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# Commercial Interior Design Applications

### Design Insight

*"People ignore design that ignores people."*

*Frank Chimero*

### Learning Targets

After studying this chapter, you will be able to
- analyze issues and needs related to commercial interior design projects.
- differentiate aspects of various sectors of commercial interior design, including healthcare, hospitality, retail, and educational design.
- analyze issues related to design of corporate offices and ways interior designers develop concepts for the design of corporate offices.
- examine the *Programming*, *Schematic Design*, and *Design Development* phases of the design process for corporate office design.
- generate a design concept for a commercial project based on identified text guidelines.

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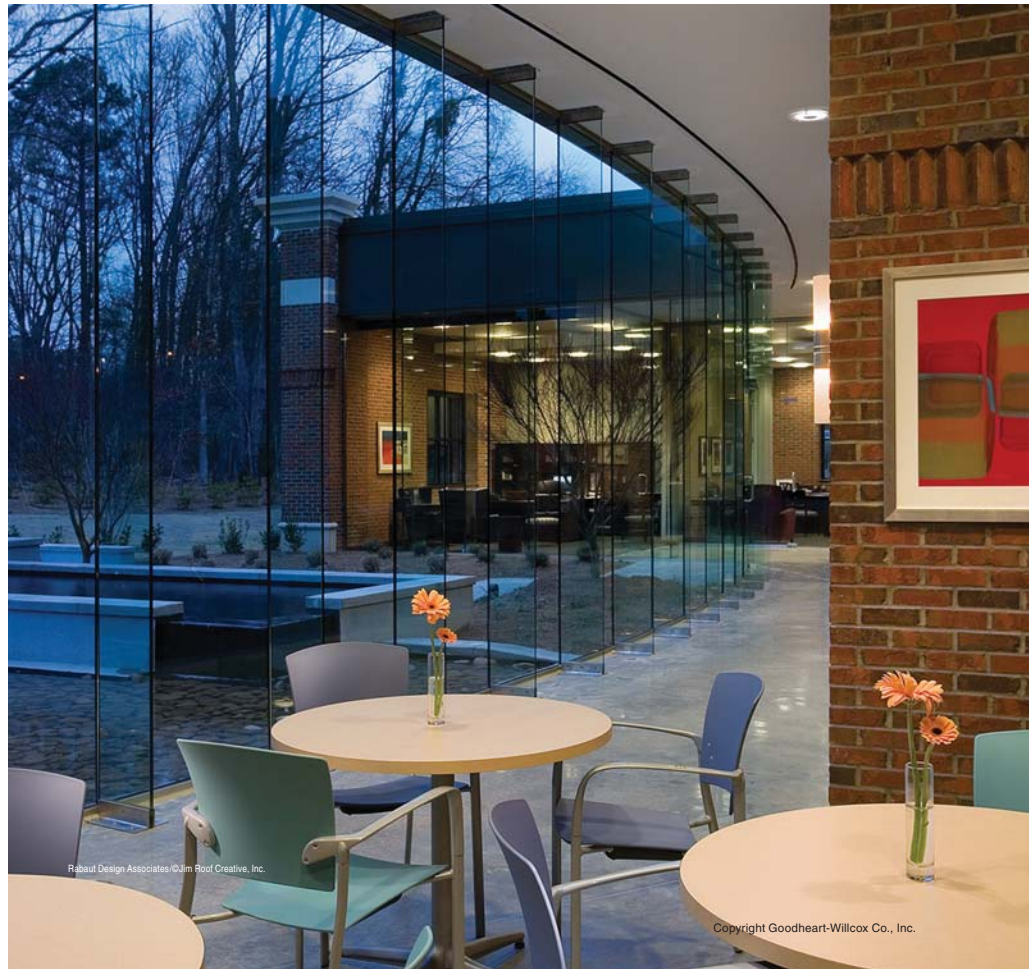
## Introduction

Commercial interior design is the process of creating and overseeing the construction or renovation of commercial spaces. Individuals and groups enter and use public spaces almost every day. These places include restaurants, doctor offices, schools, stores, and libraries. As many commercial facilities are under construction, there are opportunities for designers to incorporate sustainable practices into their design for the health of the people and planet.

## Issues for Commercial Design Projects

Commercial design projects are larger than residential projects and encompass all building types other than residential-related dwellings, **Figure 14-1**. The design of commercial spaces is often more complex due to their size and the need to consider various populations of people using the space.

Commercial interior designers address such issues as the layout and placement of interior walls, plumbing and power systems, and coordinating communications with construction teams, developers, owners, and service providers.

According to a recent *ASID Environmental Scanning Report*, the top five areas of commercial specialization as a percent of business are

- office (81 percent)
- hospitality (49 percent)
- healthcare (41 percent)



©Judy Dave, Hoachlander Davis Photography/Designed by ForrestPerkins
**Figure 14-1** The design of commercial facilities is very complex as shown in this image of ForrestPerkins' adaptive reuse of Washington, DC's WestEnd 25 apartments. *View the details on the ForrestPerkins website. How did the designers go about transforming this space?*

- retail (39 percent)
- institutional (education) (30 percent)

Based on the above information, this chapter focuses on general functions and design issues related to these commercial design specialties. In addition, this chapter discusses details about the most commonly practiced specialty in the United States, corporate office design, within the context of the design process.

Note that many specialty areas of commercial design overlap, causing blurred boundaries. Interior designers may use similar design features in both hospitality design and heathcare design. For example, resort or spa-like amenities often appear in hospital lobbies and suites. Another example is the link between hospitality design and office design. According to the *ASID 2014 Industry Report*, there is a trend toward blending workplace and residential spaces.

Hotels are responding to, and taking advantage of, the changing work habits of people in today's workforce—those people who are deciding more and more *where* and *how* they are going to work. Hotels are making special efforts to engage travelers in their 20s and 30s—*Millennials* and a number of *Generation Xers*—who have a unique working style. Therefore, hotels are renting offices to traveling workers—or even local business people—who are looking for places to work. Like pop-up hotels and restaurants before them, *pop-up offices* are more commonplace in the hospitality industry.

There are many issues a design practitioner must address in the practice of commercial design. While some are specific to the specialty area, such as hospitality design, there are common issues, too.

## Design Process

Commercial interior designers use the same design process as residential designers. However, some of the actions within each phase, the pace with which the design process is completed, and the number of times the designer revisits each phase due to client redesigns may differ.

The design process often begins with either a referral or a bid-process to acquire the client. Once the designer obtains the client and both parties agree on the scope of the project, comprehensive programming is critical. *Phase 2—Programming* requires understanding the detailed and often very specific needs of the **occupant**—defined by code books to be a person—and **end user**—the consumer who uses the finished space—requires a great deal of precision.

During *Phase 3—Schematic Design (SD)*, concept development is just as critical as it is with a residential project. Due to the size, scope, and scale of the project, if a concept is lacking it is often much more evident at the project's completion. If the common design thread does not tie all parts of the project together, the interior lacks a cohesive design, **Figure 14-2**.



©Ron Pollard, Courtesy of RNL
**Figure 14-2** Concept development for commercial design is critical. *Review RNL's website to find out more about how the design concept for the Research Support Facility of the National Renewable Energy Laboratory (NERL) complements the original structure.*

*Phase 4—Design Development (DD)* has changed due to three-dimensional modeling systems and building management information systems (BIM). Accurately constructing digital models requires making many more design decisions during this phase rather than as traditionally done onsite.

The consequence of a longer DD phase is that the *Phase 5—Contract Documents (CD)* is completed faster because the design is thought out more thoroughly in the previous phase. As a result, during *Phase 6—Contract Administration (CA)*, the design team also completes the building schedule in a compressed time frame. Because costs relate to the project timeline, the faster the project is completed, the better the cost savings.

During *Phase7: Move-In and Post-Occupancy Evaluation*, the client moves into or takes possession of the space. The post-occupancy evaluation (POE) may take place once the client has "lived" with the space for a time. The POE may take the form of a questionnaire or a walkthrough with the client. At this time, the client addresses how well the concept functions for the space.

Commercial design clients may have a single location (café) or multiple project locations such as a chain (hotel) or branch (bank) facility. Each client, however, focuses on the same bottom line: profit and productivity. What

does this mean to the designer? It means the

- design features must support the client's ability to achieve profit and productivity
- rationale the designer uses to sell the design solution must support achieving these goals

These goals radically differ from a residential design project in which personal preferences and function shape the final design.

## Meeting Needs of Multiple Groups

Commercial interior designers address the needs of multiple groups when designing public spaces. The first individual or group is the *owner* of the property or company. An owner may be a single individual such as a young entrepreneur developing a first restaurant, or a coalition of people representing a city that is building a new elementary school. Whoever they are, the owner(s) sets the budget, the direction of the commercial design project, and makes the decisions.

The second group involves the client employees who use the commercial space. Their satisfaction with the work environment leads to good morale, high productivity, and

### Designer Profile

#### Tama Duffy Day, Healthcare Designer

*Currently Tama is a Director and a firm-wide leader of the Health & Wellness Practice Area at Gensler, a research-driven global design and architecture firm. Her practice probes the healing capabilities of interior design and its capacity to influence well-being.*

"My first memory of a healthcare environment was at the age of 12 when my mother and I visited my father in the hospital after he had a heart attack. It was a confusing and scary place. I drew pictures of the room and had bad dreams afterward. I decided in high school that I wanted to be an interior designer, mainly to improve other young children's experiences of hospitals by creating better places.

"For over 30 years, I have been leading teams in designing places for health and well-being that reduce fear and stress, places that provide positive measurable impacts on productivity, efficiency, and innovation. I entered the design profession before healthcare design really existed. Now, the profession fully embraces concepts of evidence-based design and generative place-making. Interior design has become front and center in the creation of places that align the physical space with social space, growing healthy communities and supporting healthy life styles."

*You can read more about Tama's background in Appendix B.*

Tulsa Cancer Institute/Image courtesy of Gensler/Photographer: Nick Merrick

low absenteeism. Employee wages are typically three-fourths or more of the cost of doing business. Designing a commercial space to enhance employee satisfaction is a critical consideration when developing the final design solution.
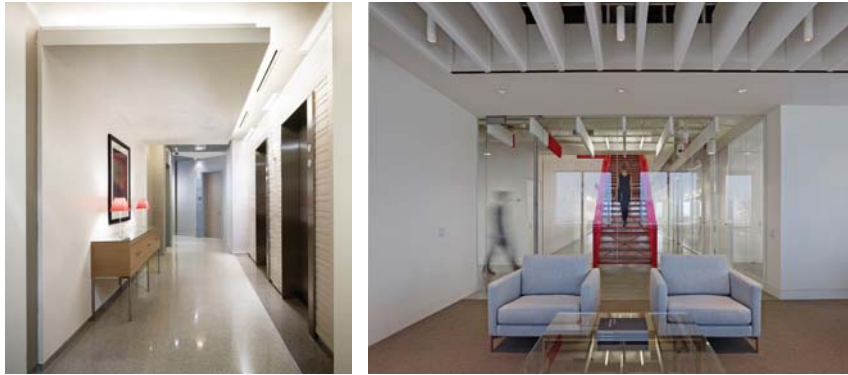
A third group includes the customer or guest using the space. This group generates the revenue to keep the business open. A poorly designed supermarket will not remain open if it is not functional for those using it. Therefore, how and when the space is used is critically analyzed during the design process.

## Health, Safety, and Accessibility of Public

When designing and building a commercial facility, the health and safety of the public is the most critical issue. Commercial interior designers are knowledgeable about many codes that regulate the construction or remodel of the building. **Building codes** are laws created by federal, state, and local jurisdictions to ensure the safety of the public.

