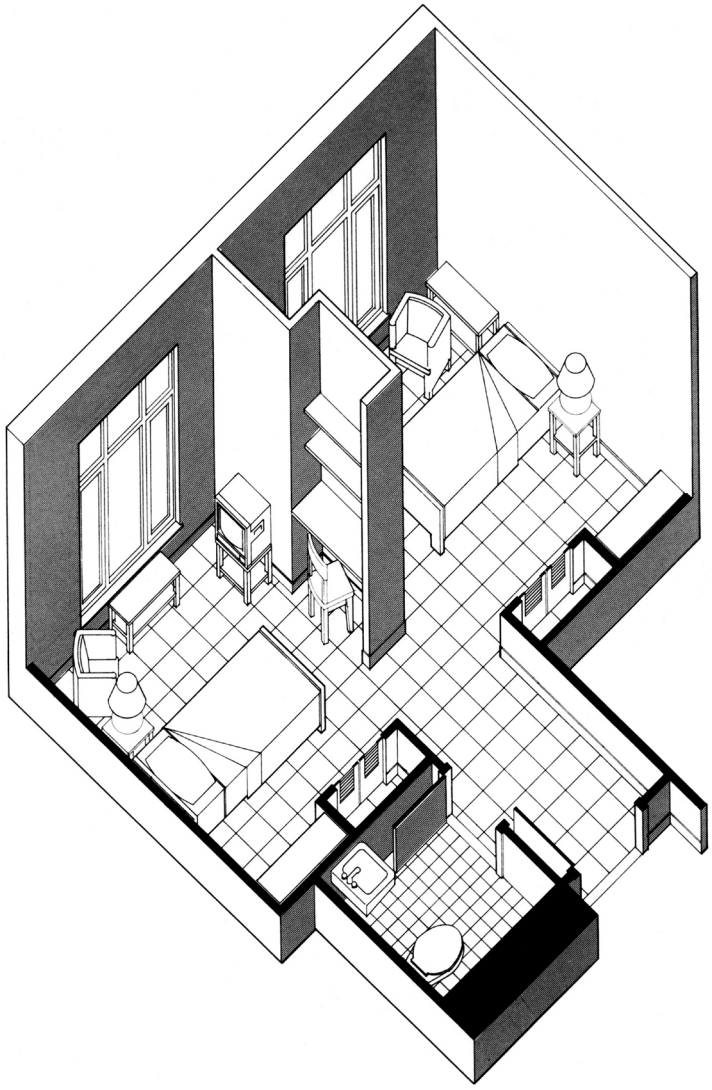


Figure 11-15 An example of a shared bedroom space in a long-term care unit. *From Perkins Eastman 2013, 49. Reproduced with permission of John Wiley & Sons.*

may not want to hear the television or conversations from the other resident. They will also have a shared bathroom.

Private rooms today more often have private full bathrooms with a roll-in shower and accessible sink and toilets. The bathrooms should be planned with accessible features as required by code. The roll-in shower must be large enough for staff to assist the resident. Older facilities might retain the two-fixture bathroom, especially in a semiprivate room. In this case, staff will assist with bathing in separate facilities. The bathroom also includes a cabinet for storage of toiletries that has easy access for the resident. Bathroom-style heat lamps or additional heating in the bathroom are often specified.

In the design of the nurses' station, the interior designer must remember that the space is used to greet guests; therefore, it should be welcoming as well as obvious to the visitor, in addition to its staff functions. Doctors and other staff will also use this area to check charts and records and obtain certain supplies. If patient files are kept as hard copies rather than in a computer-based digital file, space for files in a secure configuration is paramount.

In many respects, the nurses' station otherwise requires equipment similar to that found in hospital nurses' stations (see Chapter 10). Counter space is needed for paperwork and patient charting, as well as space for computers, electronic monitoring equipment, and supplies. Privacy for discussion of residents' health issues is also required. The recommended space allowance for a nurses' station is 250–500 square feet (23.2–46.5 square meters).

Additional facilities in the long-term care facility can include many spaces similar to the assisted-living facility. Small spaces for dining and social activity can be grouped with the nurses' station. The management and exact type facility will determine these. Some spaces that are common are included here:

- A dining room where numerous residents can dine together
- Small cooking spaces so that family members can prepare food for the resident (if this is allowed)
- Social spaces for small group activities
- Multipurpose space for large group activities
- A living room and library conducive for visits with family members
- Medical spaces such as exam rooms
- Physical therapy space
- If the facility is large, a coffee shop and gift shop

Architectural finishes and furniture items should also be selected with maintenance and cleanability in mind while creating a residential environment. Flooring is often vinyl tile and vinyl sheet goods rather than carpeting in the patients' rooms, although carpeting will be an appropriate specification in facilities with higher price-point fees. Guidelines discussed in previous sections will apply to this type of facility as well. Corridors should be specified with handrails that provide stability while having an aesthetic appearance.

ALZHEIMER'S AND DEMENTIA FACILITIES

A special type of long-term care facility is the Alzheimer's and dementia facility, also called *a memory care facility*. Recall the definitions of these disorders in the section on types earlier in the chapter. These facilities require special attention and cannot be designed like the typical assisted-living facility or long-term care facility.

The interior designer who wants to design this specialized facility should become familiar with the behaviors of patients and characteristics of how the disease affects individuals. Sensitivity to the patient condition is of paramount importance to successfully designing this specialty facility.

Research has shown that increased patient comfort results when patients with memory loss are housed in a facility that is focused on these diseases. It is important to mention a small amount of information about this disease before discussing design application needs.

An early symptom of Alzheimer's disease is noticeable memory loss beyond the simple loss that comes from normal aging. Language difficulties are also an early symptom. Sometimes violent behavior and disorientation accompany the memory loss. As the disease progresses, the ability to communicate can be much reduced, even extending to loss of speech. Patients may not be able to perform basic tasks such as dressing and feeding themselves. A patient might lose all recollection of family members, creating a stressful situation for both patient and family. Patients also have a predilection for wandering, requiring design solutions that allow the patient certain freedom while controlling their movements without undue restraint.

These units are often associated with long-term-care and assisted-living facilities. They can also be freestanding specialized facilities. They must be licensed, and there may be codes and regulations that impact the design of the interior in addition to basic building, life safety, and accessibility codes.

The interior designer needs to create an environment that replicates a residence to promote the comfort of the Alzheimer's resident. It is also important to provide personal spaces, as well as familiar sights and smells. Interior designers and staff can create a stimulating environment that is attractive, residential in appearance, and yet in keeping with the regulations that govern these facilities.

In designing the space plan of an Alzheimer's unit, attention should be given to walking paths and exit control. It is important for Alzheimer's and dementia residents to have corridor space for walking. Freedom of movement and independence, even if controlled, is important to the patient. However, the space plan should be created to limit where the patient is allowed to travel. A continual path or wandering loop allows the resident to walk while remaining in a controlled environment. Plans should avoid dead-end hallways because Alzheimer's residents may come to the end of a corridor, become confused, and be unable to turn around. Staff offices are placed near the exits to monitor the exits.

As they have the opportunity to walk, Alzheimer's and dementia residents need wayfinding cues that are more obvious than those in other senior housing facilities. This, of course, will help keep them from getting confused and "lost" within the facility. Changes in flooring, color accents, and even the odors from the kitchen and coats beside the garden door are forms of wayfinding for Alzheimer's unit residents.



Figure 11-16 A special-feature Memory Wall at Generations at Agritopia.
Reproduced by permission of Thoma-Holec Design, LLC.

The plan will include centralized dining and living room spaces with patient bedroom spaces arrayed around these areas to help create a residential atmosphere. The kitchen and dining room are very important spaces for the Alzheimer's resident. They are often located close to the wandering loop. The living room functions as a seating area away from the bedroom and can include shared activities, such as watching television or a movie. Dementia residents like to be with each other rather than in their bedrooms. For this reason, sufficient space needs to be planned for shared activities.

Comfortable seating that takes into account the resident's diminished strength is appropriate. Chairs with open arms, sturdy bases, and upholstered seats are common in



Figure 11-17 This social space in a memory-care community provides a homey atmosphere for residents and visitors.
Reproduced by permission of Thoma-Holec Design, LLC.

the dining rooms and activity rooms. Sofas and/or loveseats can be used if approved by management. End tables with rounded corners are needed. Coffee tables can be tripped over and are less appropriate. Upholstery should not be rough, but easily cleanable and moisture-barrier fabric should be specified.

The dining room also frequently functions as the activity room. Round tables are often used in these areas to avoid sharp edges. Square tables with rounded corners can also be used so that a four-top table can be joined with other tables for a larger group on occasion. Flooring is most often a resilient hard surface rather than carpeting due to spillage.

The kitchen, primarily controlled by the staff and family members, will have all the normal kitchen appliances and cabinetry plus a handwash sink for staff. It is located on the wondering loop and in proximity to the dining area. There should be key switches for the appliances and outlets for residents' safety. Appliances should be on kill switches behind a locked door and controlled by the staff. The smell of cooking food is a sensory tactic to stimulate appetite in residents. Seeing normal kitchen activities also helps to cue memory and normalcy.

Resident bedrooms in Alzheimer's units are similar to other long-term-care bedrooms. Depending on ownership, new trends in these facilities provide private rooms, although a mix of private and semiprivate rooms is common. Some Alzheimer's residents' health is improved by having another resident share their room. The design of the resident bedrooms will have a small bathroom including a sink, a toilet, and usually a shower. This feature helps to create a homelike atmosphere for patients. One design detail in an Alzheimer's unit is the use of a Dutch door for entry into the room. The bottom section keeps the patient from wandering out of the room, while the open top section allows for visual control of the bedroom.



Figure 11-18 Resident bedroom in a skilled nursing property at the Homeplace at Midway, Midway, Kentucky. Notice the pleasing décor and ADA treatments in bathroom. *Design and architecture by Reese Design Collaborative, Inc., Louisville, KY. Reproduced by permission of Reese Design Collaborative.*

Furniture needs include a hospital-type bed that has a residential appearance, along with a bedside table, a comfortable chair, and a side table with a lamp to help create that home bedroom appearance. All furniture corners should be rounded, as should cabinets or case work. The less institutional the room furnishings, the more comfortable the resident patient will be (Figure 11–18). Flooring in residents' rooms is often carpet with vinyl materials in the bathrooms. If vinyl flooring is used in the bedroom, no area rugs or small rugs that could trip the resident should be used. Wallcovering or paint should be light in tone and color, without high contrasts. Wallcoverings should also be without identifiable patterns.

Picture rails and shelving that can accommodate personal items are also desirable in these rooms. This helps to trigger memories in residents. A display board outside the door to the resident's bedroom can help cue the resident to his or her room.

A few other considerations related to the planning of an Alzheimer's unit are important to mention. A secure outdoor space for Alzheimer's and dementia patients is very desirable to help reduce their agitation. This area will be accessed from the corridor of the unit. It will be obvious in design and provide some cueing of its function. A coat rack at the door is one cue that is often used. The outside area, or healing garden, will require a solid fence 6–8′ high with a pathway that loops around the garden and ends back at the garden's entry. Benches and shaded areas provide comfort for residents and family members visiting the resident.

The interior design of an Alzheimer's and dementia senior living facility is a challenging project. The designer must learn about these diseases to understand appropriate design product specification. Careful attention must be paid to the information provided by the administration and the nursing staff concerning the needs of the residents, their problems, and the solutions.

HOSPICE CARE FACILITIES

Hospice care facilities are licensed to provide care to individuals who have a terminal illness and whose chances of recovery are minimal. Hospice care can be centered in the patient's home since visiting medical care can be provided to the home. A growing number are admitted to a hospice facility.

A hospice facility provides comfort for the individual, including medical care as needed to control pain, but cure is not a goal. These facilities also provide respite to family members. Care can be provided by nurses, doctors, and other trained medical personnel as well as trained hospice care workers. Some patients will still require 24-hour nursing; therefore, hospice locations can still be found in the wing of a hospital or long-term care facility.

A challenge in the design of a hospice facility is to create a comfortable homelike atmosphere while still accommodating needed medical services such as oxygen at the bedside. Note the pleasant atmosphere of the space in Figure 11-19. An important key is to avoid creating an institutional-looking room. In addition, the spaces for the patient must also create a comfortable atmosphere for family and other visitors. In this instance, "comfort" means peaceful, not simply comfortable furniture. Sensitivity to the reality of this facility must be kept in mind by the designer.

The design of a resident's room must combine the needs for medical services and space for family to be with and comfort the patient (Figure 11-20). These rooms are larger than private acute care rooms to allow space for furniture for the family. It is not unusual for these rooms to have a sleeper sofa, side chairs, an end table or cabinet, and even a small table and chairs where family can take snacks. The room will also generally have a private bathroom.



Figure 11-19 Living room at Hospice of the Valley, Phoenix, AZ. *Courtesy of Hospice of the Valley, Phoenix, AZ. Photographer: Jon W. Denker, CAPS Photography.*



Figure 11-20 Patient bedroom that is simple in design yet provides a pleasant atmosphere with the quilt and residential-style seating. *Courtesy of Hospice of the Valley, Phoenix, AZ. Photographer: Jon W. Denker, CAPS Photography.*

Hospice facilities must also consider the family and visitors. Space plans will include residential kitchens for families to prepare meals for themselves. Considerations for Internet services, television viewing in a common area/living room for the family, and counseling spaces or private reflection spaces are often included.

As for the interior design, flooring materials can be carpeting, but due to spillage, vinyl flooring is predominantly specified. Carpet tiles are an option. As damaged tile can easily be replaced. Large windows provide comfort to the patient with window drapes for privacy and light control. Wall finishes can be those found in a long-term care facility with an extra emphasis on creating a comforting residential environment.

A group home is another type of facility that can provide hospice care. Note that hospice facilities and group homes are not necessarily the same thing nor do they serve the same types of patients. A group home patient is not necessarily terminal.

Summary

The design of senior living facilities is a very important facet of commercial interior design. The residents of these facilities are in their later years, many with serious health issues that have required them to leave their independent house or apartment. Creating environments that are cheerful, calming, and mimic a residence contributes to the wellness of residents and comfort to families.

There are, of course, many regulations on the local, state, and federal levels that impact the design planning and design specifications of a senior living facility. The designer cannot ignore these codes and regulations and must integrate them into the design. In addition, each type of facility may be governed by different regulations that must be integrated into the design.

The number of senior living facilities will continue to grow, as will the potential for remodeling older units. Just because the opportunity to design these facilities will

exist for interior designers does not mean that every designer has the experience and ability to successfully complete these projects. A senior living facility—especially those for assisted-living, long-term care, special care units such as Alzheimer's facilities, and hospice facilities—are not the same as a private residence. Interior designers seeking to design these facilities must be committed to learning about senior health issues as a starting point for engaging in this specialty. Only then can the interior designer help to create attractive, code-compliant facilities for seniors.

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INTERNET RESOURCES

ADA Accessibility Guidelines (ADAAG): www.access-board.gov/guidelines-and-standards

Alzheimer's Foundation of America (ALZFD): www.alzfdn.org

American Association of Retired Persons (AARP): www.aarp.org

American Society of Interior Designers (ASID): www.asid.org

Americans with Disabilities Act (ADA): www.ada.gov

Architectural Barriers Act (ABA): www.access-board.gov

Canada Green Building Council (CAGBC): www.cagbc.org

Elder Care: www.eldercare4families.com

Environments for Aging (EFA): www.environmentsforaging.com.

Gray Panthers: www.graypanthers.org

Illuminating Engineering Society of North America (IESNA): www.ies.org

International Code Council (ICC): www.iccsafe.org

Long Term Care Education (LTCE): www.ltce.com

National Fire Protection Association (NFPA) and Life Safety Code: www.nfpa.org

National Hospice and Palliative Care Organization: www.nhpco.org

National Institute of Senior Centers: www.ncoa.org

Retired Senior Volunteer Program (RSVP): ww.nationalservice.gov

Service Corps of Retired Executives (SCORE): www.score.org

Social Welfare History Project: www.socialwelfarehistory.com

U.S. Census: www.census.gov

U.S. Green Building Council (USGBC): www.usgbc.org

U.S. Medicare: www.medicare.gov

U.S. Social Security Administration (SSA): www.ssa.gov

CHAPTER 12

Recreational Facilities

We enjoy recreation in its many forms—hiking, bicycle riding, swimming, golf, skiing, and any of numerous other forms of recreation. You could easily name 10 or 20 recreational activities that can be done outdoors; some of them and many other activities can be done indoors. We go to recreational places to enjoy the company of others and to be entertained, to relax, and to escape our everyday lives. We use recreational activities to refresh our bodies and minds and to help relieve stress.

Some of us are more spectators than participants. The term *spectator sports* refers to the audience as observers of either an individual player or a team. Spectator sports are big business, involving billions of dollars in ticket and product sales. Many of these dollars are used to build stadiums and facilities. These stadiums, both open and enclosed, bring thousands of spectators to an event. These spectators also bring business to amateur recreational facilities of all kinds.

Recreational facilities can be operated by private ownership, such as a privately owned golf course or an athletic club. In these cases, the use of the facility is limited to members. It can be operated by a government agency such as the National Parks Service; it can be city owned, such as an aquatic center or park; or it could be a state park. There are also recreational facilities owned as commercial businesses, such as climbing centers, bowling alleys, and archery centers. In these cases, the users are the general public paying fees to use the facilities.

Many types of commercial facilities include some sort of recreational space. Hotels almost always include an indoor or outdoor swimming pool and workout center for guests. Senior living facilities often have swimming pools, recreation rooms with space for group activities, and workout equipment. Retail stores that sell sporting goods might have space where a customer can try out equipment. Fitness centers are also found in hospitals, universities, corporate offices, government agency facilities, and many other businesses.

Then there are the places where we can go to relax, rejuvenate, and yes, be pampered. Spas, wellness centers, and fitness centers are other types of recreational facilities that also fit into this category.

Recreational facilities also impact the interior design of other types of facilities. Many restaurants are designed with sports themes, especially those located near major sporting venues. Retail stores can also have a product focus, such as those that sell only

golf equipment or retail stores that sell a variety of sporting goods. A resort hotel can emphasize golf or horseback riding.

Several recreational-type facilities are included in this book because they provide many different challenges to the designer. It is not possible to discuss the design issues of every type of recreational facility; however, a selection of facilities are included that might be assigned as projects in design studios. Auditoriums are included due to their many unique design challenges and their code occupancy designation.

All these occupancies are likely to be classified as mixed occupancies because they include areas considered assembly, mercantile, and possibly other spaces. Brief discussions concerning planning and design elements are provided for each type of facility.

Fitness Center

Fitness centers are among the most popular recreational activity venues today. The popularity of fitness certainly is booming for just about everyone, except perhaps for children who spend too much time in front of televisions and game machines. *Fitness centers* provide a single location for many recreational and fitness activities.

A fitness center can be called many things, including athletic club, fitness club, sport club, wellness center, and health club. The focus of these facilities is to provide an indoor and outdoor environment for recreational activities beyond gymnasiums for basketball and playing fields for football, baseball, and soccer. Of course, in some centers, a gymnasium is included for basketball.

A large number of fitness centers are owned by private interest groups, developed as commercial business ventures. Others may be owned or operated by a golf club, hotel or resort, or even a municipality. As with all other commercial facilities, the ownership of the facility will impact the recreational activities offered, the fees collected from members or users, and the quality of the interior design and architectural treatments.

The fitness craze has also resulted in an increasing number of personal fitness trainers who work for a fitness center or independently. In addition, the sale of fitness equipment, such as treadmills and stair steppers, has increased as people find space in their homes for workout equipment. This popularity impacts retail stores as sporting goods stores have grown in numbers and aesthetics.

PLANNING AND DESIGN ELEMENTS OF A FITNESS CENTER

The overall plan of a fitness center will be driven by the combination of activities included in the facility. Some facilities may be small, using a large open space in a strip shopping center as an aerobics center. These fitness centers are often inexpensive, with minimal equipment and minimal amenities.

The vast majority of fitness centers will be large complexes with such offerings as:

- Lobby, juice bar, and a small retail store.
- An exercise floor or aerobic studio that can be used for aerobics and other nonequipment activities.
- Spaces for handball or racquetball.

- A cardio area with equipment such as stationary bicycles, treadmills, and stair-step machines.

- Weight room areas with machines and free-weight equipment for strength conditioning.

- Larger clubs can also have childcare space, tennis courts, swimming pools, small indoor and/or outdoor tracks, and an outdoor coed Jacuzzi.

Traffic flow begins with check-in at a desk where members are registered and can obtain keys to lockers as needed. A small waiting area or lobby may also be included in the entry. Seating with easy-to-maintain fabrics is necessary. The size of the desk will be dictated by the overall size of the facility, number of expected users, and the mix of staff utilized by the facility. In many fitness centers, the reception staff will provide members and guests towels at check-in, so storage for clean and dirty towels may be necessary.

Many fitness centers locate a small retail area off the lobby for the sale of various items such as workout apparel, nutrition products, and other fitness items. Depending on the location of the retail displays, a cash/wrap desk will be needed.

Smaller centers will have a juice bar or a small snack bar near or adjacent to the lobby. This might be a totally self-serve food area, or it might require a staff member to serve food items and collect payments. Bottled beverages and small health food packets are primarily what will be sold. A reach-in cooler for cold beverages is needed, and perhaps a counter with seating. Larger clubs may also have a sit-down lounge area.

The next important space includes the locker rooms. Locker rooms will generally have stacked lockers or a combination of stacked and full-length lockers. Showers and toilet facilities are planned adjacent to the locker rooms. Many fitness centers include a Jacuzzi in the locker room and perhaps saunas and steam rooms as well. Counter space is needed in locker rooms for blow dryers and for general grooming needs. Don't forget to plan enough electrical outlets at the counter for hair dryers.

If towels are given at the reception desk, the user may need to return the towel to the reception desk upon leaving. Otherwise, baskets are needed for wet towels in the locker room. At an upscale fitness center or resort, extra towels are likely to be available within the locker rooms. If so, extra storage space is needed for the dry towels.

Members and users then move to the appropriate workout space they want to use. In larger facilities, signage is needed to direct members and users to the workout spaces.

The sizes of the various workout spaces are dictated by the activities they will house. For example, an allowance of 5 square feet (.46 square meters) per person is the minimum requirement for an aerobics studio (Binggeli 2012, 430). Other activities have regulation sizes—for example, the size of a racquetball court. Other spaces will need to be planned according to the sizes of the equipment used and how many pieces of equipment are charted. The sizes of the workout equipment can be obtained from the manufacturers selected by the owners. A good generic source of these sizes can be found in Binggeli (2012).

Codes and regulations also impact fitness centers. Unless it is a very small facility, the fitness center will probably be considered a mixed occupancy involving assembly and business. If a large restaurant or retail space is included, code restrictions might be imposed on those areas as well.



Figure 12-1 Reebok Fitness Center with machines and weights areas. *Interior design by Studio4. Photographer: Milroy and McAleer Photography.*

The ADA guidelines that were issued in 2010 also impact recreational facilities in that at least one piece of each type of equipment must be accessible to people with disabilities. Naturally, the facility must make other design allowances—for example, counter heights, locker rooms, restrooms, corridors and hallways, and railings—in the overall design of the facility.

Keep these factors in mind when planning interior materials and finishes:

- Floor finishes must withstand moisture.
- Carpet tiles are an excellent choice for corridors but not for locker rooms. Be sure any carpet that is used is mold resistant.
- The aerobics room floor is often finished with specialized soft flooring that can absorb dance movements.
- Use slip-resistant tile in locker rooms and other wet areas.
- Smaller tiles will be more slip resistant than larger tiles.

Day Spas

The term *spa* is associated with luxury and good health. A spa in the context here is commonly considered a health resort offering a variety of nonmedical services such as massages, hydrotherapy, health education, and various treatments. A *spa* can also

be defined as a pool that uses heated water and bubbles, such as can be found in many hotel recreational areas. Our context is the larger facility.

There are three basic types of spas: day spas, resort spas, and destination spas. Many day spas are open to the general public. *Day spas* often offer many services including massages, treatments, and perhaps other salon services affiliated with them. Spas are a common service in many resort hotels and offer numerous services for guests. *Resort spas* may limit their services to guests or they may provide spa services to the general public for a fee. There are also destination spas. A *destination spa* is a facility that focuses on guests staying at the facility for the spa services, rather than the hotel services.

PLANNING AND DESIGN ELEMENTS OF A DAY SPA

Our discussion focuses on the generic elements of a day spa. This brief discussion will take the reader from the entry of a generic spa through the various spaces common in the spa facility. Workout spaces frequently are included in hotel spas, although this varies with the needs and focus of the hotel. Of course, the layout of the spa and/or workout areas will vary based on the range of services offered within the spa, the spa ownership, and the price point of the facility.

The spa guest enters the spa through a reception area. A staff member at a reception counter greets the guest. It is not uncommon for a small waiting area to be provided in the entrance. Storage is needed behind the counter for locker keys and perhaps robes and towels. A small retail space may also be placed at or near the reception area. This retail space provides sale of merchandise such as soap, shampoo, and other products



Figure 12-2 Notice the different functional elements in this day spa lobby.
Interior design by Juliana Catlin, FASID, Catlin Design.

related to spa treatments. Other products might also be sold depending on the hotel. Provisions must be made to handle payments for spa services and any retail sales.

The space plan and traffic paths will move guests from the reception area to separate areas for men and women. From the reception area, guests will walk back to a locker room or dressing area. Locker rooms and dressing areas are gender separated, naturally. Workout rooms are commonly coed, while spa treatment areas are usually gender separated. Some hotels, however, provide areas where couples can obtain treatments together, use coed pools, and obtain coed food service.

Locker and Treatment Rooms

A locker room is provided for those patrons who want to arrive in street clothes and change into workout apparel. An allowance of 16–20 square feet (1.5–1.89 square meters) per person is common. Lockers 36″ (914 mm) high are stacked to accommodate sufficient locker space. This will be similar in a recreational facility. Lockers this size can accommodate personal items as well as street clothes if folded. Some hotels with large spa areas may provide full-length lockers so that guests' clothing does not have to be folded. Lockers require plastic laminate interiors with wood or laminate exteriors. Figure 12-9 is an example typical of many locker rooms. The locker room also includes access to showers, toilet facilities, and counters for hair dryers. Storage for clean and dirty towels is an important planning issue in the locker room and dressing area.

Many resort spas provide a relaxing area where the guest waits to be called for the treatment appointment. These areas will provide separate spaces for men and women. This privacy is provided because guests are wearing robes provided by the spa. Space may be needed for water or other refreshments such as iced tea.

Guests utilizing spa services such as massages are often asked to relax in this rest area after changing while waiting for the therapist. Guests often return to this area to relax again before changing or going to another part of the health club or spa to relax after treatment. Chaise lounges or lounging chairs are common here, although sofas and large club chairs are also appropriate. They are all upholstered in materials that can withstand moisture. Soft lighting, views to the outdoors, and walled patios help create a soothing place to relax before and after a treatment or workout.

Individualized rooms for massage and spa treatments require various kinds of equipment. Our focus here is on the massage treatment room. The massage table is the focal point in a massage treatment room. The table is usually 24″ (610 mm) wide by 72″ (1829 mm) long. The height of the table must be sufficient for the massage therapist to operate comfortably. Sufficient space surrounding the table is needed so that the therapist can access all four sides. Cabinetry or shelves are needed for storage of products and possibly for towels, wash cloths, and sheets used during the treatments.

Depending on the use of the specific treatment room, a sink cabinet might be needed. Although water is always available in the relaxation area, a water cooler could provide spring water for the guest in the treatment room. Heating units, such as heated towel bars, are used to keep towels and sheets warm for guest comfort. Aromatherapy might be used to promote relaxation.

Many resorts provide space for couples. This means that the massage treatment room will be large enough to accommodate two massage tables and other resources needed for the treatments.



Figure 12-3 Spa treatment room at Massage Experts.
Design by Design360, Inc., Halifax, NS, Canada. Photographer: Chris Dickson, Halifax Digital Imaging.

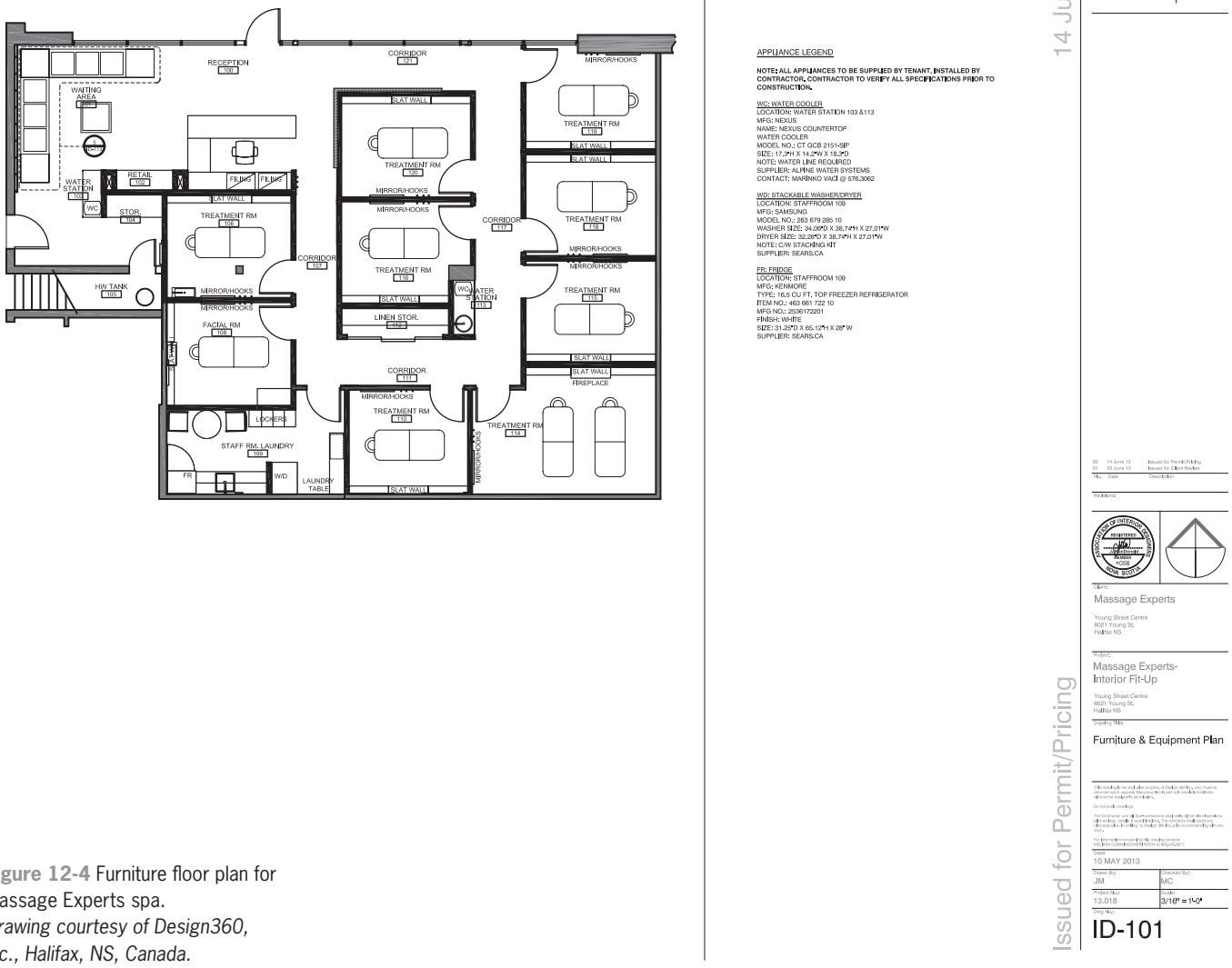
Workout/Exercise Areas

It is common for spas to include workout areas. If the workout area is located in the spa, the guest will enter the spa reception area and check in to use the workout equipment. If the workout equipment is located in a different part of the hotel, entry may be through use of a room key with no staff present.