Commercial interior designers are also aware of *occupancy* classifications for the building type before designing the client's space. **Building occupancy classifications** refer to categorizing structures based on their usage. These classifications relate to the design of interior spaces because they guide egress practices due to *National Fire Protection Association (NFPA)* fire code standards. For example, a residence classified under Group R specifies that hallways can be as narrow as 36 inches. This dimension supports the belief that a family can safely exit a burning building using those hallway widths. Conversely, Group B, for businesses, specifies that hallways must be a minimum of 44 inches wide because many strangers exiting a larger building will need more space.

Commercial interior designers are also knowledgeable about accessibility codes such as the *American with Disabilities Act (ADA)*. These codes, set by the Department of Justice, include a set of federal rules and regulations that ensure architectural barriers are removed to make every building and structure accessible and usable by all persons, including those persons with any type of disability.

## Knowledge of Systems

A commercial designer has to consider multiple *systems* when designing a client's space. Each system impacts how employees perform their work. These systems relate to the building as well as the comfort and safety of the people using the space. Due to the complexity of these systems, specialists are hired by the design and construction team to design and install them. Building systems include

- **Heating, ventilation and air conditioning (HVAC).** Factors that influence HVAC systems include sun paths into building, building structure generated heat, and internal heat loads from lights, people, and equipment.
- **Lighting and electrical systems.** Designer concerns include electrical supply and demand, lighting systems such as controls for fluorescent lighting, occupancy sensors, and emergency backup lighting systems.
- **Security systems.** These are systems— such as alarms and lights— that protect the occupants and end users.
- **Communications systems.** Designers must be concerned about technologies related to data and telecommunications.
- **People systems.** People-related systems are those that allow the flow of occupants from one space to another. This includes sources of vertical transportation, such as stairs and elevators, as well as pathways to spaces and equipment—both in and out of the building, **Figure 14-3**.

Technical information does not end with understanding building systems. There are also new technologies *within* each specialty area, such as high-tech equipment used in hospitals. There are also new technologies across all commercial design facilities such as factors that impact the acquisition of LEED certification or and lighting design advances and updates.

Commercial designers may juggle five to fifteen different design projects at various stages of the design process. You can understand why commercial design is a fast-paced, demanding but satisfying career.

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Gensler Project Team: Charrisse Johnston, Danielle Gharst, Has Herst, Jenny Ogasawara, Phillipe Pare, Shawn Shin/Photography: Benny Chan, Fotoworks/Los Angeles Community Museum of Art

**Figure 14-3** Vertical transportation such as elevators and stairs are important to moving building occupants from one part of a structure to another.

## Specialty Commercial Design Space Needs

Commercial design responds to many different types and sizes of occupants and users of the space, while considering ages and abilities. Following are some of the more common commercial design specialties with a few basic design considerations listed for each. They are outlined here to give you an idea of how each specialty is a little, or a lot, different from each other.

## Healthcare Facility Design

The healthcare field is constantly bombarded with cutting-edge technology and evolving healthcare practices and regulations. There are many specialized fields within the profession with highly educated individuals that grapple daily with demanding schedules and life-and-death situations. Interior design and architectural firms specialize specifically in the design of hospitals or other healthcare facilities due to their complex and life safety issues. Typically large in scale, these commercial projects generally take several years to complete and involve many diverse team members. Today, a guiding process used in the design of them is evidence-based design (EBD), which emerged from the healthcare profession.

When designing healthcare facilities, there are common issues to consider. Some of these include

- efficient and welcoming reception areas that direct traffic and guests to the proper locations
- convenient locations for nursing staff and stations in relationship to patient rooms
- high levels of cleanliness and sanitization throughout all areas
- separation of clean supply areas from soiled utility rooms
- space to prepare planned meals for those staying overnight
- design of patient rooms to support patient, family, and caregivers plus access to and from patient rooms (for instance, movement of patient beds from one area to another requires doorways that are a minimum of 48 inches wide)
- easy-access storage for lifesaving equipment in the patient room
- respite corners for family and staff off the nursing unit
- planned privacy for working with confidential issues related to patient records and private conversations
- planned wayfinding systems such as signage, color schemes, and positioning of staff and landmarks

### Link to History

#### Influences on Healthcare Design

Florence Nightingale (1820–1910) was very influential in recognizing that hospital cleanliness correlated to patient survival. During the Crimean War, she was able to decrease the death rate of wounded soldiers from 60 percent to two percent in six months. Florence focused on providing patients with access to natural light, healthful food, and a sanitary environment. Of particular importance was her emphasis on fresh air and outdoor views of inviting landscapes. These recommendations are very similar to sustainable design strategies in use today.

*Analyze It!*

Read and analyze two or more reliable articles that present concepts and information about healthcare design today. How does this information relate to the early influence of Florence Nightingale? Write an informative summary effectively analyzing the content of the articles.

According to Roz Cama, Principal, Cama, Inc., an expert in healthcare design, stress is at the core of most individuals' healthcare experiences. Commercial designers who specialize in healthcare design have a real opportunity to improve experiences in these public facilities by reducing occupant stress. An occupant may be a patient, the staff, or the family. Designing spaces that allow a caregiver to relax helps him or her stay engaged and focused on helping patients heal. The staff retreat needs to be a quiet environment with pleasing views, natural light, comfortable seating, and distractions from daily work.

A designer typically works with the following common spaces when designing a healthcare facility:

- reception area, **Figure 14-4**
- waiting areas
- public restrooms
- checkout area
- records department; file storage/retrieval, insurance processing, billing
- exam rooms for patients
- lab spaces and X-ray areas
- private doctors' offices
- break rooms

If the healthcare facility is a hospital, its design needs to include specialty floors for surgery, pediatrics, obstetrics, and oncology. In addition to emergency room facilities, a kitchen and cafeteria, lobby, pharmacy, chapel, and administrative offices may also be requirements.

Formerly, the interiors of healthcare facilities were quite sterile in appearance. Today, many are visually stimulating to inspire an upbeat, encouraging attitude—especially in the pediatrics wing. Bathrooms and restrooms for patients have become more spa-like, and patient rooms have more comfortable amenities similar to those of a nice hotel room.

Wayfinding, the way to orient and navigate within a public space, is critical in healthcare facilities. The ability to find your way to and through a public facility is important to enhance personal control.

## Patient Rooms

The patient room is very important to achieving a positive healing experience, **Figure 14-5**. Infection-control strategies shape patient room design. No issue has affected the design of inpatient rooms and units more over the past few years than the increased emphasis on controlling **nosocomial** (nah-suh-KOH-mee-uhl), or hospital-acquired infections. With current understanding that infection spreads by physical contact more frequently than airborne transmission, there is more emphasis on hand sanitation and contact isolation for patients. For example, it is now evidence-based practice to provide lavatories or hand sanitizers at the entries to patient rooms and in prominent locations throughout the hospital unit.

Since supplies and linens are considered contaminated once a patient leaves a room, hospitals are now greatly reducing the amount of supplies stored in the room. Most recent patient-room designs have minimal to zero storage in the room, substituted by either supply carts or built-in nurse servers directly outside the room.

Photo courtesy of Boulder Associates Architects

Interior Designer: SCI Design Group/Photographer: Michael McLane



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**Figure 14-4** Careful design of the reception area is critical in healthcare design. *Evaluate the images. What features help improve patient experience, provide comfort, and reduce stress?*



©Ed LaCasse, Courtesy of Boulder Associates

Courtesy of Herman Miller, Inc./Compass System, Patient Care/Designer: Gianfranco Zaccai

**Figure 14-5** Patient comfort is important to a positive, healing experience. *What features in these patient rooms contribute to comfort?*

Hospitals are reevaluating what needs to remain in the patient room. Even the use of cubicle curtains for patient privacy is falling out of favor, since numerous people touch them when passing by. New designs of specially treated fabrics or disposable curtains may mitigate this problem. Because they harbor infection, hospitals are also reducing the number of horizontal surfaces in patient rooms. Manufacturers are taking a fresh look at infection-resistant computer keyboards and monitor controls for the same reason.

The creation of patient rooms that bridge care levels from medical/surgical (acute) to intermediate (step-down) to critical (intensive) care continues to be a strong need. This allows for the universal design of patient units for use with multiple levels of care at the same time, or changes from one level to the next over time. Many hospitals allow patients to remain in their rooms when their conditions change for better or worse, with according adjustments to staffing levels. The key elements of design for adaptable patient rooms continue to include

- **Toilet rooms.** Most facilities opt to include enclosed toilet rooms with showers in all patient rooms, including critical care. This allows patients to remain in their rooms as they gain mobility. It also allows families to remain with their loved ones in the higher care-level settings.

- **Visibility versus privacy.** The debate continues regarding how much visibility healthcare staff require of patients, especially in the critical care setting. All agree that there must be visualization of critical care and intermediate care patients in certain situations. To avoid moving patients to visualize them, this requires glass windows and/or doors in all rooms.

- **Flexible headwall configurations.** A headwall is the wall unit at the top of the patient's bed that contains electronics and access to life-saving equipment for the patient. New headwall products from several major manufacturers allow more flexible installation and reconfiguration of medical gases, power, and low-voltage systems than ever before.

- **Space relationships.** Effective use of universal design in decreasing the distance between the patient bed and the toilet helps patients remain more self-sufficient and makes it easier for staff to help those patients who require assistance in transferring from the bed to toilet.

# Waiting Rooms

As you may know, spending time waiting is in healthcare settings. You may wait to hear the staff call your name for a doctor appointment, or you wait for a friend or loved one during his or her visit. Often highly emotional, waiting can seem to last a long time. For those who are anxious in healthcare settings, waiting time may seem even longer. What are some things to include when designing a waiting room that helps promote a positive experience for people who use the space?

First consider the seating. There is a wide variety of people who use waiting rooms—ranging from those of differing ages and genders to those with varying illnesses and concerns. Each person has distinct needs. Since people like to congregate in groups of different sizes, consider using movable furniture that can be repositioned to fit the needs of each group. In addition, using different sizes of seating helps people find what best meets their needs. A variety of seating adds to the interest of the space more so than the same style row after row. By mixing lounge chairs, extra-wide heavy-duty seating (bariatric), recliners, and tables with chairs, and children's seating that all share similar design elements (usually from the same vendor/product line), you can offer expanded options for users.

Be mindful of the continual use of these areas, too. Specifying materials and finishes that will weather high levels of use and abuse enhances durability.

It is also wise to provide a number of areas that can accommodate a wide variety of activities. When there are options and choices for using a space, users feel a greater sense of control over what they want to do and when and where they do it. Time seems to pass faster when there are activities to help pass the time. For instance, while waiting in a healthcare facility, some people enjoy watching television and like to be more active and noisy. Some like time to be quiet and read, **Figure 14-6**. Others enjoy a cup of coffee, watch people, or talk with people who are also waiting. Others, still, spend time checking their e-mail or play games. When designing a space, try to carve out specific areas to accommodate various activities.

How does a stunning outdoor view lift your spirits and change the way you feel? How do windows help decrease feelings of isolation? To truly support a healing environment, consider providing a connection to nature. For instance, an interior or exterior water feature may have a calming effect and can help people relax.

Photos courtesy of Boulder Associates Architects

**Figure 14-6** The materials and finishes on walls, ceilings, and floors contribute to a comfortable and appealing waiting area. *Why is it important to consider the well-being and needs of those who spend time in healthcare waiting areas?*

The walls, ceilings, and floors can impact peoples' comfort level in a space, too. For instance, using materials and finishes that effectively control sound, add acoustical value. Including a fun wallcovering on an accent wall creates interest in a space. Consider painting an accent color in the ceiling bulkheads. In addition, with today's abundant flooring choices—including modular carpet, vinyl wood planks, and luxury vinyl tile—your choices are limitless. In the design plans, locate toilet rooms, refreshments, and drinking fountains near the waiting areas. Although very basic, these amenities are extremely essential for those who spend hours waiting in a space.