Not all workout rooms are part of a spa space. A large resort hotel may have a second workout area for guests who do not want to use the spa facilities. Of course, many other types of hotels also have exercise areas for their guests. This workout area is commonly located close to the entrance to the swimming pool or other appropriate place. A counter is needed to store towels.

Space allowance for the workout room is obviously tied to the combination and number of exercise machines placed in the room. Space is needed for the various types of equipment plus a traffic path in front of and perhaps behind and between each item as well. Some pieces of equipment will require more space than others. The designer should check with the manufacturer of each piece of workout equipment to ensure that safe spacing is provided.

In general, architectural materials and any upholstery in a spa and workout area must be able to withstand higher humidity levels, more constant cleaning, and maintenance for health concerns. Textured vinyl upholstery material provides a more upscale appearance on chairs or lounges than smooth vinyl upholstery. Be sure you specify commercial-grade vinyl upholstery. The workout area is generally carpeted, and the walls are covered with large expanses of mirrors. Spa treatment rooms are also carpeted to enhance acoustics. Slip-resistant ceramic tile is critical for flooring, except in lounges where softer flooring materials might be allowed. Ceilings are often finished in ceramic tile or other finishes that resist high humidity.



APPLIANCE LEGEND

NOTE: ALL APPLIANCES TO BE SUPPLIED BY TENANT, INSTALLED BY CONTRACTOR, CONTRACTOR TO VERIFY ALL SPECIFICATIONS PRIOR TO CONSTRUCTION.

WC: WATER COOLER
LOCATION: WATER STATION 103 &113
MFG: NEXUS
NAME: NEXUS COUNTERTOP WATER COOLER
MODEL NO.: CT GCB 2151-SIP
SIZE: 17.2"H X 14.2"W X 18.3"D
NOTE: WATER LINE REQUIRED
SUPPLIER: ALPINE WATER SYSTEMS
CONTACT: MARINKO VACI @ 576.3062

WD: STACKABLE WASHER/DRYER
LOCATION: STAFFROOM 109
MFG: SAMSUNG
MODEL NO.: 293 679 285 10
WASHER SIZE: 34.06"D X 38.74"H X 27.01"W
DRYER SIZE: 32.28"D X 38.74"H X 27.01"W
NOTE: C/W STACKING KIT
SUPPLIER: SEARS.CA

FR: FRIDGE
LOCATION: STAFFROOM 109
MFG: KENMORE
TYPE: 16.5 CU FT, TOP FREEZER REFRIGERATOR
ITEM NO.: 463 661 722 10
MFG NO.: 2536172201
FINISH: WHITE
SIZE: 31.25"D X 65.12"H X 28" W
SUPPLIER: SEARS.CA

14 June 2013

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Halifax NS

Project:
Massage Experts-
Interior Fit-Up

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Figure 12-4 Furniture floor plan for Massage Experts spa.
Drawing courtesy of Design360, Inc., Halifax, NS, Canada.

Lighting decisions are another task of the designer. Skylights and large areas of glass facing contained garden areas supply natural light and are key points of interest in spa and health club areas. Natural light is augmented by track and ceiling lighting. Appropriate accent lighting is used to provide comfortable light levels in the most relaxing areas, such as the massage and treatment rooms. Higher light levels are needed in workout rooms. Soft lighting is a must in the spa treatment rooms. Specialized task lights might be needed in some treatment rooms.

Important building code issues will also affect the design and specification of spa and workout areas. Stringent code requirements concerning the locations of outlets, lighting fixtures, and switches are very important considerations in the design of spa and health club rooms due to the proximity to water features and moisture. Remember that a spa or health club area will also have to meet accessibility guidelines.

Codes and regulations also impact the spa facility. It may be classified as a mixed occupancy because it includes assembly, business, or institutional spaces based on the configuration of the spaces and the location as freestanding or part of another facility such as a hotel. ADA requirements for accessibility include the well-known standards for restrooms, corridor sizes, railings, and counter heights. Accommodations will also be necessary for availability to treatment rooms, the sauna, the Jacuzzi, and other facilities. Designers are responsible for researching actual local, federal, and other jurisdictional regulations concerning the interior design of a spa facility.

SALONS

Salons are common components of many spa facilities. Of course, they can also be freestanding retail businesses. The salon can provide full services by cosmetologists, hairstylists, shampooers, and manicurist/pedicurists, or it can provide limited services such as manicures and pedicures. Key elements of the design of a salon are included here:

- A separate check-in counter may be required, depending on the way the entry to the spa facility is designed. A small waiting area is also needed.
- The overall design of the salon within a spa will coordinate with the design theme and elements of the spa.
- Service stations have differing furniture and storage requirements. For example, shampoo stations will require a special sink plus shelves for products and towels; styling stations require an adjustable-height and rotating chair, storage, and mirrors; and manicure and pedicure stations require small tables, generally 35″ by 16″ (889 mm by 406 mm). Pedicure stations may include a specialized chair with a footstool.
- Chairs for cutting, styling, and washing hair will be obtained from salon specialty vendors.
- All seating must be covered in fabrics that are washable, durable, and impervious to stains. Floors should be specified with nonslip hard-surface materials that are durable and easy to clean and sanitize.
- A salon will be required to meet many health department regulations to protect customers from contamination. Sanitation and cleanliness are of major importance in the manicure/pedicure areas.
- Beauty shops (and barber shops) in general are considered business occupancies in the building code. Do not forget to allow for accessibility design standards in this type of facility.

Golf Clubhouses

Golf is one of the most popular sports in the United States and throughout the world. It is categorized as a spectator sport, with thousands attending tournaments and millions watching on television and the Internet. It is also one of the most popular amateur sports, with millions of players in America and other countries participating.

A *golf club* is a facility with a course, driving range, practice range, and a clubhouse of some kind. Specialty consultants and architects provide land-use planning of the course and property. Architects and interior designers would be involved in the design and specification of the clubhouse, pro shop, and other facilities.

The *clubhouse*—the focus of this discussion—is where club members and players can converge to relax before and after play. The clubhouse provides not only practical services such as lockers, showers, and toilet facilities but also pro shops, which sell golf equipment, and food and beverage services. Depending on the size and type of clubhouse, other services may be available.

Three types of golf club organizations primarily relate to ownership: public, private, and resort. They vary greatly in amenities and design and in other offerings such as tennis courts and swimming pools. A municipality, a group of members, a corporation, a golf organization, and/or a resort hotel may own a golf club.

The *public club* is open to the general public and is often owned by a municipality. Public courses usually have a small clubhouse with minimal amenities, although locker rooms, toilet facilities, and food service capabilities are common.

Privately owned golf clubs are open only to members and their guests. Many private golf clubs have extensive clubhouse facilities in addition to those needed to support the golf course. Casual and even formal dining facilities may be provided at a private golf club.



Figure 12-5 Clubhouse dining room with view to patio. Ritz Carlton Tucson.
Interior design by Studio4. Photographer: © 2009 James L. Christy.

A third type of golf club is the *resort club.* Many resorts are built with a focus on the golf course and other recreational amenities on the property. Guests of the hotel use the course. In many cases, the resort golf facilities may be open to the public for a fee called a *greens fee*. Resort clubs have many amenities and luxuries since the expenses of the facilities are offset by the room rental rates. The Arizona Biltmore Resort and Spa in Phoenix and Pinehurst in North Carolina are just two examples of the many premier golf resorts in the world.

PLANNING AND DESIGN ELEMENTS OF GOLF CLUBHOUSES

The clubhouse is a very popular place for members, and perhaps the public, to gather with friends, colleagues, and family. Clubhouses are designed to function for the golfer and other guests. The floor plan can vary, depending on the type of ownership as well as the variety of services offered. Clubhouses can be very simple in design and function or luxurious, with elaborate facilities supporting many functions. Clubhouses have dining facilities, a bar area, a pro shop, and perhaps other facilities such as tennis courts, weight rooms, pools, and spas.

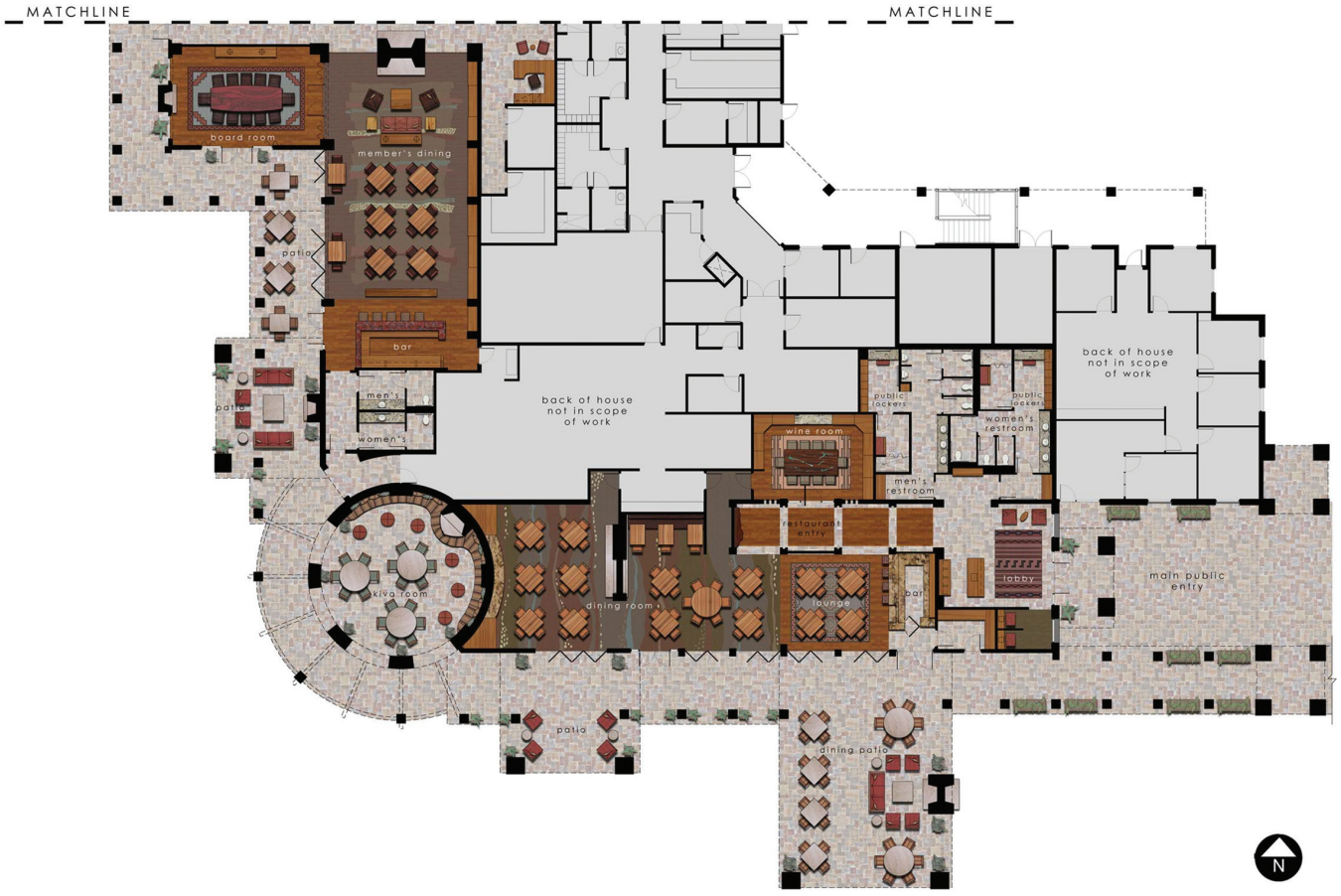


Figure 12-6 Floor plan of the golf clubhouse at the Ritz Carlton at Dove Mountain in Tucson, AZ.
Drawing courtesy of Studio4.

The primary purpose of the clubhouse is to provide a place to arrive and meet in order to use the golf club or other facilities. The clubhouse is sited close to the first tee and the 9th and 18th greens. This is because golfers will start from a tee near the clubhouse and finish from a green near the clubhouse. Other facilities will be planned around the main clubhouse.

Clubs and clubhouses can provide a wide variety of functions. This section will focus on the most important private and public areas of a generic clubhouse. The lobby and lounge, a generic restaurant, locker rooms, and the pro shop are the common spaces. Be aware that the actual space plan of the clubhouse will vary with the focus of the facility.

Space Plan

The main entrance leads into a large lobby. A small amount of seating might be provided in the entrance lobby. A reception counter is often included in the lobby to check in members and guests. Users can then move to the lounge or other areas of the clubhouse.

A secondary entrance may lead directly to the restaurant lobby. Signage is often required to direct visitors from the entrance lobby into the various parts of the clubhouse. Corridors will move people to the functional areas of the locker room, pro shop, and other spaces, such as a spa, that might be included. The administrative offices might be located off the main entrance, where they are available to the members but also discreetly placed for privacy.

The lounge generally has conversation groupings including sofas, chairs, end tables, lamps, and coffee tables. Fireplaces are often situated in this space, and at least one of the groupings should focus on the fireplace. As clubhouse design emphasizes a residential appearance, interior designers need to present a plan that reinforces this concept.

The dining room in a large clubhouse would be located off the main entrance, although it is also often sited to the rear of the building with a view of the golf course. The dining room is often a formal space due to dinner service. Smaller, more casual eating areas such as a sandwich grill with outside service near the pro shop are common.

The bar is one of the more popular areas of the clubhouse and an important source of revenue for a golf facility (Figure 12-7). It can be placed adjacent to the dining room, and if so it should follow the design elements used in the dining room. Otherwise, the bar is more casual in design and specification. Furniture in the bar is usually similar to bars as discussed in Chapter 8. Smaller bars are often located on the patios near the pro shop and locker rooms.

Locker rooms are generally close to the exterior door leading to the first tee but also accessible from the main clubhouse. They are planned for both interaction and privacy. For the golfer, the locker room is one of the most important facilities provided by the club. Today's members want larger locker rooms with more amenities. The plan should include accessible toilet facilities as well as other toilet facilities.



Figure 12-7 Bar area in a golf clubhouse.
Interior design by Studio4. Photographer: © James Christy.



Figure 12-8 Golf club pro shop at the Ritz Carlton Desert Mountain, Tucson, AZ, sells clothing and sports equipment.
Interior design by Studio4, Photographer: © 2009 James L. Christy.

The pro shop is usually located near the locker rooms and close to the first tee. The bag and cart storage areas are adjacent to the pro shop and locker rooms for easy access before and after the golf game. A bag drop area is necessary at the entrance to the pro shop. Pro shops function as retail facilities, selling golf equipment, supplies, clothing, and memorabilia (Figure 12-8). An entrance from the parking lot is beneficial both for members and for nonmembers who do not need to enter the clubhouse. Access to the locker rooms from the pro shop is also common in clubhouse planning.

Besides controlling players' access to the course, the pro shop is a retail store. It must be planned using the same techniques and concepts used for any retail store. A cash/wrap counter and merchandise displays are planned to encourage shopping by players and nonplayers alike. At many golf course facilities, logoware is very popular, and the display of clothing and other items with the club's logo is an important planning issue.

Lobby, Lounge, and Dining Room Design Elements

Lobby and lounge furniture specification and placement should create comfortable and inviting spaces for the members and guests. A comfortable, residential atmosphere on a larger scale is a common design concept. Styles of furniture and color schemes can be anything desired by the club members and owners and might be contemporary in style or very traditional. Conversational groupings are ideal for comfortable interaction. The design will use sofas, club chairs, and other furniture items in a style consistent with the overall concept of the club. Textile specification for seating units should include comfort and durability. Because drinks are often served in the social areas, the fabrics must be easy to clean. Some clubs include four-top tables with small chairs on casters for card playing. Refer to Chapter 7 for other planning and design elements of a public lobby.

The dining room must accommodate a variety of group sizes, from single diners to large groups. Keep in mind that the design of the dining room can be casual or formal, depending on the wishes of the ownership and members. Refer to the discussion in Chapter 8 on food and beverage facilities for information on space planning, furniture planning, and specification in the dining room as well as the bar. Figure 12-5 shows a clubhouse dining room.

Codes are an important issue in a golf clubhouse facility. A clubhouse is a mixed-use occupancy. In planning and specifying the interior, the designer will have to be very careful to meet multiple-occupancy regulations. When spaces with different occupancy classifications cannot be separated, the other spaces must meet the most stringent code requirements. In the generic golf clubhouse described here, there could well be spaces designated as assembly occupancies—dining areas, the bar, locker rooms, fitness rooms, and community rooms; business occupancies are spaces such as club offices and perhaps a beauty shop or barber shop; and the pro shop is a mercantile occupancy. All these occupancies in one place emphasize the care needed in specifying products and materials, as well as in planning the space.

Locker Room and Pro Shop Design Elements

The furniture for the locker rooms for a golf club will have many similar features to the fitness center and day spa discussed earlier in this chapter. In private clubs and resort clubs, the lockers will be of wood, although wood laminates are also feasible. They may be full length or tiered. Benches in front of the lockers are needed in both locker rooms and for makeup counters in the women's locker room. A lounge in the locker room is quite common in private clubs. A small lounge attached to the men's and women's locker rooms provides a place for members to relax while in casual clothes that might not be allowed in the main lounge. Chairs, often on casters, should have fabrics that are easily cleanable, durable, and antimicrobial, due to the moisture in the locker room.

The pro shop requires counters and cabinets for merchandise display and storage. Specialized display racks are needed to display golf clubs, bags, and other sporting equipment that might be sold in the pro shop. A cash/wrap counter that is large enough to accommodate both the register for sales of goods and space for booking and checking in for tee times or court times is also needed. Good visual control of the shop and entrances (there is likely to be one from the main building



Figure 12-9 Floor plan for locker room areas at Ritz Carlton Desert Mountain resort, Tucson, AZ. *Plans courtesy of Studio4 Design.*

and outside) is needed to prevent shoplifting. Chapter 9 on retail design should be reviewed if the designer is contracted to design the pro shop, since the concepts are very similar.

An important distinction related to finishes for a golf clubhouse is flooring. Although carpet is a very popular choice for most areas, the designer must understand where club policy will allow the wearing of golf shoes in the building. Cleats on shoes will be very hard on any flooring. Shoes with cleats will be common in the pro shop and may also be allowed in the bar and some corridors. In these areas, it is important to specify a high-density, low-cut pile carpet because an uncut pile would cause pulling from cleats. A 60-ounce-per-square-yard pile density for traditional spikes on golf shoes and a 42-ounce-per-square-yard pile density for soft spikes on golf shoes are standard ("Effective Clubhouse Design" 2001, 20).

Many of the finishes and architectural materials in a clubhouse will be those suitable for the hospitality industry. Other finishes must consider the function of the space and traffic in the area. Keep in mind moisture in the locker rooms will influence all finishes.

Mechanical systems also pose challenges to the interior designer. Because a clubhouse can be a noisy building, the specification of materials should consider acoustical control as much as possible. Draperies in the lobby and dining room are useful to increase sound absorption. Noise from the locker room and activity rooms should be contained as much as possible so that the lounge and dining rooms maintain a lower level of controlled ambient noise for conversations.



Figure 12-10 Locker room. Ritz Carlton Dove Mountain. *Interior design by Studio4. Photographer: © 2009 James L. Christy.*

All these different uses of space have various lighting needs, ranging from comfortable residential quality in the lounge to nonglare functional lighting in the locker rooms and pro shop. The reader should refer to Chapter 7, Chapter 8, and Chapter 9 for discussions of lighting design issues related to hospitality, food service, and retail spaces similar to those found in the clubhouse.

Auditoriums

Auditoriums can be thought of as another type of a place for recreation. They are included because they are a type of commercial facility in which a large number of people congregate as a place of assembly (a building code designation). This is an important type of use that has not really been discussed in other chapters. Many of the other facilities can include an auditorium space—for example, in a large corporate office building, hotel, hospital, or other commercial facility.

An *auditorium* can be defined as space used to present various kinds of educational programs, performances, meetings, or movies. Other terms for auditorium that are common are lecture hall, concert hall, cinema, and playhouse. Akin to an auditorium is the theater. A *theater* is defined as a building where live performances, such as plays and operas, are presented. Of course, today we also think of our local cinema as a theater. For simplicity, we will use the term "auditorium" in this section. If a discussion is specific to a theater, then that term will be used.

The previous edition of this book highlighted design-application concepts for theaters with an emphasis on facilities where live performances such as plays are presented. In this edition, this discussion will be more generic with less emphasis on performance theaters.



Figure 12-11 Presentation theater at the Mid-Continent Regional Center for Healthcare Simulation. *Photo courtesy of CAMA, Incorporated.*

Understanding the special needs of the facility is as always a major key to any design decisions that will be made. Of course, some auditoriums have multiple uses. An auditorium can be designed to allow for the presentation of a play, musical performance, a movie, a speech, or a lecture. Multiple-use facilities challenge designers to meet the requirements for each type of production. An interesting example of an auditorium is provided in Figure 12-11. Notice that this auditorium was designed to use the American seating plan.

Designers must also consider the many technical issues involved in staging a performance or other activity in the facility, as is shown in Figure 12-12. For example, podiums are needed so the speaker can plug in a laptop computer, control lights, and adjust other electronics. Sound systems, lighting, and projection systems are critical elements for a performance that will be specified in consultation with various specialists and the design team. Comfort and amenities can also be an issue, as evidenced by the changes in the design of movie theaters serving refreshments in the actual auditorium.

Regardless of the use of the facility, there are some terms that should become familiar to the designer:

- *Backstage*: The production and storage spaces in an auditorium or theater. The stage is the major component of the backstage area.
- *Balcony*: A projecting area of seating in the upper areas of the theater.
- *Greenroom*: A room where performers relax. Most associated with a performance theater.

- *House*: The part of the auditorium or theater occupied by the audience.
- *Mezzanine*: The lowest balcony in a theater.
- *Proscenium*: The part of a stage in front of the curtain.
- *Stage*: The part of the facility where the performance takes place.
- *Staging or staged*: Terms that mean putting on the performance.
- *Wings*: One of the sides of the stage behind the proscenium and open stage out of sight of the audience.

Ownership will vary with the type of facility. Government agencies, corporations, individuals, or groups might own these facilities. These ownership differences will impact who the decision makers are and how decisions will be made. The client often consists of several different groups. One client is the organization or individual who initiates the project—for example, the theater department in a university. A second client is the person or organization that authorizes spending for the project—in this example, the university administration and governing body. Depending on the actual use, technical staff will also be other potential stakeholders.

PLANNING AND DESIGN ELEMENTS OF AUDITORIUMS

Each auditorium design project has different issues and concerns specific to its primary use. Auditorium design requires detailed programming, which includes a variety of professionals on the design team as well as various stakeholders. Many of the overall planning and design concepts are similar. The discussion of planning and design elements for this type of facility will be limited to issues that the interior designer must consider in general rather than the design of auditoriums in whole. The interior designer is an important member of the team. His or her materials specification directly affects the safety, comfort, ambience, aesthetics, and general environment of the facility.

Space Planning

The traffic flow for an auditorium type facility follows these basic concepts. Patrons generally enter the lobby from outdoors. However, entry can also be from the building itself. This lobby is used as an introduction to the main floor or house. Doors will separate the lobby from the main floor. The occupant load of the main floor will impact the number of exit doors. If it is a commercial auditorium for the showing of movies or performances, space is needed to accommodate the sale of refreshments.

To provide easy movement throughout the public spaces, good signage is required. Ushers often assist patrons in locating their seats when they enter the auditorium for a performance auditorium; self-seating is common in most other facilities. Necessary signs indicate restrooms, refreshment areas, and ticket booths.

Other functions in the lobby that might need to be accommodated, depending on the type of auditorium, include:

- A coatroom.
- Seating for those waiting to enter the auditorium itself.
- Ticket windows for the purchase of tickets.

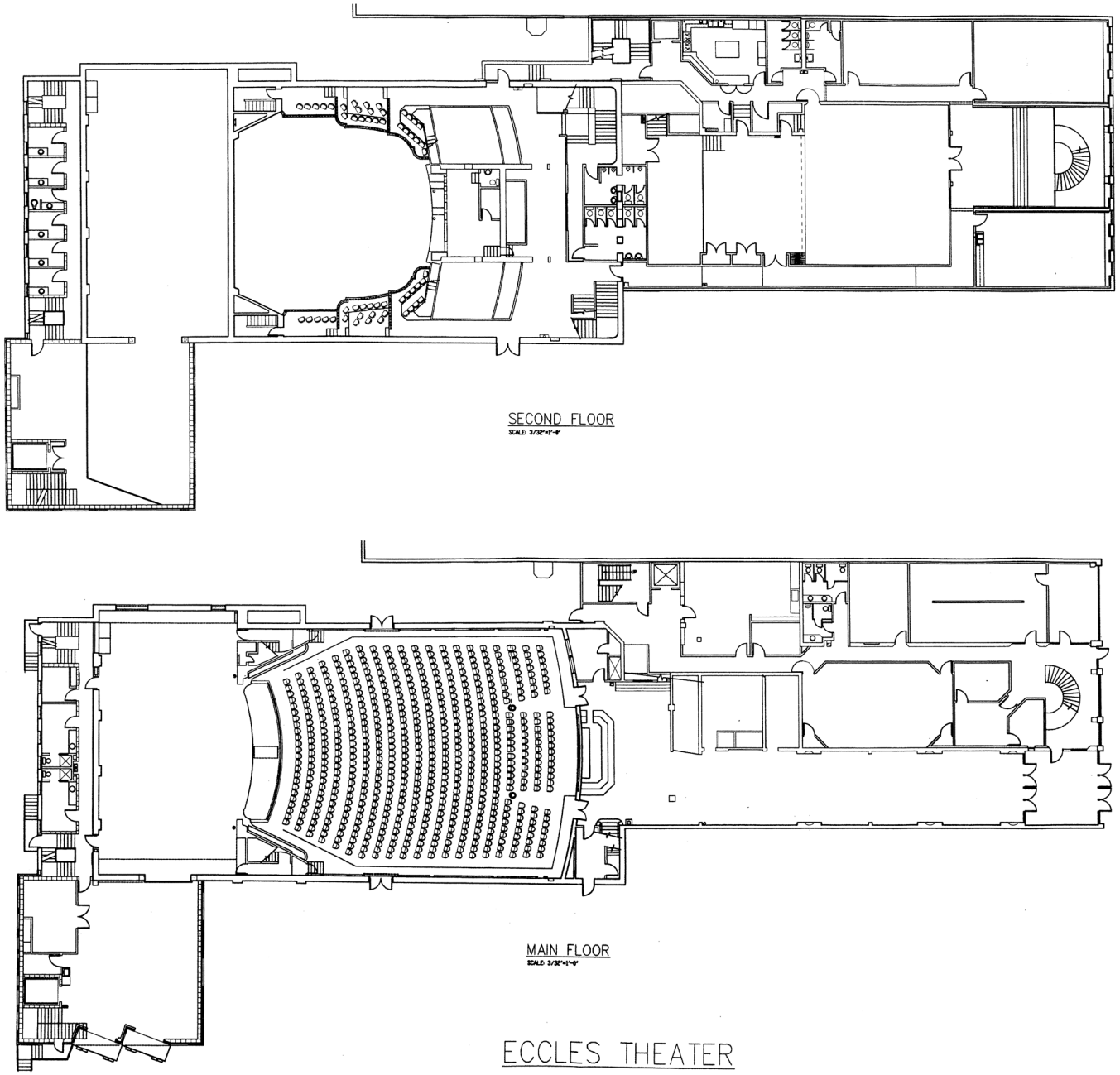


Figure 12-12 Proscenium-style theater depicting the main-floor auditorium and the box seat area on the upper level. *Plan courtesy of Jensen Haslem Architects, PC. Project architect and designer: Lanny Herron.*

- Retail kiosk to sell programs, T-shirts, or other items.
- Restrooms are also provided off the lobby. These restrooms must meet accessibility guidelines and code requirements. Chapter 2 provides basic guidelines for public restroom design elements.

The seating area of an auditorium is often called the house. The floor plan of the house itself consists of three basic sections: the auditorium seating area, the stage, and behind-the-scenes spaces called back stage. All auditoriums will essentially have these three sections, although not all will be distinct or be used in the same ways.

The type of facility affects the placement of audience seating in the auditorium. Main floor seating may be designed following two different conventions: the American seating plan or the Continental seating plan. The *American seating plan* provides aisles along the walls and intermediary aisles providing easier access to central seats. You can see this plan in Figure 12-11. In the American seating plan, rows can be closer together, as intervening aisles are provided for a quick exit. Spacing between rows in the American seating plan is tighter (32–33″ [813–838 mm]) because there are more aisles for exiting (McGowan and Kruse 2004, 364).