Because people like to have things to look at while they wait, including interesting displays adds to a positive experience. Incorporate into the plan a display for printed brochures and informational materials. Such information can spark a conversation between strangers and lead to ways to support each other in their healthcare journeys. Making connections with others can be a wonderful benefit of waiting.

Consider lighting in the design plan, too. Whether direct or indirect, lighting can significantly influence and improve the space. Remember that although people consume products, they experience environments. Choose daylighting and electric light that add to comfort of the space, avoiding the some types of overhead lighting that tend to be harsh. Careful planning and improving the environment that patients and visitors spend time in,

helps ensure that they leave a healthcare facility with a favorable reaction and a generally positive experience.

## Nurse Areas

It is widely recognized that nurses have some of the highest rates of work-related injuries in the United States. While the physical toll can be high, there is also an emotional toll. Recent studies of various healthcare professions show that emotional exhaustion and job burnout are common problems affiliated with increasing patient caseloads and close interaction with patients. The repercussions of this can be serious and far reaching. Perhaps the main concern regarding staff rest in healthcare is the impact on patient safety and errors that may occur due to stress and exhaustion. A staff retreat area should be separate from such support areas as staff lounges or staff conference rooms. The purpose of a staff retreat area is to provide respite for caregivers to relax and recharge from the stressful healthcare environment, **Figure 14-7**.

## Family and Visitor Areas

Family and visitor accommodations play an important part in patient healing and overall satisfaction. Introducing a family retreat into the design of the nursing unit can contribute to improving the patient experience.

Courtesy of Herman Miller, Inc./Compass System, Caregiver Alcove Application/Designer Gianfranco Zaccai          Courtesy of Herman Miller, Inc./Ethospace Nurses Station/Designer: Jack Kelly

**Figure 14-7** Caregivers require quiet places away from lounges and conference rooms for concentrated work and respite along with spaces for collaboration.

Over the years, designer contributions to family and visitor satisfaction focus on improving the family zone environment in the patient room. Family zones may include overnight sleeping areas with privacy, Internet access, personal televisions, expanded seating options, and bathing facilities.

A second family retreat space is an improved visitor lounge that increases privacy by giving the family an area they can essentially "take over." A retreat space with views to the outdoors and plenty of natural light helps link the interior and exterior environments of the facility. Other provisions, such as a kitchenette for beverages and food, a seating area with Internet access, a child's play area, and background music all contribute to a soothing and satisfying family experience. Designing spaces specifically for families and visitors contributes to satisfying patients and making the healing environment as comfortable as possible.

The integration of family areas into the medical/surgical/intermediate care patient room is now a standard. This makes centralized family waiting rooms almost obsolete except on specialty units, such as oncology. Designers are creating smaller niches for families to find respite.

Most hospitals are also integrating family areas into critical-care rooms, although with some staff resistance.

Family waiting rooms in critical-care areas are still a requirement for additional family members and children. Hospitals consistently include family sleeper sofas, many with blanket/pillow storage in the patient rooms. Also, additional folding chairs or ottomans are helpful to accommodate multiple visitors. Post-occupancy evaluations show less use for a desk surface—movable tables have far more utility for laptops and family dining.

Computer web access is increasing for patients and family. Hospitals are integrating both television and Internet access into flat screen monitors for patient and family use. This can include medical education programming, movies on demand, and music services. Because family members also bring their own electronic devices, including areas to charge these devices are also a concern.

## Safety and Security

If an emergency arises, patients often have limits on their ability to leave the building on their own. Therefore, the facility design must include an area for the protection of occupants within the facility itself. In an emergency, staff members quickly move patients to an adjacent, smoke-resistant compartment until fire personnel arrive on the scene.

## CASE STUDY

### Money-Saving Trends in Healthcare Design

Because of the higher costs of real estate and construction, designers continually look for ways to increase efficiency and save money for clients. Here are two examples of money-saving trends in healthcare design.

Design teams are developing model patient rooms and model operating room *prior* to construction. This allows the teams to test the function and comfort level of the rooms for users before specifying the construction of multiples of same room type.

Another trend relates to office space for medical practitioners. In order to maintain profitability, it is increasingly important for medical office space to be efficient. Real estate costs, whether in the form of monthly rent or a mortgage payment, are one of the highest single expenses for medical practitioners. How can designers help make medical office space more

efficient, thereby reducing the space requirements and real estate costs? Some possible solutions include

- reduce seating in the waiting room
- reduce onsite file storage by scanning or storing off-site
- make patient room sizes smaller and more efficient
- eliminate or reduce the break room size
- eliminate separate practitioner offices

**Investigate and Reflect . . . . . . . . . . . . . . . . . . . .**
Use the Internet to research additional trends in the design of healthcare facilities. Use the key words "trends in healthcare facility design." Identify at least three additional trends, summarizing the purpose and approach to meeting the various design needs. Discuss your findings with the class.

## Hospitality Establishment Design

The business of the hospitality industry is to transform the hectic lives of guests into a state of tranquility, relaxation, and enjoyment. This design sector includes the design of hotels, convention centers, spas, casinos, restaurants, cafés, and coffee shops. Hospitality occurs in any public facility that invites relaxation, offers entertainment, serves as a vacation destination, encourages recreation, and provides refreshment. It is an area of practice that incorporates a great many aspects of residential design into public spaces and is one of the most creative areas of commercial practice.

Today's fast-paced, global market demands much of travelers, as work/life balance often hinges on a satisfying experience. Whether traveling for business or pleasure, a consumer's perception of the experience can run the gamut from exciting and exhilarating to agonizing and downright exhausting. While it can be invigorating to experience different places and cultures, it also can be uniquely challenging for travelers, making

the design of hospitality environments all the more important.

International business, global trends, technology and cross-cultural indicators all greatly influence the hospitality indursty. Satisfying experiences and initiatives that build brand loyalty are the basis for positioning in this industry. These issues force designers to think beyond their own expectations, as spaces and facilities designs now need to focus on people from all cultural, social, and global backgrounds.

Working in this sector requires understanding of the impact of the global economy, shifts in consumer preferences, travel experiences, and how technology impacts nearly every aspect of the built environment. One such trend is the way in which consumers are taking direct control of their experiences through technology, and instant data sharing. Apps that offer ratings and customer feedback greatly affect industry bookings.

Thanks to shifts in business and consumer habits, the hospitality sector represents an exciting area of opportunity for designers. They can apply creativity not only to traditional hotel spaces like guestrooms and lobbies,

but also to spas, restaurants, and entertainment areas—each unique to its location, customer base, and genre.

## Hotels, Convention Centers, and Spas

Hotels offer accommodations for sleeping, dining, and entertainment. Convention centers and spas often link to hotels. With increased international travel, hotels have become more than a location to rest, but also a destination to gather with family and friends.

### Hotels

Hotels vary in size from personable bed-and-breakfast inns, and clever boutique hotels to large, all-inclusive destination resorts. A **boutique hotel** is a small, stylish and unique hotel often located in trendy city centers which often includes one-of-a-kind features and the incorporation of distinctive and significant artwork along with an array of accessories, **Figure 14-8**.

Many hotels have unique attractions nearby such as rustic national parks and ocean-side theme parks. The designer of these hotels strives to capture the rustic, romantic, or trendy atmosphere of the hotel location.



Courtesy of Brianna Gill, Senior Design Student, Colorado State University

**Figure 14-8** Boutique hotels offer distinctive, stylish features such as meeting rooms, community kitchens, and standard and deluxe suites. *What features of this design capture your attention?*

For the hotel design to be successful, the designer must develop a good understanding of who the guests are. For instance, if your target market includes families on vacation, think about adding an ice cream shop or a play area in the lobby. If vacationing couples are the target, consider a romantic lounge within the space. The goal is to offer guests a delightful, welcoming area beyond their wildest imagination—and one they cannot envision missing on their trip.

Issues to consider in the design of a hotel include convenience, unique design, sustainable/eco-design, creativity, price point, amenities, and noise. Areas within a hotel include

- lobby/check-in/check-out area
- waiting/lounge
- luggage/concierge/bellhop areas
- coffee shops/cafés
- business center
- gift shop

- meeting rooms
- guest rooms with multiple prototypes
- banquet rooms
- fitness centers

The design of a hotel lobby is all about creating the first impression—similar to the impression you get from shaking the hand of someone you just met. A lobby can be aloof and intimidating or unbelievably marvelous and welcoming. The owner of the hotel cannot be standing by the front door to greet each guest, although the design of the initial experience can be exceptional and give the impression of such a greeting. Ideally, the lobby should feel like an oasis—a place of rest, relaxation, and revital-ization. The best lobbies offer a haven for the tourist, the business traveler, and for the vacationing couple alike.

As a blend of the best of form and function—hotel lobbies foresee the needs of the guests and introduce the hotel style. Upon entering the hotel, guests will brand it as trendy, chic, cheap, or luxurious, **Figure 14-9**.


Allegria Spa at the Hyatt Beaver Creek/Photography by Don Riddle/Interiors by Associates III Interior Design


romakoma/Shutterstock.com


Photography: Kenneth M Wyner/Designed by ForrestPerkins

**Figure 14-9** Hotel lobbies are functional yet serve as a social gathering place for hotel guests. Evaluate these hotel lobbies. *What features would cause you to brand the lobby as trendy, chic, cheap, or luxurious?*

Lobbies also serve as a place for social encounters. With new trends in business travel, hotel lobbies must offer multiuse spaces for casual and formal conver-sations, and spaces for working with and plugging in various electronic devices. Simple arrangements of sofas, chairs, and coffee tables are no longer enough. Ideas for lobby design include

- **Make a unique impression.** The lobby should be more than a passageway from the outdoors to the guest rooms. Create an environment that entices guests to stop and look around. For instance, offering a view of inspirational art along with well-designed and mood-appropriate lighting creates an environment that invites guests to linger, contemplate, and unwind.
- **Connect the experience with function.** A lobby accommodates the check-in desk, waiting area, and concierge stand, and it also serves as a social gathering place with supplementary seating and tables.
- **Incorporate revenue streams.** Design a lobby that offers guests a variety of shops and services. Convenient amenities right in the lobby eliminates the need for guests to shop elsewhere and provide other opportunities to increase revenue, too. For instance, even a boutique hotel can serve coffee, stock a snack bar, and sell gifts, toiletries, or sundries. Guests appreciate the convenience of such offerings.
- **Analyze the layout and architecture.** Closely analyze the structure of the hotel lobby. A large structure may appear uninviting, while a small, tight space dissuades lingering and relaxing. Because lobbies are generally wide-open areas, creatively utilize these spaces to shape zones that smoothly flow together, creating a cohesive guest experience.

  When designing a space, match the hotel era with the lobby—playing with the style while introducing furniture and accessories. Keep in mind a luxurious hotel requires a lavish lobby. In contrast, the lobby of a family resort might feature child-size tables, chairs, and activities along with comfortable seating for adults. Whether lavish or family friendly, the lobby must have adequate circulation to accommodate guests and their luggage during check-in and check-out periods.

Guest rooms occupy about 50 to 80 percent of a hotel's guest area. The design of guest rooms is changing, too. The traditional bed-table-chair-television combination is

not enough to make a hotel room inviting or appealing. A trendy hotel room may include a creative office space for business travelers and an extra sofa next to a king-sized bed, **Figure 14-10**.

Where appropriate, there is also a blurring between the indoor-outdoor boundaries. For instance, large decks and terraces help expand hotel rooms to the outdoors while the designer seeks every possible way to bring nature inside. To help hotel guests relax and relieve tension, designers employ such elements as wood paneling, stone decorations, lush plants and flowers, and indoor water features. Most importantly, however, hotel rooms should offer comfort and that "home-away-from-home" feeling for every hotel guest. Regardless of how luxuri-ous, tech-friendly, or unusual the room theme, comfort and warmth are major factors to consider in room design.

Guest bathrooms are taking on a spa-like design. Bathrooms are no longer spaces to minimize to expand living space in the guest room. Modern tourists expect more than they have at home when traveling. A resort bathroom encompassing spa-like features is an open invitation to refreshment and relaxation—surefire way to encourage people to stay at that specific hotel. Spa-like features may include en suite bedrooms, waterfall showers, oversized bathtubs, two sinks, giant towels, and plenty of space.


Photograph: Kenneth M Wyner/Designed by ForrestPerkins

**Figure 14-10** Guest rooms, like hotel lobbies, are changing to accommodate guest expectations. *Review the description about the Presidential Suite at the Renaissance Arlington Capitol View Hotel on the ForrestPerkins website. What features enhance the guest experience?*

The hotel restaurant is also becoming a destination of its own. Cooking is an art and so should be the *exhibition space*. Increasingly, hotel restaurants are becoming memorable spaces through design. Experiential, sense of place, local, and comfortable—from fine dining to casual dining—these continue to be the key words for design success. Some restaurants are even outside the building. Beachside food trucks ensure convenience and an additional revenue stream. Using themes is highly recommended in restaurant design to reach new peaks of creativity. Overall, the new generation of diners wants an experience when dining out. These diners want a place where casual comfort reigns, and where fine dining encompasses more than just white tablecloths and servers in tuxedos, **Figure 14-11**.

The design of hotel meeting rooms is changing, too, blurring the line between the *office* and personal *social time*. Multiple hotel chains are transforming sterile meeting rooms into more comfortable lounges to encourage conversation, mingling, and the flow of ideas. The design of such areas includes conversational seating areas and a food service area. In addition, the designer may include shelves of books and decorative objects of interest. The total effect is more residential and relaxed.

## Convention Centers

Convention centers are often attached to hotels in major metropolitan or resort areas. Due to the size and scope of many conventions and the resulting revenue generation, communities desire to attract as many visitors as possible. Flexibility and comfort is essential to convention center design. These centers must be flexible enough to accommodate various group sizes, whether larger crowds or smaller gathering. They also must accommodate various size meetings. Therefore, meeting rooms often use retractable walls, allowing ease of reconfiguration between conference events.

In the recent past, conferences were a means for communicating important information difficult to acquire in other ways. Because attendees can get most of a meeting's content via website, simulcast, or online videos, the on-site face-to-face networking can become the most important element of the meeting. To encourage conversations, the design offers small alcoves in larger spaces to provide areas for small groups of conference attendees to have private conversations. The design of mini-meeting spots and pod-seating areas fosters collaboration and a deeper connection in the community. The aim of convention center design is to offer a warm, stylish, and welcoming social experience for guests along with efficient space to learn and collaborate.

The main lobby of a convention center establishes branding of the place and offers signage for wayfinding, **Figure 14-12**. Permanent facilities in the convention center may include food courts, cafés, restrooms, and registration locations. Guests, staff, and maintenance workers require separate circulation paths. As with other commercial facility designs, the designer is responsible for specifying furniture, carpeting, draperies, tables, and chairs.

Convention centers offer many activities on-site or access to the activities and attractions in the community. On-site activities may include access to
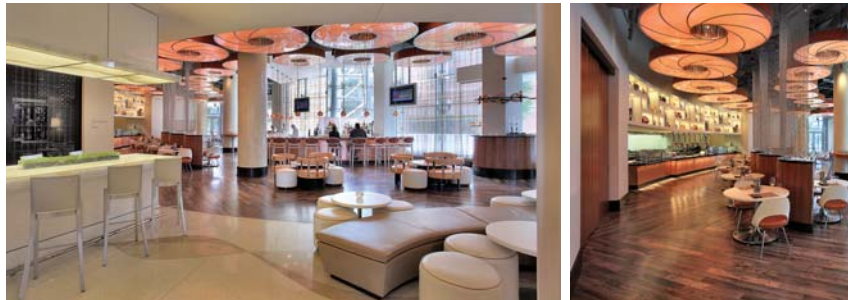

Photographs: Kenneth M Wyner/Designed by ForrestPerkins
**Figure 14-11** The unique design of hotel restaurants makes these spaces memorable in the minds of guests.


Photograph: Kenneth M Wyner/Designed by ForrestPerkins
**Figure 14-12** The design of this LEED Gold certified hotel and conference center connects the spaces in intriguing ways, reflecting the evidence of motion. *What design features of this conference center encourage visitors to explore?*


©Stirling Elemendorf Photography/Designed by ForrestPerkins
**Figure 14-13** Lavish spa facilities complement the therapeutic services offered by many luxury hotels and resorts.

recreational equipment, indoor water parks, and ice-skating rinks. Therefore, much thought goes into the design of these specialty spaces. In addition, all convention centers must all offer, as one of their amenities, technology equipment to support the meetings or evening events. These technologies include special lighting, sound equipment, video-capture capabilities, and large screens. With the popularity of teleconferencing, new technologies must also offer conferencing with participants in other parts of the world.

### Spas

In the recent past, wellness retreats and destination spas did not encompass luxurious furnishings, gourmet health foods, or free locker-room amenities. Their key focus was on health and lifestyle programs for participants. With the advent luxury hotels and resorts getting in the spa game, changes are occurring. In fact, some hotels are converting current guest rooms into additional spa facilities because of the generated revenue. When designing a spa space, designers must consider private treatment villas, and high-tech facilities to complement the therapeutic services. These needs require different storage units, unique furniture, areas of privacy, and flexible lighting to enhance the concept and mood of the experience, **Figure 14-13**.

## Restaurants and Dining Areas

Successful restaurants offer good food, good service, and good ambience. The first thing people love about a favorite restaurant is its food. Likewise, the first thing a patron notices about a restaurant is the quality of its interior. If the interior ambience is not welcoming, the patron may not enter or ever return.

Restaurant design is not as comprehensive as the design of hotels. Restaurants are smaller and require fewer configurations and rearrangements. They do, however, require great designs—perhaps even more so than hotels. An important goal of restaurants is to attract new customers, whether business travelers or vacationing tourists.

As they choose hotels, people place more emphasis on referrals and the hotel's reputation. They examine the daily rates and service charges. Food becomes a secondary priority. In contrast, when choosing restaurants, people often enter a restaurant on impulse without a clear-cut reason for their choice. Sometimes merely a glance inside encourages potential patrons to venture in. A unique interior design may be the key element that motivates a person to choose one restaurant instead of another.

The restaurant business is highly competitive, with over 50 percent going out of business the first year. Restaurants have demanding functions and require a creative design

## Link to History

### Emergence of the Restaurant

Eating has always been a sociable event. The restaurant as an institution, however, did not fully emerge until the seventeenth century. The word *restaurant* initially appeared in the sixteenth century, meaning a restorative broth. By 1771, the term evolved to reference an "establishment specializing in the sale of restorative foods," too.

It was the aspiring middle classes of post-revolutionary France that began using the term *restaurant* as it is used today. The first restaurant proprietor is believed to have been A. Boulanger, a soup vendor, who opened his business in Paris in 1765.

In the United States, by the 1930s some movement was seen toward simplifying restaurant design from something grandiose, to the paradigm of *dining out* in the 1960s. With a diversity of eating venues and socially mobile patrons hungry for new experiences, design became a powerful tool to distinguish between the new bistros, brasseries, cafés, diners, and casual dining chains that emerged then and still emerge today.

### Analyze It!

Interview several older adults you know about the availability and design of restaurants in their youth. What aspects of restaurant design have evolved since this time? Predict how restaurant design may change in the future based on human need.

to remain competitive. The design concept must be very strong and reflect the food served. For example, a newer restaurant trend is a menu touting organically grown food that is harvested, prepped, and cooked on-site. The dining facility should reflect the essence of this trendy *farm-to-table* menu. It may include a healthy indoor/outdoor interior concept that would appeal to this diner profile. While the design concept should not mimic the food served, it must be easily identifiable and fit the location.

Perhaps the most common ambience mistake in a restaurant is poor acoustics. Conversations drowned out by loud noise can ruin even the most handsomely appointed restaurant. For example, a recent study in New York City indicated that city restaurants are too loud. The excessive noise in many places is actually more damaging to hearing than car horns and jackhammers.

Of a random sampling of nearly 40 restaurants, bars, stores, and gyms in NYC, nearly one-third exceeded healthy noise levels. Bars and restaurants were the worst offenders, some registering noise levels of up to 105 *decibels*, levels that cause headaches and hearing loss. (*Note:* A **decibel** is unit for expressing the relative intensity of sounds on a scale from zero for the least-perceptible sound to about 130.). For comparison, a subway train pulling into a station typically registers at 84 decibels, while the sound of normal conversation is 60 decibels. Designing for auditory comfort should be a priority.

For a restaurant, interior designers usually work on the *front of the house*, or dining area, including signage and menu graphics. The *back of the house*, or kitchen, is a critical functional area and typically designed by independent specialists, **Figure 14-14**.

Here are some areas of the restaurant facility on which designers typically work, with more details about dining room design.

- hostess station
- reception/waiting area
- payment/checkout area
- patron seating—include multiple types such as banquette, bench, and table and chair configurations
- outdoor seating
- private rooms
- bar area
- take-out/delivery station
- optional buffet
- public restrooms
- back of the house areas—kitchen/food prep, delivery/receiving dock, storage, office, and liquor storage

The dining area refers to spaces ranging from an informal café to an elegant five-star restaurant. Fire code regulations guide the safety of patrons.

The dining area should accommodate as many guests as possible without compromising the patron's comfort or safety. Leave enough space for servers to circulate around the table and guests. Make sure the table height is not so high that the diners cannot see the food.
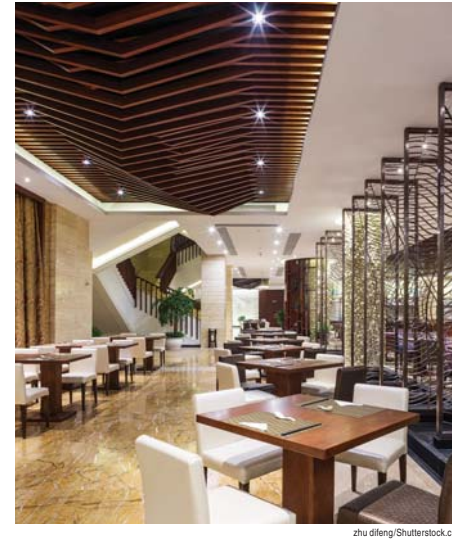
Pavel L Photo and Video/Shutterstock.com
zhu difeng/Shutterstock.com
Alexander Chaikin/Shutterstock.com

**Figure 14-14** Patron seating and eating areas—both indoor and outdoor—are part of restaurant facility design. *How do these facilities comfortably accommodate guests without compromising safety? How do the circulation patterns benefit patrons and staff?*

## Link to History

### The Evolution of Retail Shopping

Prior to the late eighteenth century, store owners took little care in the appearance of their stores or the presentation of merchandise. Actually, very little merchandise was displayed within the store. Rather, a customer would enter the store and speak with the retailer, who would then present merchandise that was kept in a back room. *Sales talk* and an ability to persuade were very important in convincing a customer of the quality of a product and making a sale. The evolution in store design brought about a new process of shopping. It was no longer a verbal engagement between retailers and customers, but now a *sensory experience*. The first step in the evolution of store design occurred when small stores began to display their merchandise openly to the public, instead of keeping it in back storerooms. Eventually, the deliberate display of goods became an important tool for retailers. The once unattractive stores that were not meant to visually appeal to consumers slowly became exciting shopping venues.