When the main floor seating is planned with aisles only along the walls, the plan is called the Continental seating plan. The *Continental seating plan* requires more spacing between rows because there are no intervening aisles, only those on each side. Minimum measurements for this type of seating are 38–42″ (965–1067 mm). Ideal spacing for maximum comfort when seated is 36″ (914 mm) between the seat and the back of the seating in front (McGowan and Kruse 2004, 364). The concept of this planning element is visible in Figure 12-12.

Many performance auditoriums have balcony and/or box seating. Other types of large auditoriums also have balconies. Railings will be required along the front edge of a balcony or box seating section and must meet a specific height requirement for safety. Railings will also be required along the sides of the seating area when the seating is stepped up, as is common in many movie theaters and other types of auditoriums.

The stage is the second part of the house. Of course, the stage is where the performance occurs. It includes space for the movie screen and is where the lecturer/presenter will stand for live presentations. In an auditorium used for performances, the stage is quite large. The stage is raised above the house seating so patrons in the rear can see what is happening on stage.

There are two basic types of stage areas that relate to the overall floor plan. The *proscenium stage floor plan* is the most common. It is designed to be viewed only from the front. The proscenium floor plan has a heavy curtain or wall that frames the stage and is referred to as the proscenium arch. Performance auditoriums are typical of the proscenium plan. The *open stage floor plan* can project a portion of the stage into the audience so that the audience sits very near and sometimes slightly surrounding the stage.

Backstage is the third primary element of an auditorium or theater. Depending on the type of auditorium, several backstage areas can be incorporated in the overall plan. The most complex backstage area will be included in a performance theater. Other types of auditoriums may need to accommodate some of the items listed here or are minimally planned. The common backstage areas include:

- Dressing rooms
- A green room for use by performers in a performance auditorium
- Storage areas for costumes and props
- Maintenance storage
- Loading docks
- Storage for podiums and electronics
- Auditorium staff offices

Materials and Furniture

Architectural materials used in a lobby and the house will vary based on the use of the auditorium and ownership of the facility. Performance theaters can have very elaborate interior treatments, while lecture halls, movie theaters, and corporate auditoriums are usually very contemporary and simple in design.

If an auditorium is entered directly from outdoors, the lobby flooring needs to be nonslip hard-surface flooring with floor mats. Due to traffic, lobby flooring is usually hard surface, but can also be carpeting. When carpeting is specified for these high-traffic lobby areas, a high-quality commercial-grade carpet should be used. Designers often specify patterned carpet in the lobby because it shows less soiling and hides traffic patterns. Smaller patterns are needed on stairways to avoid visual confusion. Flooring for the house is often specified as high-density, low-pile, tufted carpeting, chosen for noise control and ease in walking. If hard-surface flooring is used, carpeting is still used for the aisles to reduce traffic noise.

Various materials can be used for the walls. They must be durable and easy to clean to withstand the abuse of crowds. Heavy-duty commercial-grade wall treatments can be specified for the lobby and house. The lobby walls can also be specified with stone, wood paneling, or simply painted. The codes will restrict what can be used on the floors and walls. This is discussed below in the "Codes" subsection.

House seating is naturally a key component of the interior. Seating is generally fixed to the floor. Comfort, leg space, code compliance, aesthetics, and the passage of other patrons are factors in determining chair sizes. Seating is usually fully upholstered in the back and seat. Some clients prefer using a hard plastic for the back of the back and bottom of the seat for ease of maintenance. Lecture hall seating is often made of wood and not upholstered. Fabrics selected for the seats need to be very durable, with ease of maintenance part of the specification. Fire-retardant textiles are required in most situations. Commercial-grade tightly woven wools and nylons are commonly specified.

Mechanical Systems

Lighting solutions may be designed or selected by the architect, interior designer, lighting designer, and/or theater lighting specialist. Typical lighting solutions for the lobby area include wall sconces, chandeliers, strip lighting along soffits, or other subdued indirect lighting, which enhances the space. Wall sconces, spotlights, and possibly

chandeliers are common in the house area. Lighting products used in the house must be conducive to dimming, as well as bright light for the different functions within the house.

Acoustics are a major concern for the architect. The designer should be aware of the issues of materials specification and how these can affect the noise and listening level within the theater. The architect should plan the auditorium space so that no noise enters from the lobby once the doors are closed. Acoustical wall panels with high sound absorption can be beneficial in a lecture hall, as well as any auditorium interior.

Codes

These facilities will be classified as group A-1 or group A-3 by the International Building Code (IBC). The Life Safety Code and NFPA regulations also designate these various places of assembly as A types. There are other A designations in the IBC for other types of assembly occupancies. The interior designer must take care to evaluate which codes actually impact the facility and might be in effect in the jurisdiction of the facility.

One distinction is whether the seating in the facility is fixed or movable. If fixed seats are used, as is common in movie and performance theaters, the actual seats themselves are part of the calculation for occupant load. This impacts the sizes and locations of aisles throughout the facility. When seats are movable, as might be the case in a small religious facility, exiting requirements will be different.

Auditoriums and these various types of places of assembly are also required to meet ADA accessibility. These guidelines will govern the number and location of seats that must be accessible, which are primarily impacted in auditoriums with fixed seating. The overall number of seats in the auditorium determines the number of spaces that must be accessible. These include a minimum number of spaces or seats for wheelchair accommodation. The space designated for a wheelchair is 33″ by 48″ (838 mm by 1219 mm) for a straight-in approach and 33″ by 60″ (838 mm by 1524 mm) for a side approach (Binggeli 2012, 412). Other key specification considerations include what kind of floor finishes can be used and the placement of listening devices. Accessibility information can be found on the Internet in the ADA Accessibility Guidelines.

All the materials used on the floors and wall surfaces, as well as any textiles on seating, will be impacted by the codes. For example, the materials for exiting areas must be classified as A, I, or II; spaces other than exit access corridors must be A or B for large auditoriums (Harmon and Kennon 2011, 402). The reader is directed to Harmon and Kennon (2011) as a starting point for details on code requirements.

Summary

Designing recreational facilities can be a very exciting and challenging part of commercial interior design. The design of these interiors requires specialized knowledge, and interior designers must gain experience by working as assistants until they become knowledgeable about a specific type of facility. It is common to need to work with outside consultants for the design of many types of recreational facilities. Of course, a common team member is the architect unless the project is a relatively uncomplicated refreshing of the interior.

The business issues of these types of facilities are very important, as the business customer is not so much "buying something" as "using something" in these places. Thus, the facility must provide the opportunity for the buyer to appropriately use the spaces within and be an aesthetic facility as well.

This chapter has presented key elements to help the reader develop an understanding of only a few recreational facilities—a fitness center and day spa, a golf clubhouse, auditoriums, and theaters. There are, of course, many other kinds of facilities devoted to recreational use. Unfortunately, space does not allow the opportunity to discuss others. The reader is encouraged to review some of the sources listed below and to seek other references.

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INTERNET RESOURCES

ADA Accessibility Guidelines (ADAAG): www.access-board.gov/guidelines-and-standards

Americans with Disabilities Act (ADA): www.ada.gov

Canada Green Building Council (CAGBC): www.cagbc.org

Club Management Association of America: www.cmaa.og

International Code Council (ICC): www.iccsafe.org

International Spa Association: www.experienceispa.com

Lincoln Center for the Performing Arts: www.lincolncenter.org

National Fire Protection Association (NFPA) and Life Safety Code: www.nfpa.org

National Golf Foundation: www.ngf.org

National Park Service: www.nps.gov

Professional Golf Association (PGA): www.pga.com

U.S. Golf Association (USG): www.usga.org

U.S. Green Building Council USGBC: www.usgbc.org

Appendix

Trade Associations

The *Encyclopedia of Associations,* published annually and available at the reference desk of most libraries, can also be searched for international associations. Website addresses are accurate as of this printing. Other associations pertinent to particular types of commercial spaces are listed at the end of each chapter.

American Academy of Health Care Interior Designers (AAHID): http://aahid.org

American Dental Association: www.ada.org

American Furniture Manufacturers Association: www.afma4u.org

American Hospital Association: www.aha.org

American Hotel & Lodging Association: www.ahla.com

American Institute of Architects (AIA): www.aia.org

American Lighting Association: www.americanlightingassoc.com

American National Standards Institute (ANSI): www.ansi.org

American Society for Testing and Materials (ASTM): www.astm.org

American Society of Interior Designers (ASID): www.asid.org

Architectural Woodwork Institute: www.awinet.org

Association of Interior Designers of Nova Scotia (IDNS): www.idns.ca

Association Professionnelle des designers d'intérieur du Québec: www.apdiq.com

Association for Project Managers: www.constructioneducation.com

Association for Women in Architecture: www.awaplusd.org

Association of Registered Interior Designers of New Brunswick (ARIDNB): www.aridnb.ca

Association of Registered Interior Designers of Ontario (ARIDO): www.arido.ca

British Contract Furnishing Association: www.thebcfa.com

British Institute of Interior Design: www.biid.org.uk

Building Owners and Managers Association (BOMA): www.boma.org

Business and Institutional Furniture Manufacturers Association (BIFMA): www.bifma.org

Canada Green Building Council (CaGBC): www.cagbc.org

Center for Health Design, Inc.: www.healthdesign.org

Color Marketing Group: www.colormarketing.org

Construction Management Association of America: www.cmaanet.org

Construction Specifications Institute (CSI): www.csinet.org

Council for Interior Design Accreditation: www.accredit-id.org

Directory of Associations: www.directoryofassociations.com

Illuminating Engineering Society of North America: www.ies.org

Interior Design Educators Council (IDEC): www.idec.org

Interior Designers Association of Saskatchewan (IDAS): www.idas.ca

Interior Designers Institute of British Columbia (IDIBC): www.idibc.org

Interior Designers of Alberta: www.idalberta.ca

Interior Designers of Canada (IDC): www.interiordesigncanada.org

Interior Designers Society (IDS): www.interiordesignsociety.org

International Association of Lighting Designers: www.iald.org

International Code Council (ICC): www.iccsafe.org

International Facility Management Association (IFMA): www.ifma.org

International Furnishings and Design Association (IFDA): www.ifda.com

International Interior Design Association (IIDA): www.iida.org

National Association of Store Fixture Manufacturers: www.arcat.com

National Council for Interior Design Qualification (NCIDQ): www.ncidq.org

National Council on Qualification for Lighting Professionals (NCQLP): www.ncqlp.org

National Fire Protection Agency (NFPA): www.nfpa.org

National Restaurant Association: www.restaurant.org

National Trust for Historic Preservation: www.nationaltrust.org

Organization of Black Designers (OBD): www.obd.org

Professional Interior Designers Institute of Manitoba (PIDIM): www.pidim.ca

Retail Design Institute: www.retaildesigninstitute.org

U.S.A. government information and portal to all government websites: www.usa.gov

U.S. Environmental Protection Agency (EPA): www.epa.gov

U.S. Green Building Council (USGBC): www.usgbc.org

Periodicals

The following periodicals may be of interest to for further research. Readers may also want to search Ulrich's *International Periodicals Directory,* published annually, which can generally be found at the reference desk of public and university libraries. An online version of that directory is available for a fee. An online search using a search engine may help identify additional magazines of interest. The professional associations also have print magazines or newsletters that may be available to the general public. Contact the association for availability.

Architectural Record: www.architecturalrecord.com

Building Design & Construction: www.bdcmag.com

Canadian Interiors: www.canadianinteriors.com

Contract: www.contractmagazine.com

Design-Build: www.dbia.org

EcoBuilding Plus: www.eco-structure.com

Environments for Aging: www.ltllmagazine.com

Food & Drink International: www.fooddrink-magazine.com

Healthcare Design: www.healthcaredesignmagazine.com

Hospitality Design: www.hdmag.com

Hotel Business: www.hotelbusiness.com

InformeDesign: www.informedesign.org

Interior Design: www.interiordesign.net

Interiors & Sources: www.isdesignet.com

Journal of the American Dental Association: www.ada.org

Journal of the American Medical Association: www.ama-assn.org

Journal of Interior Design: www.idec.org

Lodging: www.lodgingmagazine.com

Restaurant Hospitality: www.restaurant-hospitality.com

VM+SD: www.visualstore.com

Glossary

Accent lighting: Lighting used to call attention to specific areas or elements of a space.

Access floors: A raised floor added over a floor slab. The space houses electrical, telephone, and data cables and HVAC ducts. Also called raised floors.

Accessory occupancy: A small space in a mixed-use occupancy that has a secondary use.

Active adult community: A totally planned senior community where people live in homes, duplexes, or apartments.

Acute-care patient: A patient requiring immediate or ongoing medical attention.

Adaptive use: The process of redesigning and converting a building to a use other than that for which it was originally designed.

Adult daycare: A daily program in a freestanding or attached facility that provides social and medical support to the client during daytime hours.

Aging in place: The opportunity for seniors to remain in their homes as long as possible rather than move to a nursing facility.

Aisle: An unenclosed path of travel that occupies space between furniture items and/or pieces of equipment.

All-suite hotel: This lodging facility provides only suite spaces, not individual guest rooms. The suite often has an eating area that can include a kitchenette to a full kitchen. Also called an extended-stay lodging facility.

Alternative officing: Strategies that provide office space other than permanently assigned traditional offices.

Alzheimer's disease: One of the most commonly diagnosed forms of dementia.

Ambient lighting: Provides a uniform level of illumination sufficient so that individuals in the space can safely move about the area. Also referred to as general lighting.

Ambulatory care: Usually indicates that the patient does not require admittance to a hospital for treatment.

Amenities: Services or items that are provided to make the guest's stay at a lodging facility more convenient or pleasant.

American seating plan: An arrangement of rows of seats in an assembly space, such as a theater, with a central aisle and perimeter aisles. Also called conventional seating plan.

Amperage: The amount of electrical current required to operate any kind of electrical device.

Amphitheater: Generally considered to be an outdoor theater.

Anchor store: A large, well-known chain store that attracts many customers to a shopping center. It is a focal feature of the shopping center. Sometimes called a magnet store.

Ancillary departments: Functional departments in a hospital that support the medical services and units. Ancillary departments can also be found in other types of commercial facilities.

Ancillary space: A support space in an office facility. Common ancillary or support spaces include conference rooms, storage areas, file rooms and mailrooms, employee cafeterias, and copy centers.

Angled front: Storefront design that gives the consumer a better viewing angle of the merchandise.

Applied research: Information gathering and decision-making that relates to real-life problems.

Arcade front: Storefront design that has several recessed windows.

Archives: Documents, photos, drawings, or any other kinds of public or private papers or materials that are preserved for their historical value.

Armored or BX cable: Two or more insulated wires and a ground wire all covered by a flexible, wound metal wrapping. Sometimes called flexible cable.

As-built: These drawings show the project as it was actually built rather than what was in the construction drawings.

Asepsis: The exclusion of bacteria and other organisms to prevent infection.

As is: Space is rented by the tenant without any changes to the interior.

Assisted-living facility (ALF): Semi-independent living facility for those who require minimal nursing or other care. Also called personal-care homes.

Atmospherics: A conscious effort by the retailer to create a buying environment to produce specific emotional effects on buyers.

Attending physician: The physician in a hospital responsible for the diagnosis and treatment of the patient.

Auditorium: The part of a theater where the patrons sit to watch a performance. It can also be a part of a building, such as a school, used for performances, meetings, or educational programs.

Baby boomer generation: Those born between 1946 and 1964.

Back bar: The display area for the different liquors and glasses, as well as storage space for beer, extra liquor, and other items needed at the bar.

Back of house: Those areas in a commercial facility such as a hotel or restaurant where employees have minimal contact with the customer or public. The term "back of house" can also apply to other types of commercial facilities.

Backstage: The production and storage spaces in a theater.

Balcony: A projecting area of seating in the upper parts of the theater.

Banquette: An upholstered bench along the wall commonly fronted by a table.

Bar: (a) The cabinet and display areas where drinks are mixed and poured by a bartender. (b) A small beverage facility providing a small amount of seating and little food service.

Bar chart: A type of schedule that shows a list of activities in one column and uses horizontal bars to indicate the expected length of time it will take to complete each activity. Sometimes called a Gantt chart.

Base building: The shell of the building including the building's core, such as elevators and restrooms.

Base feed: A trough that runs along the base of divider panels and contains separate channels for electrical conduit and telecommunications cables.

Bearing walls: Walls that support the loads of floors and/or ceilings above.

Bed and breakfast inn: A lodging facility that provides sleeping and breakfast service.

Belt-line electrical service: System furniture setup with the outlets and electrical channels located 24 or 30 inches above the base of the panel.

Benchmarking: A process of studying performance statistics of one firm against another that is considered an industry leader.

Best practice: Ways of organizing and conducting business based on the successful models of top firms.

Beverage facility: A business either as a section of a restaurant or as a freestanding facility that serves primarily alcoholic beverages for on-site consumption.

Board of directors: Individuals elected by shareholders to run a company. The board is legally responsible for such things as selecting the president and other chief officers, delegating operational power, and setting policy on matters concerning stocks, financing, and executive pay levels.

Boat-shaped table: This table looks like the plan view of a boat with its ends flattened.

Boutique hotel: A hotel designed using trendy, high-fashion appointments in its design and amenities. Many are smaller than nonboutique hotels.

Boutique system: A store planning system that divides the sales floor into individual, semiseparate areas, each possibly built around a shopping theme that focuses on the individuality of the product.

Brew pub: This type of beverage facility focuses on craft beer sales and some food items.

Brownfields: Industrial or commercial buildings/sites that have been abandoned or underutilized due to some sort of environmental contamination.

Build to suit: An arrangement whereby the landlord will build the interior of the commercial space to suit the needs of the tenant.

Building codes: These relate to construction standards in the building of any type of structure.

Building information modeling (BIM): Graphic and nongrahic documents to model solutions for a project.

Building inspector: Building official who periodically visits the project site during construction to inspect the work.

Building permit: Document issued based on working drawings and written specifications provided by the architect or owner of the property.

Building permitting privileges: A jurisdiction grants design professionals the authority to submit their sealed or stamped construction drawings to the jurisdictional building code official to obtain a building permit to proceed with actual construction.

Building standards: Predetermined architectural finishes and other details the tenant can use with no extra charge.

Build-out allowance: A dollar amount per square foot provided by the landlord to the tenant to pay the cost of building partitions, providing basic mechanical features, and adding architectural finishes for leased commercial space.

Built-environment industry: Those professions that are involved in the development, design, construction, and finishing of any type of building.

Bull pen: A large number of employees doing essentially the same kind of work in a large, open area divided by low systems panels or a large group of desks.

Business of the business: The business goals and purposes of a commercial client before or during execution of the design.

Capital assets: An accounting term generally meaning property, buildings, and equipment that a firm requires to conduct its business.

Capital equipment: Fixed assets items that are attached to the building or movable items that have a high cost and are otherwise necessary to provide services to a customer.

Capital improvement: Permanent changes to the building's interior that cannot be removed without damaging the structure, such as wood floors. They increase the value of the space.

Carpal tunnel syndrome: A musculoskeletal disorder that usually affects the arms, wrists, and fingers. It is associated with repetitive tasks like computer keyboarding.

Case goods: Furniture items made of "cases" like desks, credenzas, bookcases, file cabinets, and so on.

Case lighting: Lighting within display cabinets in a retail store.

Case study: A type of research report that looks in depth at the event or project to understand how the project worked or did not work.

Casino hotel: A lodging facility that has an area for gambling. The design may be at any price point.

Central processing unit (CPU): The hardware or "brain" of a computer, where computations and data manipulation take place.

Certificate of need: A document that regulates the construction of new healthcare facilities.

Chain: Multiple locations of one restaurant or lodging facility type. A term also applied to stores and other kinds of commercial facilities.

Chain of command: The formal reporting structure of employees from one level to another.

Charge nurse: Another name for the head nurse in a department of the hospital.

Chief executive officer (CEO): The highest-ranking individual in a business. Sometimes called the president or principal.

Chief financial officer (CFO): Highest ranking individual in the company with responsibility for the financial operations of the company.

Client representative: Often a third-party individual hired by the client to represent the client in meetings and potentially many decisions during the project.

Closed office plan: A floor plan in which the office is planned around the private office with full-height walls for use by one individual. Also called a conventional office plan.

Club floor: A floor or area of a hotel that has restricted access to the guests on that floor or area. It usually has a small lounge where special amenities or extra services are provided.

Clubhouse: Where club members and players can converge to relax before and after play at a golf club or other large sports facilities.

Coaxial: A data cable with a central core conductor surrounded by insulation material covered by a metal sheath that acts as a second insulator. This cable is finished with an outer coating.

Code official: Individual in the building department who interprets and enforces building codes in a jurisdiction.

Codes: Regulations and other statutory requirements adopted by a governmental agency concerning (in this case) the design, construction, and finishing of a structure.

Coffee shops: Small food service facilities that primarily sell coffee products and light food items.

Collaborative work groups: Groups or teams of employees working on a project.

Commercial hotel: A facility that caters to the business traveler and is located in urban centers or near central business districts.

Commercial interior: The interior of any facility that serves business purposes.

Competitive bidding: The process of obtaining more than one bid or price from supplies and other vendors in order to complete the project as designed.

Component: One of the items, such as a shelf, drawer unit, or work surface that is used with a divider panel for an open office systems station.

Concept: An overall idea that unifies all parts of the design of a facility and provides a specific direction for all aspects of the design.

Concept statement: A written tool that states what is likely to occur for the design.

Concert hall: A type of theater that primarily presents musical performances for orchestras and singers.

Concierge: A hotel staff member who provides information and assistance to guests. The term is also associated with other types of commercial facilities.

Conditional Use Permit (CUP): A permit given to a property owner by the municipality allowing a building's use in a zoned area that normally does not allow that use.

Conference center: A type of hotel specially designed for smaller meetings and conferences than would be held at a convention hotel.

Congregate housing: Housing for the elderly that includes one meal a day, housekeeping, and some activities.

Connector: The hardware used to connect panels together in open office systems projects.

Construction management: A third-party firm hired by the client to be in charge of many of the tasks associated with the project. Their responsibilities can include design.

Construction manager (CM): A person or firm hired by the client to oversee the construction process.

Continental seating plan: Main floor seating of an assembly occupancy, such as a theater in which aisles are located only on the perimeter sides of the space.

Continuing-care retirement community (CCRC): A planned community providing rented or purchased living facilities for seniors whose needs may range from no assistance up to and including skilled nursing care.

Continuing education unit (CEU): Credit given for attendance at approved seminars, workshops, and training sessions that provide updating and information on the practice of interior design. Other professions also provide CEU credits.

Contract labor: Anyone working on part of the project that is not an employee but has been hired by the interior design firm for specific tasks.

Convenience goods: Items that are much used and often purchased, such as hosiery in a clothing store.

Convention hotel: One that caters to large business, professional, or other organizational groups where the emphasis is on meetings or related activities.

Conventional furniture: Desks, credenzas, file cabinets, and bookcases.

Core drilling: A hole is drilled in a concrete floor in a high-rise building in order to bring electrical and other cable services from below.

Corporate culture: A combination of policies, employee behavior, company values, company image, and assumptions about the world of work at a company.

Corridor: Any circulation space set off by partitions, rails, or dividers over 69 inches in height.

Counter caps: Used on low panels in reception areas to create a more private across-the-counter transaction area. Also called transaction surfaces.

Coworking space: An office space entrepreneurs share with others.

Cradle-to-cradle: Products that can either be reused or recycled or that will decompose when sent to a landfill.

Cradle-to-grave: Products that are used for a period of time and are not reused, recycled, or otherwise discarded before their useful life is complete.

Crash cart: A small, mobile cart equipped with medications and equipment to handle extreme emergencies within the nursing unit.

Crash rail: A handrail in corridors of healthcare facilities to provide patient safety and help limit corridor wall damage from carts and wheelchairs. Also called a handrail.

Credenza: A storage unit, usually 30 inches in height, that holds files and supplies. It is usually placed behind a desk in an office.

Critical care unit (CCU): An inpatient unit for persons requiring intensive care, especially for cardiac conditions.

Critical Path Method (CPM): A scheduling method that shows a variety of tasks, using symbols and lines or other means to connect the tasks that must be accomplished in a certain order before the next set of tasks can be started.

Critical thinking: Involves a willingness to look for answers to questions beyond the obvious.

Crowns: A covering of porcelain or gold to cover and restore a damaged tooth.

Cue-searching: Another term for wayfinding. *See* wayfinding.

Cultural diversity: Several ethnic or cultural groups within society.

Cultural sensitivity: Awareness and skills to appreciate the differences between different cultures.

Culture: Includes the knowledge, beliefs, customs, and morals of a group.

Curtain wall: An exterior wall that supports no weight except itself and is attached to structural members of the building.

Customer's own material (COM): Textiles selected by the designer that come from a source other than the furniture manufacturer.

Day spa: A health facility that offers massage treatments, salon services, and other wellness services.

Dead load: Permanent structural elements of the building such as partition walls.

Dealership: A retail sales and design office that is primarily associated with one or more manufacturers of commercial furniture.

Decibel (dB): The scale of measurement of sound.

Dedicated circuit: A separate circuit with its own hot, neutral, and ground wires, none of which are shared with any other circuit.

Delayering: A change in business structure that eliminates layers of management.

Deliverable: A tangible design product such as a construction drawing, a furniture plan, a specification, or a sample board.

Delivery system: The method the dentist prefers to work with a patient.

Demand merchandise: A necessary item that encourages the public to shop. A bed in a furniture store is an example.

Dementia: A disease that leads to gradual deterioration in mental capacity and functioning due to disease or damage to the brain beyond normal aging. Alzheimer's disease is one of the most commonly diagnosed forms of dementia.

Demising wall: Any partition used to separate one tenant space from another. Each tenant is responsible for one-half of the thickness of all demising walls.

Demountable wall: A floor-to-ceiling partition that is held in place by tension and can generally be relocated easily with little demolition and new construction. Also called a movable wall.

Dentist: A healthcare professional who treats a patient's teeth, gums, and related tissues.

Department manager: Commonly a third-level manager responsible for specific work activities.

Department store: A retail facility selling a wide variety of goods to the end user.

Design-bid-build: This is the traditional project delivery method where a client hires a firm to design the project. It is then sent out for competitive bids to multiple suppliers, and a contract is awarded to the firm chosen by the client.

Design-build: One contract is given to a single entity for both the design of the facility and the construction of the building.

Design guidelines: Criteria developed by preservation commissions to help property owners rehabilitate existing structures in conformity with any new construction. This term also has other meanings, depending on the type of commercial project.

Design review: The process of ascertaining whether modifications to historic structures or settings meet standards of appropriateness established by a review board. This term also has other meanings, depending on the type of commercial project.

Design thinking: Applying the concepts of design to the problem solving of the business world.

Deuce: A table for two in a restaurant. Also called a two-top.

Diagonal plan: In retailing, a dynamic plan where display devices are arranged on an angle causing the customer to travel through more of the store.

Diagnostic departments: Include spaces for radiology and diagnostic imaging in a medical facility.

Direct glare: Glare coming from a light source.

Discount store: A retail facility selling a wide variety of goods to consumers at prices generally less than those found at department or specialty stores.

Display fixture: Equipment used to display products for sale in a variety of retail stores.

Display kitchen: A cooking area in the dining room of a restaurant positioned so that the guest can watch the chef prepare food.

Divider panel: A vertical support unit that, combined with others, forms the stations in open office systems projects.

Double pedestal desk: A desk with two drawer units

Downsizing: A reduction in the number of employees in a business with the goal of being more responsive to customers and becoming more cost-effective.

Elopement-prevention system: A security system that seeks to stop patients in an Alzheimer's facility from secretly leaving the facility.

Emergi-center: A freestanding facility that provides treatment comparable to that in a hospital emergency room for non-urgent conditions. Can also be referred to as an urgent care facility.

Employee churn: Turnover in the office staff.

Empowerment: Allowing the employee to make certain decisions rather than requiring him or her to go through layers of managers.

Energy efficient: Products that use less energy and perform as well as products that are not energy efficient.

Ergonomic chair: A wide variety of desk chairs in many styles designed for increased user comfort.

Ergonomics: The scientific study of the physical functioning of humans in the environment.

Esteem need: The need for self-respect, admiration, and achievement.

E-tailers: retail sales conducted over the Internet.

Ethernet: A method of connecting numerous computer systems to form a network.

Ethical behavior: Conduct that is considered right by and for those practicing the interior design profession.

Evidence-based design: A process of design where design decisions are based on accumulated evidence obtained from previous projects.

Executive chair: A high back and larger size chair than others in the facility. Specified for upper management.

Executive return: An additional desk unit at the same height as the desk.

Exhibit hall (or hall): A term used to refer to the spaces used for exhibits.

Experiential opportunities: In retail design, a planning concept where the buyer has the opportunity to experience the use of the merchandise such as a climbing wall in a sporting goods store to check the fit of shoes.

Experiment: A controlled condition of variables to test a hypothesis.

Extended use: Any process that increases the useful life of an old building. An extended use of a building might also be considered an adaptive use.

Facility manager: Has responsibility for the overall facility plant (building).

Facility management: The total nonfinancial asset management of a business.

Facility planning: The programming and space planning of offices and other areas of a commercial business.

Fast food restaurant: A restaurant that rarely provides waitstaff service. Also called quick service.

Fast track: Design projects that proceed from concept to completion very quickly. Often plans for one part of the project are being completed while other parts are already under construction to ensure early occupancy.

Feasibility study: An analysis of economic, demographic, and other criteria along with project goals and needs to determine if the project is possible and potentially profitable. It is generally conducted before design begins. It can be applied to any kind of commercial project.

FF&E: *See* Furniture, fixtures, and equipment.

Fiber optics: A data cable utilizing a thin glass filament wire for the transmission of signals. Also called fiber-optic cable.

Fitness center: Recreational facility that provide a single location for many type of recreational and fitness activities.

Fixture: The housing of the luminaire without the lamp. Many items used to display merchandise in stores are also referred to as fixtures.

Flash-coved base: Flooring and base material is monolithic.

Flat cable: Also known as ribbon cable. Electrical wiring that has been flattened within a plastic material and then shielded between thin galvanized steel plates.

Floor slab: Reinforced concrete made as on-site for a poured floor. Floor slabs can be made in other ways and of other materials as well.

Food service facility: Any retail space devoted to providing cooked or prepared food to consumers, whether that food is consumed on the premises or not.

Four pair: Four sets of two copper wires twisted together and covered by an insulating material. The most common type of voice and data cabling used today.

Four-tops: Term for tables that seat four guests.