Today, shopping can be done completely online or from a telephone to save time and money. Whether it is in a brick-and-mortar store, pop-up, or online, it is important that retail establishments offer a hassle-free and enjoyable experience for the consumer.

### Analyze It!

Analyze the shopping habits of your class with a quick survey. Do your classmates shop more 1) online, 2) in a mall, or 3) at independent stores? Tally the results of your survey. Have you or your peers ever shopped at a pop-up store? Draw conclusions about why one shopping experience is more attractive today than another. How do these conclusions influence the design of retail interiors today?

Configuring the tables, chairs, and banquettes in the dining area is a strategic exercise. The designer's goal is for guests to be comfortable and focus on the dining experience. **Circulation patterns**—the routes people follow as they move from one place to another within a space—for the diners, waitstaff, and busing staff must be thoughtfully integrated into the design solution. Diners prefer privacy and often look for corners, booths, and tables against the wall, preferably near a window.

Lighting is an important aspect of establishing restaurant mood. Most designs demand individual lights at each booth or dining area to create a sense of intimacy and privacy. Natural light is also important. Set light into scenes that can change as day turns to evening.

## Retail Space Design

The shopping experience has changed. The growth in online shopping reflects how fast people are filling their virtual shopping carts. According to a recent forecast from Forrester Research, online retailers expect sales to jump in the United States from $262 billion in 2013 to an estimated $370 billion in 2017. While some perceive these numbers as a threat to the brick-and-mortar retail model, many leading retailers suggest this is an opportunity to collapse the walls that stand between the digital and physical sides of their businesses. Shrewd placement of technology within a store or a new experience online can encourage sales and develop a unique experience for the shopper.

Pop-up retail stores began to show their "faces" around 2000 and continue to develop in urban areas of the country. A pop-up retail store is typically a temporary structure that pops up unannounced, quickly draws in crowds to purchase items in a spontaneous manner, and creates a fun environment that engages passersby. This interactivity gives retail a relevant, fresh feel, **Figure 14-15**.

Shopping is a national pastime in some countries. Even toddlers indicate preference for certain products and a desire to take them home. With that knowledge,
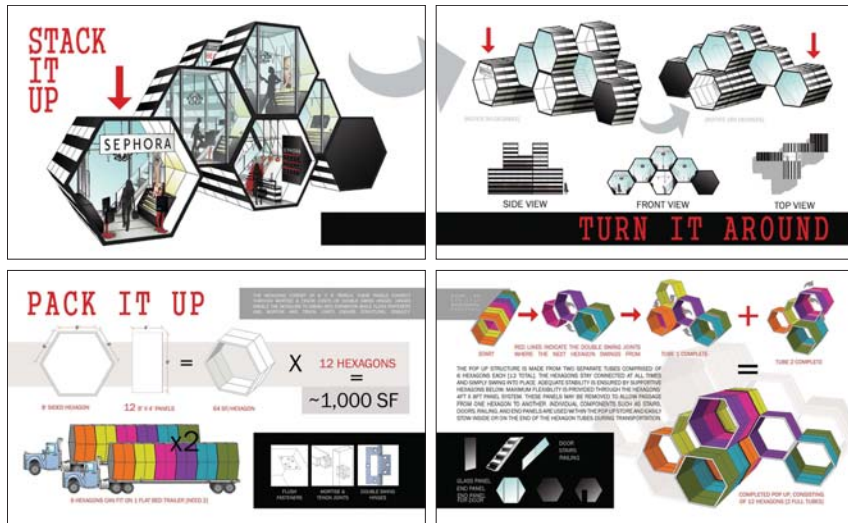


Courtesy of Carrie Zwisler/Design Student, Colorado State University

**Figure 14-15** Pop-up retail stores are typically temporary structures that are moved from one location to another. *Examine the design of this pop-up retail store. What features about the design make it easy to move? What features capture customers?*

the primary design goal for retail space is to enhance retail sales. To achieve this goal, the designer's role is to plan the store layout based on consumer-driven research, know the consumer profile, include appropriate display and storage space, and make the products *pop*! The store manager will know the merchandise and the designer will know how to present the product in a creative way.

When developing the retail shopping experience, designers consider the

- store size
- continual movement of the product from delivery and storage to purchase
- congestion shoppers create at peak times
- lighting that creates a hierarchy of what is most important to look at first
- circulation patterns that move consumers through the store
- attraction of window displays
- signage and store branding

The design should become a planned series of sensations designed to entice consumers and make them want to be part of the brand narrative and experience. The most successful retail designs get consumers to simultaneously experience the product by experiencing the space. For example, Apple products are well-designed and minimal in design aesthetics. Apple's store design reflects the brand—elegant simplicity with a glass-curtain wall or floating glass stairs.

When space planning the store, areas the designer needs to consider include

- entrance and orientation to location
- traffic and circulation patterns
- merchandise fixtures and planning
- point-of-purchase
- customer service area
- changing rooms
- delivery and receiving areas
- storage and *back-of-the-house*
- restrooms—private and public
- lighting, color, furniture, and accessories
- store security and loss prevention

## Store Layout

There is much research about retail consumer behavior that is helpful when designing a retail facility. For example, some key items designers should know include

- It takes a passerby about eight seconds to walk past a typical storefront. Once past the door, the potential customer will not turn around. The design must grab consumer attention within four seconds of approaching the store.
- Almost immediately upon entering a store, 75 percent of people know whether or not they will make a purchase. To grab consumer attention, stores use simple window displays and conveniently located entry tables to clearly and quickly express the latest hot commodity. Most train their staff members to welcome customers immediately as they enter the facility.
- An open retail door creates about 35 percent more business than one that is closed. Doors that meet the sidewalk are more inviting than doors that are recessed. What might a designer do to make recessed doors more inviting to capture customer interest?
- People like to walk in a loop. Over 90 percent turn right as they enter the store and loop through the store exiting on the left.
- Most shopping is completed in evenings and on weekends. About 75 percent of Americans do their shopping after 5:30 p.m. on weekdays and on Sunday.
- The typical American shopper is not fond of shopping. Usually a single mom, this shopper is often pressed for time. Getting in and out of a store quickly, with good savings on the items she purchases, is the main goal of this consumer.

Retail is a highly competitive arena. Each store requires a different layout. For example, a furniture store and a hardware store display their merchandise very differently, **Figure 14-16**.

Revealing products to shoppers in an efficient way is the goal of all store layouts, as is an effective way to control the traffic through the facility. The shape, size, and volume of business influence the variety of store layouts. For instance, supermarkets typically use a **grid layout** system which steers shoppers in a zigzag pattern through parallel rows of aisles. In contrast, a **loop layout** uses a circular pathway around a central

Photographs: VENVISIO, LLC/Rabaut Design Associates

**Figure 14-16** Due to the nature of retail, each facility requires a unique design. What features of this furniture retail facility draw customers in to browse?

display. A **free-flowing layout** does not have set aisles. This layout allows shoppers to move about freely, increasing the probability of impulse buying. Designers need to work with store managers to create a captivating journey for customers to travel throughout their facilities.

Brand or image is a key element to a store's success which should be incorporated in the customer's profile. Remember that first impressions count. Because there is only one chance to excite the customer and create enthusiasm, it is essential to convey the store's message clearly through use of appropriate visual props, graphics, and merchandise displays. Therefore, the entrance makes the key first impression! The storefront design must capture customer attention, be appealing, and clearly show customers what they can find inside. Within 15 feet of the store entry, there is a **decompression zone** at which shoppers do not notice products. A cohesive design ensures that walls, colors, flooring, lighting, and signage tell a single, captivating story.

Designers must consider traffic flow and circulation patterns. As people enter a store, they typically turn right and browse through the store in a counter-clockwise direction, exiting the store after checkout. By setting up focal points, the designer has the power to stop and redirect customers to where the business owner wants them to go. Visual displays are useful for redirection, but must feel natural and make sense with no direction changes for customers. Depending on the store size, aisles should be a minimum of 2.5 feet to 4 feet wide. The design of main aisles and areas of two-way traffic must be wider, allowing two people to pass comfortably.

Appreciate the influence of a *power wall*—the area to the right where customers look first on entering a store. Retailers use power walls to display featured and seasonal items.

*Fixtures* are the movable units that hold store products. The strategic placement of fixtures makes store products visually enticing—encouraging customers to make impulse purchases. The designer can use fixtures to create stopping points in the midst of long aisles, giving customers a visual break. Most store managers are keenly aware that the arrangement of product displays, counters, and aisles impacts shopper behavior. In any of these areas, crowding will likely lead to lost sales and lost revenue.

Strategically design display locations and sizes. Customers continually critique window designs and displays—consciously or unconsciously. Color and light can add drama and interest. Unique and out-of-character display techniques need flexible space. For example, something that is larger-than-life, smaller-than-life, dramatically repetitive, or humorous and fun can attract customer attention. Therefore, space needs to be changeable. When thinking through the overall look of a store, be mindful that customers connect fewer displays and fewer items on display with higher prices.

Checkout counters must easily accommodate merchandise and have ample space for the staff to comfortably complete transactions. Including a display wall behind the checkout counter is an ideal spot to display unique products and additional gift item. An enticing layout should encourage shoppers to make additional impulse purchases as they finish their shopping journey.

Tell a story with the design plan of the store. Is there a logical progression from one product to the next? Are there options to have accessories next to big-ticket items for add-on sales? For instance, bicycle stores typically have bikes in one area, and display road bikes and mountain bikes separately. Next to the bike displays, store staff places shoes and pedals that go with each type of bike.

Creating the right interior store plan does not follow hard and fast rules. The bottom line is that shoppers often want to make their selections and purchases with ease. It is up to the designer to set the stage for an enjoyable experience, **Figure 14-17**.

## Malls

Shopping malls are the most successful sites of sales, although online sales are quickly gaining a larger



Goncharuk Maksim/Shutterstock.com

**Figure 14-17** Creating an enjoyable shopping experience is an essential goal for the interior designer.

market share of the profits. Malls house both specialty shops and chain stores. Mall design includes considerations such as layout, directional signage (wayfinding), security, and variety. Some malls have an open-air design while others are enclosed spaces. The design of public areas in shopping malls should entice the visitor to stay longer and purchase more.

In terms of sales, the highest-performing malls and shopping districts have clear lines of sight from one storefront to another. Shoppers enjoy seeing the fronts of other stores from multiple locations. They are more likely to browse through high volume of stores when the windows are within sight from multiple places.

Malls accommodate basic services such as restrooms, first aid, seating, meeting points (such as fountain areas), food courts, and offices for mall staff. The space between the mall and the parking lot offers opportunities for parks, play areas, and entertainment venues. Be sure to plan for mall security features, such as appropriate lighting at the end of day.

## Boutique Shops

Specialty retail or boutique stores often hire designers to develop a unique design with emphasis on window displays, attention-getting interior finishes, and dramatic lighting. Boutiques have very specific clientele who are looking for individual attention, customer service, and items not found in the big-box stores. They are often located near other shopping areas, but are totally separate. Boutique shops target customers who seek their inventory of specialty items, price range, and shopping experience.

Products carried by boutique stores are often *one-of-a-kind* items. They might sell original art, internationally acquired furniture, or handcrafted items. Therefore, the displays need to be adaptable to new products the store buyer locates.