Franchise restaurant: One in which the owners purchase a license to operate the restaurant under the guidance and requirements of the company that holds the rights to the original concept. A franchise might also be associated with other types of commercial facilities such as retail stores and lodging facilities.

Free address: A system of unassigned workspaces that is available to any employee of the firm on a first-come, first-served basis.

Free-flow system: A store planning system that allows displays and fixtures to be moved easily.

Freestanding fixtures: A type of floor-standing fixture that allows the retail customer access from all sides.

Front bar: That part of the bar in a beverage facility where customers may sit.

Front of house: Those areas in a commercial facility such as a hotel or restaurant where employees have the most contact with the customer or public.

Full-service restaurant: A restaurant offering a large selection of menu items and a waitstaff to take orders and serve the food.

Full-service salon: Provides hair cutting and styling, coloring, manicures, and pedicures.

Function space: One of the areas used in a lodging facility for conferences, meetings, trade shows, banquets, seminars, and other activities requiring space for large numbers of guests.

Furniture, Fixtures, and Equipment (FF&E): All the movable products and other fixtures, finishes, and equipment specified for an interior. FF&E is the acronym for furniture, furnishings, and equipment.

Gantt chart: *See* bar chart.

General contractor: A firm that has overall responsibility for actually building a building/project.

General lighting: Usually an overall level of illumination needed for general traffic movement and safety within any interior space.

General-use furniture: Conventional case goods made of wood or steel, such as desks, credenzas, and file cabinets.

Generation X: Those born between 1965 and 1980.

Generation Z: Those born after 1995.

Generational differences: Recognizing that there will be different likes, dislikes, ways of working, values, and priorities between generations.

Geriatrician: A physician who specializes in the diseases of senior citizens.

Geriatric outpatient clinic: Medical clinic that focuses on medical needs of the elderly.

Geriatrics: A branch of medicine that treats the aging senior population and deals with the diseases of old age.

Gerontology: Studies the aging process beginning with persons in their 40s and 50s.

G.I. Generation: Associated with Americans born before 1924.

Glare: Uncomfortably bright or reflected light that makes it difficult for an individual to see properly.

Goals (of a project): These help determine what is to be done.

Gondola: A term for display cabinets in a retail store. It is commonly a three-dimensional open-shelved unit with access from all sides.

Graywater: Water from sinks, showers, and the laundry that is collected and lightly treated for reuse for watering lawns and other places where potable water is not required.

Greenroom: The room backstage in a theater where benefactors are met and performers relax.

Greenwashing: A company or other entity intentionally provides disinformation about its products so that it appears that they are more environmentally responsible than they actually are.

Greyfields: Obsolete retail and commercial sites located in cities, suburbs, and small towns that are now commonly targeted for sustainable uses.

Grid system: A store planning system that utilizes the internal layout in combination with the structural columns.

Group home: Provides care and support to the elderly or infirmed who want to be cared for in a residential setting rather than a nursing home or assisted-living facility.

Group medical practice: A group of physicians who provide medical care to patients in a group office facility such as a medical office building.

Guest chair: Any small chair that is used at or near the desk by visitors.

Guesting: An assigned or unassigned workspace provided to a visiting worker from another company.

Guestroom bay: The amount of space required to house a single, standard guest room in a lodging facility.

Guest services: Any of the various services provided to enhance a guest's stay at a lodging facility, such as room service or valet and bell service.

Gurney: A wheeled stretcher used to transport the patient.

Hardlines: Heavy merchandise that is often made of wood and metal and has substantial weight, such as large appliances and furniture. Also referred to as hard goods.

Haute cuisine: "High food." Generally connotes very expensive food.

Headwall: The term for the wall at the head of the bed in a hospital room. It contains fixtures for medical treatment equipment.

Healing environment: An environment providing patient-centered healthcare through environmental and design elements that are comforting and soothing.

Healthcare: The science and art of dealing with the maintenance of health and the prevention, alleviation, or cure of disease.

Health Maintenance Organization (HMO): A large group of multispecialty healthcare providers offering services to member patients at either group clinics or a physician's office suite.

Historical survey: A literature review. A research method to find relevant information related to the stated problem in existing data and other information.

Hospice: A facility or program designed to provide a caring environment for the terminally ill.

Hospital: A healthcare facility for the treatment, care, and housing of patients with illnesses, injuries, diseases, or other medical conditions.

Hostel: A lodging facility that often caters to students and budget-minded travelers who are looking for a clean room and few other services.

Hot desk: An unassigned workspace. It gets its name from the concept that the chair may be "hot" from the previous user.

Hotel: A large lodging facility that offers guest rooms ranging from standard rooms to luxurious suites, along with a variety of food and beverage services and other amenities.

Hoteling: A system of unassigned workspaces available to workers by reservation.

Hotel management company: A group (individuals or a company) that has made an agreement with the hotel owners to operate the hotel facility.

House: A term used to refer to the part of the theater occupied by the audience. The house is a term that can also be associated with a hotel.

Hypermarket: A retail store with at least 200,000 square feet that sells a wide variety of general merchandise and/or food.

Hypothesis: An assumption based on a limited amount of information

Impulse items: Items purchased spontaneously by the customer, dependent upon good display, usually at or near the point of sale.

In close proximity: A space-planning principle by which items used together (as in a retail store) are displayed next to or near each other.

Independent living: The absence of health services in the housing unit.

Independent restaurant: A restaurant owned and managed by an individual or a partnership, created from the individual's or partners' own imagination and creativity.

Infarct dementia: A blockage of the arteries caused by small strokes.

Infill building: Structures built to replace buildings that have been torn down or otherwise are missing from a street.

Inn: A small- to medium-sized lodging facility that conveys the feeling of a small, comfortable home.

Inpatient: A patient who has been admitted to a hospital for medical care.

Instrumental activities of daily living (IADLs): Activities such as housekeeping and preparing meals.

Integrated process: This team-oriented process puts additional emphasis on the people involved in the project so that a better outcome is delivered.

Intensive care unit (ICU): Hospital inpatient unit for persons requiring specific types of intensive care due to the serious nature of their illness or injury.

Intermediate care facilities: A nursing home with a lower level of skilled care required.

Intern: A medical school graduate who is working to gain practical experience in the hospital.

Interview: A research method that is a personal way of obtaining information.

Island fixture: A three-dimensional counter used for the display of a wide variety of accessories such as jewelry, scarves, and handbags, as well as cosmetics.

Island window: A four-sided display window used with an arcade-style storefront. Most commonly used in clothing stores.

Jurisdictional authority: The entity within a location that has the authority to review drawings and documents concerning the construction of a building and determine whether it meets codes and other local regulations.

Jury-base chair: Many styles of chairs that use a leg flange, which allows the chair to be bolted to the floor.

Just-in-time workstation: An unassigned workspace where a worker or group of workers can congregate.

Key: A rentable unit in a lodging facility.

Knowledge workers: Those whose main job is the utilization or development of information.

Lamp: The glass bulb or tube that, with its inner workings, creates light.

Landing site: An unassigned workspace where the employee "lands" rather than selecting it through a reservation.

Lateral file cabinet: Space-efficient file unit that is generally 18 inches deep and has a variety of widths.

Lavatory: A sink used for washing the hands.

Lease-hold improvement: Architectural finishes and other construction items installed by the tenant, not by the landlord. Also called tenant improvements.

LEED certification: Leadership in Energy and Environmental Design (LEED) is a voluntary green rating system that helps define buildings that are healthy, profitable, and environmentally responsible.

Legitimate theater: A professional performance by members of Actors Equity or other professional performance unions.

Licensed practical nurse (LPN): A nurse with a degree from a two-year nursing program.

Licensing: A party such as the legislature has given permission to others, such as interior design professionals, the right to use a term or practice certain activities.

Life cycle assessment (LCA): Studies materials, finished products, and buildings to evaluate their environmental and health impacts over their life.

Life cycle costing (LCC): A method of combining the actual cost of the products used in a project with the cost of maintenance and periodic replacement and the residual value of the items.

Line manager: An individual responsible for the activities directly related to a company's production of goods or services.

Live load: Such things as the weight of people, furniture, and equipment added to a building.

Local Area Network (LAN): A telecommunications network designed to eliminate the possibility of crossing signals that would interrupt the network.

Lodge: A lodging facility commonly associated with some kind of recreational activity such as skiing or fishing.

Lodging facilities: Facilities that provide sleeping accommodations for individuals away from their permanent home. Sometimes called a lodging property or transient living facility.

Long-term care: Twenty-four-hour housing and skilled nursing care for elderly persons who are medically ill. Also referred to as nursing homes or skilled nursing facilities.

Lounge: A beverage facility providing more seating than a bar, with more emphasis placed on some type of entertainment. A lounge may serve food.

Magnet store: A large, well-known chain store that attracts many customers to a shopping center. Also called an anchor store.

Maitre d': The head waiter in a restaurant.

Mall: A regional shopping center that has a large number of stores. Usually the largest shopping center in a community, offering retail stores, food and beverage facilities, and even entertainment facilities such as movie theaters.

Manager: An individual at any level whose responsibilities are to plan, control, organize, provide leadership, and make decisions concerning his or her employees.

Mannequin: A display item that looks like a human body used to display clothing items.

Marketing: Activity that occurs whenever goods change hands before being used. Selling, transporting, and supplying goods and services to consumers are part of marketing.

Marketing channel: A team of marketing institutions that direct a flow of goods or services from the producer to the final consumer.

Marketing concept: The comprehensive goal of every business organization—to satisfy consumers' needs while creating a profit.

Medical office building (MOB): An office building containing one or more office suites for specialized medical practitioners.

Medical office suites: The office facility for a primary care physician or other medical specialists.

Medical treatment spaces: Spaces within a hospital or physician's offices where patients are treated. Also called exam rooms.

Medicare: A U.S. government program of insurance to provide medical care to citizens over the age of 65 and to certain disabled individuals under the age of 65.

Memory care facility: Another name for a special care facility.

Merchandising: A group of activities including market research, development of new products, coordination of manufacturing, and effective advertising and selling.

Merchandising blend: Combines the contents of the retail merchandise with the decision the consumer uses in making selections.

Merchant: A buyer or seller of commodities for profit.

Metal studs: Preformed steel units used in place of wood studs in commercial buildings. Other structural units that mirror many wood structural pieces can also be made of steel.

Mezzanine: The lowest balcony in a theater.

Milestone chart: A scheduling method that lists tasks in a column on the left and other information, such as target finishing dates, in a column on the right.

Millennial (or generation Y): Those born between 1981 and 1995.

Mixed occupancy (multiple occupancy): An occupancy designation in the codes when more than one type of use of spaces is involved.

Mixed-use lifestyle project: In this context, it refers to a shopping center with stores, offices, and housing.

Model stock method: A system whereby the retailer determines the amount of floor space needed to stock a desired amount of merchandise.

Modified open plan: The plan of an office that combines some number of private closed offices with modular systems furniture workstations.

Motel: A lodging facility that caters to the traveler using an automobile.

Movable equipment: General furniture such as chairs, freestanding desks, file cabinets and other furniture type items. It is an accounting designation that can apply to many types of commercial facilities.

Movable wall: *See* demountable wall.

Movie theater: A place where motion pictures are shown.

Multicultural: Embodying several different cultures.

Multipurpose room: A classroom or activity space that can accommodate more than one kind of educational or social activity.

Multiuser toilet: A toilet room designed to accommodate multiple individuals.

Naturally occurring retirement community (NORC): Occurs when an apartment building or condominium is converted to a retirement facility or age-restricted facility.

Need: An essential physiological or psychological requirement for the physical and mental welfare of the client or consumer.

Net area required: The square footage comprising office spaces and support areas but excluding circulation spaces and architectural features such as columns and wall thicknesses.

Nonambulatory: A patient who cannot walk on his or her own without assistance.

Nonconforming use: A building or use of a building that is not in keeping with the area's zoning regulations or other structures in the area.

Noise Reduction Coefficient (NRC): A numerical value between 0 and 1 representing the fraction or percentage of energy (striking the material) that is absorbed.

Nonmetallic sheath cable (or Romex cable): Two or more insulated wires covered by a nonmetallic, moisture-resistant sheath to carry electricity.

Nonselling space: A store's square footage allocated to storage, offices, restrooms, stockrooms, and other spaces not directly related to the sale of merchandise.

Nurse practitioner: A nurse with both a bachelor's and a master's degree plus additional training in diagnosis who can provide some of the same care as a physician.

Nursing home: A healthcare facility where nursing and assisted care is given to patients unable to care for themselves.

Nursing unit: A cluster of patient rooms.

Observation: A research method that seeks to record behavior in as unobtrusive a manner as possible.

Office furnishings dealership: A retail store that sells commercial office furniture.

Office landscape: A design methodology developed in the 1950s using conventional furniture and plants but few if any wall partitions.

On grade: Term is often associated with structural flooring placed directly in contact with the ground.

Open plan: Planning methodology using movable wall panels and/or furniture items to divide the office space and create the work areas.

Open-stage floor plan: A theater space plan where the stage projects into a portion of the audience so that the audience sits partially on three sides of the stage.

Operatory: A dental office treatment room.

Orchestra: In Greek theater, a circular space used by the chorus in front of the proscenium. Today, it is the section of seats in front of the stage and/or a group of musicians.

Organizational chart: A graphic representation of a business's formal organizational structure.

Outdated: A date after which medical products are no longer safely usable.

Outpatient: A patient who does not require admittance to a hospital for medical care or treatment.

Overbuilds: A way for developers to add selling or other space to an existing shopping center or mall.

Owner's representative: A person or firm hired by the client to act on behalf of the client with the designer.

Palliative care: Care to improve the quality of life of patients who are suffering major health issues. Most associated with hospice patients.

Pedestal: A configuration of drawers 15 to 18 inches wide below a desktop or work surface.

Peninsula work surface: A work surface that attaches at one end to another work surface and juts out into the workstation to create a desk-like appearance.

Performance lighting: Lighting systems such as spotlights or track lights to permit illumination on speakers or performers.

Peripheral lighting: Lighting used to call attention to wall displays and merchandise by the use of wall-washers, spotlights, and recessed light fixtures.

Physical plant: A term usually associated with a building and the equipment within it in any kind of commercial facility.

Physician's assistant (PA): A nonphysician licensed to practice medicine under the supervision of a licensed physician.

Physiological need: Need required for survival and basic human comfort, such as food, clothing, and shelter.

Plans examiner: An individual who reviews drawings and other construction documents prior to issuing a building permit.

Plenum: An air space between the ceiling tiles and the structural ceiling in commercial buildings.

Point-of-sale (POS): The cash register or sales area of any kind of business where the purchase is made by a customer or entered on behalf of a customer.

Poke-through system: A method of providing electrical and telecommunications services to office systems panels by drilling holes through the floor deck and accessing wiring from the ceiling plenum below the floor deck.

Pop-up stores: Temporary stores usually in existence for a limited period of time.

Porte cochere: A canopy located over the driveway by the main entrance of a building, used to protect individuals from bad weather and call attention to the main entrance.

Post-occupancy evaluation (POE): A review of the completed project obtained some time after client move-in to obtain feedback on the successes and problems encountered in the project.

Post-project review: A study undertaken by the design firm to investigate how the design firm performed on the project. It is an internal review, not provided to the client.