The success of boutique shops is based as much on customer relations as the products. The designer must create space for comfortable furnishings, gift wrapping areas, beverage and snack services, and even guest artists or speakers.

## Educational Facility Design

The planning and design of educational facilities—whether elementary, secondary or college levels—should begin with the learner. Learning is changing in

the twenty-first century and so are the learning spaces, **Figure 14-18**. Technologies used for learning are altering the experiences and expectations of today's student. Current technologies include

- interactive whiteboards
- Internet service and high-quality digital learning resources
- wireless networks and mobile devices, including the ability to access many of these from home
- electrical systems, seating requirements, and acoustics that support those who bring their own devices
- flexible classroom space that easily accommodates different groupings

To address student needs, the physical design of educational facilities is also changing. Due to the investment of learning technologies and the need for more cost-effective space utilization, it is ever more important for decision-makers to keep up-to-date on new thinking about the design of technology-rich learning environments.

For the designer, understanding the features that make learning experiences effective is important. The best interiors inspire students to learn, producing confident, adaptable, and capable independent learners. The design of physical learning spaces must embody the

institution's vision and strategy for learning and should be responsive, inclusive, and supportive of achievement by all.

An educational facility is a costly, long-term investment and resource. Because many projects utilize funds from taxpayers, budgets are generally tight and include a large number of people in the decision-making process. Materials must be durable, vandal-proof, easy to maintain, and cost-effective. The design of individual educational spaces should

- be flexible and suitable for current and evolving learning strategies
- be creative to energize and inspire learners and tutors
- support development of potential in all learners
- motivate and promote the activity of learning
- support collaborative work between students
- include technology that is effective, updateable, and invisible to students and teachers

## Entrances

Entering any school or college facility should generate a sense of excitement about and passion for learning. As the first point of connection between the learning institution and its clients/students, the entrance sets the



A　GameDesk Playmaker School, Santa Monica, CA/Gensler Project Team: Charrisse Johnston, David Herjeczki, Shawn Gehle, Ursula Marques/Photography: Ryan Gobuty, Gensler

B　Loyola Marymount University, School of Film & Television Animation Department, Los Angeles, CA/ Gensler Project Team: Charrisse Johnston, Nathan Kim, Peter Barsuk, Shawn Gehle/Photography: Ryan Gobuty, Gensler

**Figure 14-18** Supported by the Bill and Melinda Gates Foundation and AT&T, the design of the GameDesk Playmaker School is to engage students in learning through a playful problem-solving process (A). The classroom design and small class sizes in the animation department at Loyola Marymount University encourage a high degree of student-faculty interaction (B).

cultural tone for visitors. An entrance area should establish a welcoming, secure environment, and must impart the capability of the institution to meet the educational needs of its learners. Designers should incorporate daylight, comfortable furniture, wireless technology, and security systems into the entrance.

## Services

Visiting staff or faculty offices and areas of service—such as counseling, careers, and academic or financial advice—should generate a calming effect on those visiting with a need or passing through after an informal discussion. Wireless connectivity and varied arrangements of gathering areas with comfortable, maintenance-free furniture should be available.

## Classrooms

At the collegiate level, classrooms are moving from large lecture halls to *flipped classroom* spaces that mimic elementary and secondary collaborative learning environments. The creation of fluid and flexibly designed environments include movable walls, tables, chairs, lighting, and technology. Effective interior design supports multiple forms of learning with areas designed to promote collaboration, individual study, small group discussions, and large group dialogues. Quieter spaces within the classroom space are available for individual reflective study. Larger spaces may include a nearby café for collaborative projects and social learning.

Furniture, fixtures, and equipment (FF&E) are designed lightweight and with casters. Rather than using fastened-down furniture—as in older schools—designers are specifying mobile furniture, including storage elements, for the interiors. Additions to the space also include student and teacher presentation reading stands, easel-marker boards, flexible screens, and partial-height walls that help absorb sound, along with display and presentation surfaces. Students and teachers alike can access and rearrange the FF&E daily—allowing more control over the learning environment. Interior designers also develop classroom configurations that encourage cross-discipline interaction.

Acoustical challenges are a key issue because noise levels interfere with student hearing and therefore, learning. Designers can address this issue with special sound systems installed in the classroom settings. Other suggestions for classroom design include

- daylighting appropriate to learning spaces
- viewing windows (with minimum 50 feet views) to outdoor areas or activities
- viewing windows in scale with student ages and sizes
- operable windows to control ventilation and fresh air intake
- quality electrical lighting that is adjustable
- room darkening ability
- adequate storage
- access to food and beverages throughout the day
- comfortable seating and spaces for reflection
- maintenance requirements to support the design

Gaining in popularity are outdoor learning environments with adjustable sun-filtering coverings, rain protection, exterior storage, and an electrical power source. Results of a recent research study show increasing improvement in student morale (from 17 to 80 percent) when students move from individual classrooms to the new arrangements. Teacher effectiveness jumped dramatically, too, as did their connections with peers from about 20 percent to more than 85 percent. The bottom line of such research shows that such renovations deeply impact learning with measurable outcomes.

## Residence Halls and Academic Villages

The old *dorms* are gone; residence halls are in! When combined with other facilities, residence halls are known as *academic villages* or *living and learning villages*. **Academic villages** are clusters of buildings that consist of classrooms, dining facilities, and retail areas just minutes from student residence halls. These facilities also include faculty offices, tutoring centers, and spaces for workshops and small study groups, **Figure 14-19**.

The design and planning of academic villages are based on the concept that learning happens 24 hours per day, seven days per week. The concept also dictates that the total learning environment should be an all-in-one inclusive experience. Students who live on campus, especially the first two years, are more likely to

- feel a part of the university community
- persist with their studies
- graduate

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**Figure 14-19** Mixed-use residential villages provide a unique mix of student housing and academic and student amenity spaces designed for an all-inclusive learning experience. Such facilities are designed to attract the best and brightest students to colleges and universities.

The residence hall itself generally includes four-bed and two-bed suites, with shared study areas and a bathroom for each suite. The buildings are multistory with lounge spaces, a kitchen, and access to an exterior courtyard for each community. Dining halls are available in each building as well as cafés or food emporiums.

According to the *Wall Street Journal*, resident hall rooms average roughly 180 square feet in size with no expectations to grow any larger. This small space is the greatest challenge for designers. In addition, each living space must allow for individuality, offering incentive to students who might be comfortable living at home.

Because residence hall rooms are short on space, it is imperative that the design be multifunctional. There should be space for student studying, sleeping, entertaining, and even cooking. While the design task is weighty,

a focus on lighting, zoning, acoustics, and maximizing storage solutions can make these multifunctional spaces a reality. With high-stress and pressure-packed lifestyles, especially during exam periods, it is important that the design of their personal spaces improve student quality of life. Residence hall spaces must help reduce stress and allow for personal growth by enabling creative freedom over the space. Also important is the ability of students to meet others through normal daily routines, and ability to feel safe, secure, and in control at all times.

## Libraries

Barnes and Noble Bookstores were inspirational regarding changes to public, university, and school libraries. Their cafés and soft, informal seating areas promote

conversation among customers and engage inquisitive minds to sit, read, and learn. Formal quiet areas that once demanded students to be quiet, libraries are transforming into places of inquiry and teamwork.

Differing qualities of light, acoustically hard/soft spaces, orientation to vistas, and openings to landscaped areas help distinguish one library space from another. Cafés and small, social-group learning areas are planned into the design of these spaces. Due to online resources, libraries had to reinvent themselves to ensure their existence on learning campuses of today.

## Pop-Up Schools

School buildings are popping up in places around the world. Questions educators are raising include: Should we be constructing huge buildings called schools? Will the Internet and lack of public money combined lead to other kinds of learning places? (Note: The Internet has enabled everyone to learn anytime, anywhere.) Will

schools become more like events than buildings? Why would students choose to come into school if they can learn on their own, at home, online, and at any time? Are schools always the best places to learn something?

In response to these issues and other questions, pop-up schools are springing up overnight in different pockets of the world such as Kenya and India. The design of these facilities is a new opportunity for designers interested in social responsibility and social justice.

## Impact of Culture and Learning Needs

Educational institutions are changing their physical environments to reflect the culture and learning needs of their students. Additionally, educational facilities are including such areas as bookstores, supply centers, cafeterias, grading centers, fitness areas, study areas, and residence halls, **Figure 14-20**.



Courtesy of 4240 Architecture Inc./Photographs: Copyright Raul Garcia

**Figure 14-20** The physical environments of educational institutions are changing to meet the cultural, learning, and social needs of students. *How does the design of these facilities support collaboration in learning?*

Using design principles that make buildings function better, last longer, cost less to renovate and maintain, and inspire and adapt to changing needs ensures the existence of collaborative, interdisciplinary educational centers of excellence. Part of the design excellence of these facilities includes sustainable design practices.

## Corporate Office Design

As the world of work continues to change, so does the workplace. While a workplace can range from a factory floor to a penthouse radio station, one of the most common workplaces is the corporate office. How do you design a great office workplace environment?

The work processes of today are different from work processes during the industrial revolution. Historically, the white-collar office reflected the mind-set of a factory with work developed into a linear series of individual tasks. Today's products (knowledge and creativity) demand different environments in which they can be nurtured, shared, and produced. Today's work requires collaborative and nonlinear designs, as fewer workers create physical "things" and more workers analyze, create, collaborate, and act on information.

Corporate office design is the number one specialty area for interior designer practitioners in the United States. Today, the *office* can be located anywhere and accessed anytime. Employees are no longer tethered to a desk or workstation. With wireless technology, an office may consist simply of Internet access, a digital tablet, and an employee. Brick-and-mortar structures with walls and file cabinets may no longer be a need.

The rise of the mobile workforce is allowing companies to get work done faster and more efficiently (there are about 119.7 million mobile workers in the U.S. according to a study done by Cisco). For most companies, a corporate office serves as a recruitment tool, a place to be with friends, an inspirational place, and a place that launches the next billion-dollar company. To build a lasting company, the office is a key element.

Principles used when designing offices and workplaces include conversations about: "What are our work patterns?" "How do we work differently?" "How do we design spaces to enhance teamwork and collaboration?" "What are the basic psychological and human needs that need to be met and enhanced?"

Tenant improvement work (TI) is a related specialty area within the office design sector. Businesses, such as a set of law offices, often lease building space in which to conduct their work rather than owning the building. As different tenants, or businesses, move into the space, they sign a lease and the relocation of interior walls or partitions occurs to reflect the new tenant's brand and business. In addition to a new space plan, TI addresses all existing and new furniture, fixture, and equipment (FF&E) needs, **Figure 14-21**.

## Office Design Issues

There are many opportunities to consider in the remodel, reconfiguration, or new construction of a corporate office. They revolve around two primary factors: employee satisfaction and the bottom line of any business—revenue generation. Employee salaries account for 80 to 85 percent of the cost to do business. Keeping employees happy is critical to the success of a business or corporation.

### Enhancing Corporate Culture

Today, the corporate culture of an office is a means of attracting the most talented employees and enhancing employee satisfaction. **Corporate culture** is the collective beliefs, value systems, traditions, and customs that make a company unique. For example, *Fortune* magazine ranks *Google* as the best place to work in the country. It attracts people with some of the most brilliant minds and earns close to one million dollars in revenue for every person it employs.

Really strong companies all have very strong cultures that they communicate through the physical environment of


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**Figure 14-21** Interior designers often work with clients who are using leased tenant spaces for their corporate offices.

their offices. For instance, as a company known for creative, human-centered design-based solutions to business problems, IDEO has an office environment that mirrors its innovative culture. Bicycles and airplane wings hang from the ceiling, individual workspaces reflect each employee rather than the corporate brand, and central areas are large enough to hold large-team brainstorming sessions that center on research and unique solutions.

Likewise, Pixar—the animation company known for the development of *Toy Story* and *The Incredibles*—reflects its corporate culture in the creative work environment of their headquarters located in Emeryville, California. Their headquarters includes a 600-seat theater, two 40-seat screening rooms, a café, and a fitness center.

Pixar's office interiors have been designed for fun! The interiors include bright colors, life-sized statues of characters from Pixar movies, a *clubhouse* that serves as offices and a game area with ping-pong, foosball, and pool tables. In the center of Pixar headquarters, sits a huge atrium that acts as a central plaza for the

### VF Corporation Headquarters

Imagine a kayak commute, or taking a break to try out the office climbing wall. At one San Francisco Bay Area office of VF Corporation, which includes *The North Face*, employees are kept happy by being kept active and outdoorsy. If you fantasize about bouldering on your lunch break, and designed working in a zero-waste, net zero-energy environment, look at the Alameda, California headquarters of VF Corporation. Their headquarters was designed with their employee wish list in mind. It is an office created for people who would rather be outside.

The VF Corporation culture is expressed through amenities such as a large onsite garden in which grows kale, tomatoes, and basil. Lots of natural light was designed into the majority of interior spaces. Ninety percent of employees have access to direct sunlight, and many of the overhead lights can be kept off. All the windows in the complex open. Opportunities for onsite fitness are available, including an indoor fitness area and yoga room, an outside training area for Boot Camp, an outside *bouldering* (a type of rock climbing performed without special equipment other than climbing shoes) space, and an outdoor gear rental and repair shop. A café serving the vegetables grown in the garden was incorporated. The ability to kayak out into the water just outside the complex is also under investigation. The office space is inside out— executive offices are in the middle of the room and other employees sit by the windows.

There is at least one big money-saving tactic built into the headquarters. It was created with energy and waste efficiency. "It's the right thing to do, but it also has to make business sense. It will save money," says Adam Mott, director of corporate sustainability at The North Face. VF is installing a series of solar systems (on the building roofs, on top of the carport, and on the building awnings) that will provide 100 percent of all energy needs. There is also a towering wind turbine that greets entrants to the site—a symbol of their commitment to sustainability. The complex, built to achieve LEED Gold certification, will eventually have a recycling center that goes far beyond your average office. In addition to the soda cans and office paper that are normally recycled, VF will have the ability to take e-waste (electronic products nearing the end of usefulness), lightbulbs, batteries, plastic bags, and even clothing (for recycling or donation). Their ultimate goal: a zero-waste facility.

The idea about a company keeping employees active, innovating, and considering the environment should not be a novel one—it should be a future norm. Other factors important to employee satisfaction that are not related to the physical environment include ability to use skills, the relationship with the immediate supervisor, compensation, and benefits.

**Investigate and Reflect . . . . . . . . . . . . . . . . . . . .**
Read more about the VF Corporation's views on sustainability on their website. In addition, review the sustainability policies of other well-known companies in regard to sustainability. After reviewing these policies, discuss reasons why interior designers must be informed about sustainability practices for their clients.

campus and as a meeting area for employees. The offices are open, with collaborative spaces and lounges in which coworkers can socialize and engage. Individual work and collaborative work can occur anywhere in the complex.

For the imaginative and artistic minds at Pixar, this is the kind of place they always dreamed of working. It is a place where work does not feel like work, which is a reflection of the company's office environment. In contrast, because employees have a different way of working in an accounting firm, the office design would look very different from the office designs for IDEO or Pixar employees.

## Supporting Communication and Collaboration

Two significant issues that impact office design today are *communication* and *collaboration*. To determine how employees work individually and with each other, designers conduct surveys to gather details on communication preferences. For instance, do employees prefer e-mail versus face-to-face conversations, and how much collaboration do employees need to accomplish their work? The younger workforce today prefers more teamwork and collaboration than previous generations, **Figure 14-22**.

Gensler, one of the world's well-renowned architectural and design firms, developed a *Workplace Performance Index (WPI)* to understand how people work within organizations and how workplace planning and design can best support their activities. Gensler's WPI revealed that office work falls into four categories:

- learn
- collaborate
- focus
- socialize

In today's economy, workplace success is determined not just by what people know, but by how fast they can *learn*. Gensler data indicates that workers at top companies spend 80 percent more time learning than their peers in average companies.

*Collaboration* is a workplace activity characterized by sharing, connecting, and building on ideas through a group process resulting in innovation and productivity. Proximity to each other in the office and visual contact help people interact.

*Focused* work is free of distractions and interruptions. Designers can create an office design, or workplace environment, that supports the privacy employees need for focused work.

*Social* networks help organizations solve problems, learn, innovate, and adapt. The resulting sense of community creates pathways of information sharing and helps to align values, culture, and mission. According to Gensler researchers, at top-performing companies, workers socialize 16 percent more than peers at average companies. Workplace design can enhance socializing through the development of such collaborative work spaces as non-dedicated team areas. This type of space allocation, which may be as much as 35 percent of the new office model, reflects the practical realities of today's mobile, collaboration-intensive work style.



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**Figure 14-22** Greater collaboration and teamwork are characteristic needs of today's workforce.

## Catering to Changing Work Styles

Like Gensler, Herman Miller Inc., a pioneer in modern-day office design, has also been researching the new ways employees conduct work in the office today. Herman Miller's research reveals a typical workstation, also called a cubicle, is unoccupied 60 percent of the day, while private offices on average are vacant 77 percent of the day. Conference rooms are rarely used to capacity, because people prefer less formal meeting spaces in the office.

What do these statistics mean for the design of corporate offices? Changing employee work styles mean the physical office environment must change, too. Herman Miller researchers found employees engaged in ten key behaviors in the workplace: three were labeled as *alone* tasks and seven as *together* tasks. They call it the "Living Office."

- Alone tasks included *process/responding* (on computer/phone/text—process then talk), *contemplation* (ponder issues or status), and *creation* (solve problems).
- Together tasks included *chatting* (impromptu interactions), *conversing* (purposeful planned meetings), *co-creating* (group development of new ideas), *divide/conquer* (teams in close proximity), *huddle* (anytime connections to solve urgent problems), *show/tell* (lecture format), and *warm up/cool down* (conference room connections).

Each task was defined. For example, *divide and conquer* refers to a team with a common goal that divides up the work into individual tasks with members who work parallel to each other in close proximity. The team shares developments and information as it reaches its goal.

Understanding evolving work styles, Herman Miller designed office settings that support the ten research-identified behaviors in the office. These include

- Haven (heads down/private time)
- Hive (workstations)
- Jump space (touch-down spaces for mobile workers)
- Clubhouse (team-based activity with mobile marker board; group work)
- Cove
- Meeting space
- Landing
- Workshop
- Forum
- Plaza

Each setting was defined. For example, *landing* spaces are those that are adjacent to meeting places where people gather, waiting for the meeting to begin. Many conversations and *work* can take place prior to a meeting in such landing spaces. To accommodate the many needs of people doing different work, *Living Office* suggests designers move from the specification of standardized workstations and meeting rooms to a diverse configuration of purposeful settings, **Figure 14-23**.

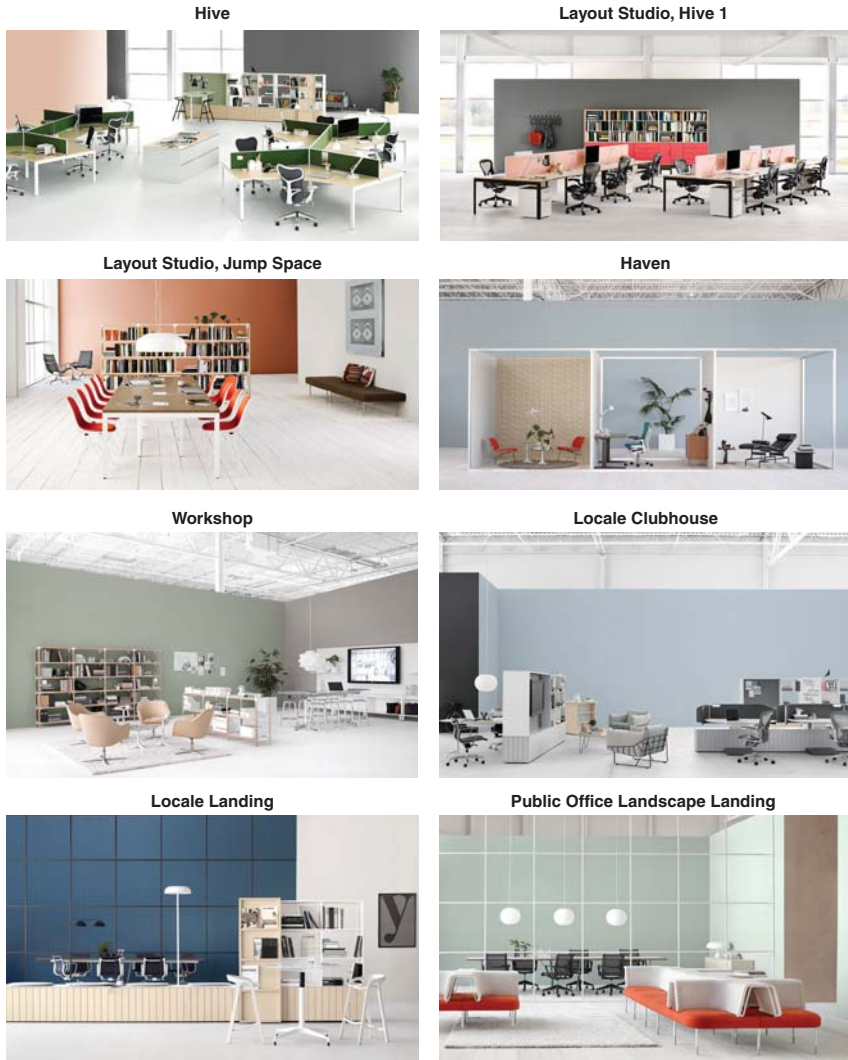## Supporting the Generational Shift with Flexibility

Not only is the design of the workplace changing, but so are the people in it. Baby boomers, Generation X'ers and Millennials are working alongside one another. Each generation brings its values, goals, and communication approaches to the workplace. Results of a study by the Business and Professional Women's Foundation indicate that by 2025 Millennials will account for 75 percent of the world's workforce.

Designers face the difficult task of creating workspaces that can accommodate all generations. To do so, they are paying close attention to the need for flexibility in supporting different work styles, individual habits, and social interactions between different generations.

## Supporting Need for Privacy

While the designs of many offices today are innovative in supporting varying work styles, many employees still work in open-plan offices. A survey of 2000 workers commissioned by Ecophon, part of leading international materials company Saint-Gobain, reveals that a lack of acoustic treatment in these spaces has a negative impact on employee productivity. Almost 80 percent of those surveyed work in open-plan or shared offices.

When asked their opinions about the present acoustic environment in their offices, more than half of the responders said it is sometimes challenging to concentrate on the jobs when working in open-plan workspaces. About two-thirds replied they are also troubled by the lack of privacy in open-plan offices. Additionally, more than 40 percent claim they have *no* access to private areas or quiet rooms. Regular noise disturbances can negatively impact employee concentration resulting in lost hours of work and poor performance and productivity.

**Hive**

**Layout Studio, Hive 1**

**Layout Studio, Jump Space**

**Haven**

**Workshop**

**Locale Clubhouse**

**Locale Landing**

**Public Office Landscape Landing**

All images courtesy of Herman Miller, Inc.