Posture chair: Desk chair that has a design providing improved posture and comfort.

Potable: Water that can be used for drinking and cooking.

Power entry: The point at which the building's electrical service is wired to a special vertical panel in open office furniture planning projects.

Power pole: A metal or wood box that is attached to the ceiling and can carry electrical, telephone, and data cables to systems panels or millwork cabinets.

Practice acts: Legislation that limits who may practice a profession.

Prefunction space: A secondary lobby outside a ballroom or other function spaces providing gathering space.

Premises: The space described to be rented.

Primary care physician (PCP): A physician who deals with the overall health of the patient and is usually the first physician a patient sees.

Primary research: The type of research that is looking for new information not previously discovered.

Programming: The first phase of any project, in which information about the project is obtained by the interior designer.

Project management: A systematic process used to coordinate and control a design project from inception to completion.

Project representative: An employee of the client firm or an outside consultant who has authority to act on the behalf of the client.

Property: Another term for a lodging facility, including the building and all the land owned by the facility. May be applied to other commercial facilities.

Proposal: A marketing tool that outlines what will be done and how, who will do the work, and other information requested or provided.

Proscenium: The part of a stage in front of the curtain.

Proscenium-style floor plan: A theater design in which a heavy curtain or wall frames the stage.

Pro shop: A retail store associated with a sports facility such as golf or tennis.

Pure research: The kind of research that expands the body of knowledge.

Queuing space: Space provided for people to wait in line to be served, such as at a restaurant, hotel registration desk, or retail store cash/wrap desk.

Quick-service restaurant: *See* Fast food restaurant.

Radio frequency identification: A type of electronic tag placed on valuable merchandise in a store.

Raised floor: A secondary floor is built above the main floor surface to provide access space for large amounts of cables and wiring. It is usually only about 6 to 10 inches above the main floor surface.

Ramped window: Display window with a display floor higher in back than in front, either in a wedge or a tiered display shape.

Reconstruction: Rebuilding damaged buildings or creating structures and sites in the condition in which they originally existed.

Redundant cueing: Sending a message to more than one sensory mode.

Reengineering: A method of reorganizing a business and its way of operating to achieve improved overall performance.

Reflected glare: Glare coming from surrounding equipment.

Registered dental assistant: A trained and licensed individual who provides assistance to the dentist.

Registered nurse (RN): A nurse with an undergraduate degree in nursing.

Rehabilitation: To return a building or an interior to its former use or to create a new use through alteration or refurbishment while retaining some of its original historic appearance.

Rehabilitation center: A medical center that provides care for patients who have had surgery or are recovering from such conditions as strokes, amputations, or paralysis.

Remodeling: The process of changing the appearance of a building's exterior or interior.

Renewable energy: Energy sources that are not depleted when used, such as solar energy.

Renovation: Altering an existing building using contemporary materials to extend its useful life and function. Renovations are rarely of an historic nature.

Rentable area: The total amount of square footage required for office and support spaces, including allowances for demising walls, and interior architectural features such as columns, mechanical chases, or closets, and even a portion of the exterior walls.

Request for proposal (RFP): A document prepared by the client to request information from the designer regarding a potential design project.

Request for qualification (RFQ): A document prepared by the client to request information that focuses on the design staff's experience and qualifications related to a proposed project.

Research: Investigation of various materials to determine or discover facts or reach new conclusions.

Resident: A physician who has finished an internship and is receiving extended training in a particular specialty of interest.

Residential hotel: The majority of guest accommodations are for long-term stays, perhaps months or even years.

Resort hotel: Lodging facilities that have as part of their services extensive recreational facilities or activities such as golf, tennis, and extensive pool facilities.

Respite care: Temporary relief given to the primary caregiver caring for the senior or others. Care often provided by an adult daycare center.

Restoration: Carefully returning a structure to its original appearance and integrity, thereby bringing the structure back to a former condition that now has historic significance.

Retail: Selling merchandise or services directly to the end user (final consumer).

Retailer: A merchant who sells goods to the final consumer.

Retailing: The business activity of selling goods or services to the final consumer.

Retail plan: Answers the questions concerning what, when, where, why, and how specific retail business activities are to be accomplished.

Retail store: A place of business in which merchandise is sold to the consumer.

Retirement resort: Another name for an active adult community.

Return: An additional desk unit that creates an L- or U-shaped desk. The return is only 25 inches high.

Rigid conduit: Heavy steel tube through which insulated wires are fed to carry electrical wiring.

Room: A separate unit, whether rentable or not, in a lodging facility.

Room mix: The configuration of different types of rooms required, based primarily on the size and number of beds in the facility.

Rounder: A type of store display fixture that is round.

Safety need: Human needs related to security and stability.

Salaried physician: A physician who works as an employee of a hospital, a government agency, or another organization rather than in private practice.

Sale: When merchandise and money change hands between the retailer and the consumer.

Sales/productivity ratio method: The retailer's allocation of selling space on the basis of sales per square foot for each merchandise group.

Salon: Provides cosmetology services such as hair-cutting, coloring, manicures, and other services.

Sample: A small segment of the potential data options available to be researched.

Satellite office: A work center established away from the main office but convenient to the territory of outside workers. It is not generally a branch office.

Scent appeal: A retail merchandising technique that attempts to entice the consumer to buy through the introduction of aromas that are associated with products.

Scoping statement: A document detailing what will be done and possibly the estimated fee for the project.

Sealed environment: Windows do not open and air quality is dependent on the HVAC system.

Sealed drawing: A drawing to which an architect has affixed his or her seal, which signifies that the architect is licensed by the state.

Seat turnover rate: The estimated number of times a table in a restaurant will be used in any one day.

Secondary research: Investigations based on previously known information or previously published information and data.

Selection committee: A group of client representatives that will decide which firm gets the contract for a project.

Selling space: The amount of square footage in a store allocated to the display and sale of merchandise.

Senior citizen: Generally refers to people 65 years of age and older.

Service bar: The area where the waitstaff orders and picks up beverages for restaurant service.

Service counter: The area in a coffee shop (or other food service facility) where the customer orders and may wait for the order.

Service station: A work area located in the dining room of a restaurant to provide space for storing clean and dirty dishes, glasses, and coffee services. Also called wait stations.

Shadow-box window: A small, completely enclosed display window at eye level.

Shared assigned work area: An office or station shared by two or more persons, perhaps by two part-time workers.

Shop signs: Store signage that acts more like outdoor advertising.

Shoplifting: The act of pilfering merchandise from a store.

Shopping center: A group of specialty retail stores and possibly service businesses.

Short list: A list of three to five design firms selected by the client to provide more detailed presentations on a pending project.

Showroom: A type of store (retail or wholesale) that displays furniture for commercial use.

Shrinkage: A term related to the loss of merchandise due to theft.

Sick building syndrome (SBS): An unhealthy condition caused by poor indoor air quality, poor lighting, and bad acoustics in the work environment.

Sight appeal: A retailing technique to entice the customer to buy using elements such as size, shape, contrast, or harmony.

Signage: Advertisement signs outside the premises of a store or other business describing the products or services provided by the business. Signage also refers to any kind of sign used inside a business facility to direct or inform customers.

Silent generation: People born between 1925 and 1945.

Single pedestal desk: A desk with only one drawer pedestal.

Single-phase electrical service: The former standard for electrical service in most commercial buildings. It provides 240/120 volt service.

Single source of contact: The one person at the design firm or the client's place of business who has the authority to make decisions or provide information concerning the project.

Single store: An entrepreneurial facility that can sell any type of product but has only one location.

Single-unit restaurant: A restaurant that exists only in one location. Usually independently owned.

Single-user toilet: A toilet facility that is used by only one person at a time.

Sink: All sinks other than lavatories, such as service, janitors', and kitchen sinks.

Skilled nursing facility (SNF): A state-licensed healthcare facility providing 24-hour nursing care to patients.

Slatwall fixture: Brackets are used to display a variety of merchandise including apparel.

Sled-base chair: A guest chair with a piece of metal or wood extending from the front to the back legs. This makes it easier to move than a chair on individual legs.

Sociofugal: Furniture spacing that does not promote social interaction.

Sociopetal: Furniture spacing that promotes social interaction.

Soft goods: Merchandise that is considered to be soft and light in weight, such as apparel and linens.

Sole practitioner: A physician in private practice who is the only physician in the practice.

Sommelier: A wine steward.

Sound Transmission Class (STC): A one-number rating that describes the ability of an object to block the transmission of sound.

Source document: The original document.

Spa: A facility offering a variety of nonmedical services such as massages, hydrotherapy, health education, and various treatments.

Sparkle lighting: A type of lighting produced by a variety of light sources that creates special effects and gives atmosphere to a space. Commonly used in restaurants and lodging facilities.

Speakeasy: A slang term for secret clubs that took the place of beverage facilities that served alcoholic drinks during Prohibition.

Spec (or speculation): Developers of commercial property often build a building before it has any tenants in the hope that someone will lease it before or after construction is completed.

Special care units: Nursing facilities for the care of patients with dementia, Alzheimer's disease, and other critical or special needs.

Specialty restaurant: One that serves a certain type of food, features a particular theme, or offers a certain style of service.

Spectator: Audiences or observers of sporting events.

Speed rail: A place that holds bottles of the house beverages along the inside edge of the main bar cabinet so that bartenders can find them quickly.

Spiral fixture: A vertical curvilinear store fixture with hooks spaced evenly to hold clothing accessories such as belts.

Staff manager: An individual who provides support, advice, and expertise to line managers.

Stage: The part of the theater where the performance takes place.

Staging: Putting on a performance.

Stakeholder: An individual or group with a vested interest in the project, such as a member of the design team, the client, the architect, or a vendor.

Station: An individual work area set up using open office systems furniture.

Stick built: A slang term for construction of partitions and other parts of a building on site.

Stick furniture: A term designers use to refer to wood office furniture and seating.

Straight plan: In retailing, a simple floor plan with display devices arranged along the perimeter walls.

Subcontractor: the vendors who perform the actual work on the job site such as framers, electricians, and painters.

Subs: An industry term for subcontractors.

Sunset: A term related to legislation that includes automatic termination of the program or law unless it is reauthorized by the jurisdiction's legislature.

Super-luxury hotel: Has superior high-end design and finishing along with superior guest service.

Supermarket: A large store focusing on the sale of groceries and household items.

Supervisor: Commonly the lowest-level managers in a business, who are generally responsible for the employees who actually perform most of the work.

Surgi-center: A freestanding healthcare facility where ambulatory outpatient surgery can be performed.

Survey: A questionnaire is developed to help lead the designer to obtain primary data and information.

Suspended acoustical ceiling: Acoustical tiles are suspended on T-shaped runners.

Sustainable design: Design that is done to meet the present needs of the project while considering the needs of future generations. Sometimes referred to as green design.

Systems creep: Every time a panel run makes a turn, an allowance must be made in the drawings for the thickness of the panel and hardware.

Systems furniture: Divider panels and components used to provide work areas for open office projects.

Table desk: A desk unit without pedestals.

Task chair: Also referred to as a secretarial or operational chair. It is a smaller-scale chair with or without arms (that are recessed) for employees doing repetitive tasks like typing.

Task lights: Luminaries that are sold to fit under shelf units (for systems furniture) or on a table or desk. They provide light to a particular area for the task.

Telecommuting: A work arrangement in which workers spend most of their workday away from the main office and accomplish tasks using computers and modems or possibly telephones.

Tenant work letter: A contract supplementing the lease that describes the interior construction and finishing of a leased space. It specifies landlord and tenant financial responsibility for the work.

Theater: A building, part of a building, or an outdoor venue in which performances of some kind are presented to an audience.

Theme appeal: In retail design, a technique establishing an environment directly related to a product, holiday, or special event.

Third-party project manager: An individual hired by the client to act as the client's agent during the project. Also called an owner's representative.

Three-phase electrical service: The present standard in electrical service to commercial buildings. It provides 208 Y/120 volt service.

Timeshare facilities: Individuals purchase a share of the facility giving them the right to use the hotel for a specific period of time.

Title act: Legislation that limits the use of a specific title such as interior designer, certified interior designer, or registered interior designer to those who meet the requirements established by the jurisdiction.

Trade fixtures: Materials or equipment attached to the building that was paid for by the tenant. When removed, they cannot damage the structure and are not an integral part of the structure.

Trade showroom: A wholesale store that displays furniture and other merchandise for those in the interior design or other trades. It is not open to the general public.

Transient living facility: A term sometimes applied to lodging properties.

Triple bottom line: The measurement of business based on profit, planet, and people.

Trunk showing: A presentation of merchandise by a designer or manufacturer at a retail store.

Twenty-five pair cable: A telecommunications cable that has 25 pairs of copper strands. Used in older commercial buildings and rarely installed in new buildings today.

Twisted pair: Two copper wires twisted together and shielded by an insulator. It is the simplest type of data and voice communication cable.

Unassigned office space: An office station or private office not assigned to any one individual. It can be used by a variety of individuals.

Under bar: The main working area of the bartender as he or she faces the guest.

Urgent care center: Neighborhood healthcare center providing noncritical emergency care.

Urinal: A special water closet found typically in a men's restroom.

Usable square footage: The amount of space that can be used for an office or other facility. It excludes demising and exterior walls, structural columns, chases, and electrical closets within the space.

Value engineering: A system for budgetary decision making that considers both the initial capital costs of the design or product specified and the life cycle costs of maintenance and replacement.

Variance analysis report: A numeric report that shows the estimated numbers from the actual numbers of dollars, time, and other budgeted factors.

Veiling reflection: Reflection that occurs when a light source is reflected onto a work surface or computer monitor, making it difficult to see paperwork or the images on the monitor.

Vendor: Companies or individuals who supply the FF&E for the project.

Vertical file cabinet: The traditional filing unit, which is usually 15 to 18 inches wide by 28 inches deep.

Vestibule: A passage or small room between the entrance and the interior of a building.

Vice president: A member of the second highest layer of management in large businesses. A vice president is generally responsible for a specific department or division in a corporation or other type of business.

Vignette: A display of furniture and accessories that is created to look like a real room.

Virtual office: A setup where the worker has everything needed to do the job in a briefcase so that he or she does not report to a permanent office at a commercial facility.

Visual merchandising: The art of displaying merchandise in store windows and other locations in the selling space. Previously referred to as window dressing.

Volatile organic compounds (VOCs): Toxic fumes emitted from carpeting, paints, the glues used to make composite woods in furniture, and many other common materials and products used in commercial and residential interiors.

Waitstaff: The people who provide service to customers in restaurants.

Want: A conscious impulse to acquire an object that promises a reward. In this book, it is discussed in the context of retail store design.

Water closet: A plumbing fixture in restrooms. Also called a toilet.

Waterfall front: A chair designed so that the seat pan is rounded and soft at the knee edge.

Wayfinding: The use of signs, graphics, and directional arrows to help individuals find their way around complex properties and building interiors.

What-if analysis: A method of forecasting what might happen to a schedule (or other processes) if a new element or situation occurs.

Wi-Fi: stands for wireless fidelity, a type of wireless networking technology.

Wing: One of the sides of the stage behind the proscenium and the open stage out of sight of the audience.

WLAN: Wireless version of a Local Area Network.

Work plan: A document defining all the tasks needed to take a project from inception to completion.

Workstation: The space that represents an office in an open plan project.

Work surface: The product that serves as the desktop in an open plan project.

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