**Figure 14-23** Herman Millers' "Living Office" designs focus on key behaviors in which employees most engage in the workplace. *Search the Herman Miller website to learn more about the "Living Office."*

## Traditional Office Design Issues

While the text earlier addresses several issues related to corporate office design, it is also necessary to discuss many traditional interior design issues. These have not disappeared as new workplace designs evolve. Issues designers need to address include

- creating efficient traffic patterns
- enhancing workflow between departments and key individuals
- integrating flexible technology
- developing effective signage and wayfinding to assist those finding their way through the building
- understanding territoriality and integrating confidentiality
- improving ergonomics, anthropometrics, and comfort
- considering privacy versus spatial efficiencies
- integrating democratic use of space
- creating a healthy work environment that reduces absenteeism

Of all the hundreds of things that impact productivity in the office on a daily basis—interruptions, last-minute meetings, the Internet—rarely does the desk chair come under consideration. This is an unfortunate mistake. According to research, proper office ergonomics can result in a 400 percent increase in productivity and an average of $150,000 in company savings year over year. (For instance, people who are comfortable in their seats sit longer, increasing productivity. Those who are uncomfortable get up and move around more often to relieve discomfort.) Common ergonomic issues employees face include wrong table heights, banging their knees on the keyboard tray, cramped space, no back support, no elbow support, and having to cradle the phone between shoulder and ear while using the computer. These are all issues the interior designer can, and should, address.

## Common Office Spaces

There are common office spaces in the workplace. They are designed to support an organization that wishes to conduct business, assess quality of work, engage with clients and customers, develop marketing strategies and sales, and increase productivity.

## Reception Area

The design of the reception area creates the first impression of the organization to visitors. Therefore, the design is very individualized in communicating the personality of the firm. The reception area is where branding is important and where visitors receive an initial greeting, **Figure 14-24**. The lobby itself often meets two basic needs, including

- assistance for the visitor during arrival and departure
- access to a waiting area.

Areas next to the reception area include the entrance, public conference room, workroom, break room, and storage space for guest outerwear. The receptionist's work area is located in the lobby and requires access to a workroom for photocopying and resource materials. It should have a two-level transaction counter or desk to meet needs of all visitors. The waiting area design generally has a grouping of furniture or multiple groupings of guest or lounge seating. Small tables are set between guest chairs. Artwork, plants, and sculptures are common accessories. Keeping in mind proxemics (public) distances, waiting room furniture often includes single chairs with adjoining tables, **Figure 14-25**.

## Conference Room

The conference room should be accessible from private offices and the reception area. It should be welcoming and communicate the organization's brand. It can range from a small meeting room that seats four to six people to a large, elaborate boardroom that seats 30 to 50 people. If the organization is large, there will be one main conference room and multiple smaller conference rooms, **Figure 14-26**.

Conference rooms are spaces that businesses use to conduct in-person, group meetings. At times, this may be where a business holds a teleconference. Therefore, this space needs to be a **smart space**—one equipped with a screen, speakerphone, projection device, sound, large computer screen, and controls to operate technology. If possible, it should have a view to the outside with operable window shades for room darkening capabilities. Some storage space is also a requirement.

Four types of furniture are common in conference rooms: a medium-to-large table, armchairs, *credenza*— a sideboard for books and materials, and another side

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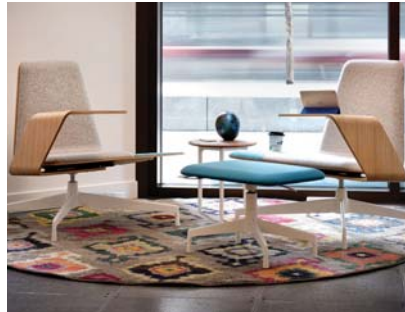


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**Figure 14-24** The reception area provides visitors with a first impression of a business and its brand. *What does the design of these reception areas communicate to you about the personality of these businesses?*
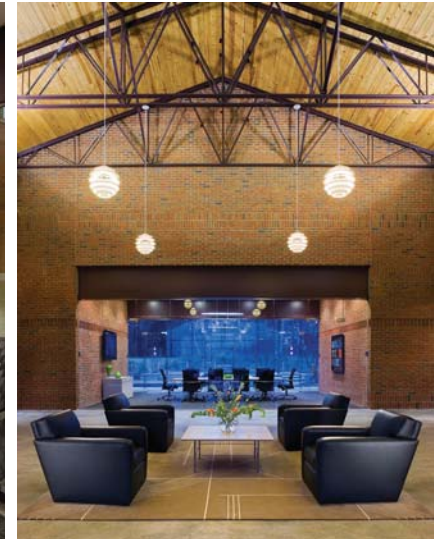


Haworth, Inc.



Haworth, Inc.

**Figure 14-25** The design of waiting areas should provide comfortable guest seating—generally a combination of single chairs and small groupings of chairs and tables.

Photography: ©Jim Roof Creative, Inc./Rabaut Design Associates



Photography: ©Jim Roof Creative, Inc./Rabaut Design Associates



Chris Little Photography/Rabaut Design Associates



Haworth, Inc.

**Figure 14-26** Businesses use conference rooms to conduct in-person business or business via teleconference. *What factors does the designer need to consider?*

surface for either storage or refreshments. There is typically some type of audio-visual or other communication equipment available along with a podium and easel.

## Public Restrooms

Restrooms should be accessible off the lobby and be compliant with ADA standards. Either unisex or both-gender restrooms are appropriate. You can see standard configurations online. These spaces require accessibility to plumbing lines. The location of public restrooms should be central without being a focal point of the design. Interior designers must be aware of the specific numbers and types of plumbing fixtures the codes require for public buildings of varying sizes. The plumbing codes include privacy and minimum clearances. Restroom entrances must strike a balance between accessibility and privacy—easy to find and enter, yet private for users.

## Private Zones

Private zones in an office design relate to the spaces where employees accomplish their primary work. These spaces include private or open offices, support staff offices, break room or cafeteria, storage and mailing facilities, and restrooms. These areas often use standard and sometimes custom office furniture. There are nine general product types of furnishings, including

- **Case goods.** These include desks, credenzas, bookcases, and storage units. The style of these furnishing communicate the overall style of the office design.

- **Filing.** These systems may include lateral files, vertical files, pedestals, and storage cabinets.

- **Panel systems.** Also called workstations, cubicles, systems furniture, open-office furniture, they consist of different parts. The parts include a work surface (similar to a desk top only), base storage units, panels, and overhead bins. These systems may also require special attention to mechanical and electrical systems for human comfort and functionality.

- **Tables.** The selection of tables may include conference, training, lunchroom, and informal occasional tables such as an end table, **Figure 14-27**.

- **Seating.** Desk chairs, conference room chairs, guest chairs, sofas, lounge chairs, stools, and stack chairs may all be part of the design. Ergonomic desk chairs are some of the most expensive pieces of furniture in today's office.

- **Shelving.** Shelving types can be open, closed, and movable.

- **Custom furniture.** Desks, tables, counters, workstations, and seating can all be custom designed

- **Accessories.** Used to enhance the space design, accessories may include desk lamps, letter trays, and planters.

- **Equipment.** Office equipment needs will vary, but often include printers, copiers, computers, and audio-visual equipment.

## Private Offices

Private offices are a status symbol in many office environments. These offices have full-height walls and



**Figure 14-27** Depending on business needs, the designer includes a variety of case goods, filing systems, and tables in private areas of an office where employees accomplish their work.

Haworth, Inc.

a door with acoustical control to ensure privacy of confidential matters. Similar to a home office, private offices are in quiet zones of the building next to support staff, if necessary.

Furnishings for private offices consist of a desk, desk chair, two side chairs, bookcases, credenza, and sometimes a small conference table. Technologies must be supported in the private office such as digital and communication devices. The designer often consults the professional who uses this office about his or her preferred furnishings and configuration of them.

Private office layouts require customization. They should be pleasing and acceptable for each individual occupant. Furniture is generally positioned off a sidewall facing the door opening and not directly in front of the door to allow door swing clearance. Accessories include a marker board, plants, and artwork, **Figure 14-28**.

### Workstations

Workstations, also called *systems, workspaces,* or *panel systems*, are exactly as they sound—open to other nearby people via sight and sound. Such systems do not use full-height walls to frame the room, but instead use panels in a system format, **Figure 14-29**.

Workstations are popular because they require much less space than private offices. For instance, a designer can put two, 100-square-foot workstations in the same

225-square-foot private office. Workstations lower yearly rent costs, decrease construction and operating costs (such as lower utility bills due to fewer light fixtures), and improve tax write-offs and **life-cycle costs**—the costs of products from purchase through disposal. They are easy to transport if the organization moves to a new location or relocates within the same building.

To enhance communication, designers often group or zone workstations together with other team members in the same department. Workstation groupings should be away from noise and adjacent to necessary support staff. Panels that serve as walls for workstations are usually *powered*. This means that the panels are wired with electrical, telephone, and data hookups that are typically located in walls. In addition, they can offer acoustical privacy depending on the way they are constructed and finished.

Furnishings within workstation groupings include a work surface, ergonomic chair, side chair, storage—usually in the form of movable bins, and technology support. Panels often form separations between the workstations.

There is no typical industry-accepted standard size or layout for workstations. Many businesses select two or three layouts and sizes as typical workstations based on their average employee needs. Workstations are often eight feet by eight feet. The work surfaces can be configured in an L- or U-shape.

### Support Staff Offices

Staff support offices are for those who assist in meeting business needs as a company defines them. Support staff members often produce reports, retrieve data, connect employees to others, and handle duplication production. Acoustical privacy is not always a requirement but is preferable to enhance employee focus and concentration on work tasks. Furnishings for a support staff member include a desk or work surface, desk chair, and storage. Electrical, phone, and data hookups are also a requirement.

### Additional Areas

Depending on the size of an organization and its values and goals, the designer may incorporate other areas into an office design that support business functions and employee health and well-being. These include



**Figure 14-28** Because private offices require customization, it is important for the designer to consult with the professional who uses the office regarding configuration of furnishings.

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**Figure 14-29** The use of panels in workstations require less space but allow the designer to zone workstations within a department to enhance communication among team members.

- ■ **Receivables and deliveries.** All offices handle deliveries and may produce product materials that require mailing. Even with technologies today, many items still require manual delivery. In addition, the business organization and the designer need to determine storage needs and a storage process.
- ■ **Fitness center.** Depending on the facility size of, the organization may desire an employee fitness center. These facilities encourage physical and mental health that translates to workplace productivity. The employer generally provides the exercise equipment and staff to operate the fitness center.
- ■ **Break room.** Employees are entitled to breaks and a lunch period during the course of a work day. They often stay on-site during these breaks. A break room generally has small tables and side chairs (usually stackable), refrigeration and microwave equipment, a sink, and possibly a view outside. Because noise and food aromas are associated with the space, it should be separate from the public zone. This space also requires accessibility to plumbing lines, **Figure 14-30**.
- ■ **Restrooms.** The location of employee restrooms is often near open, private, and staff offices. They should also be ADA compliant. These spaces also require accessibility to plumbing lines.

**Figure 14-30** Break rooms are public spaces that employees use during break and lunch periods. *What design features do you think are most important in such spaces? Why?*

# The Design Process: An Exercise in Corporate Office

As you continue your study of interior design, learning how the design process flows in commercial design projects is essential. The intent of this section is to walk you through the process from the designer's perspective, using corporate office design as the focus of the scenario.

## Phase 1: Pre-Design

Let's talk about the design phases as a designer would approach the design. Presume you have been hired by *Innovativ Entrepreneurs Corporation (IEC)* to design their new offices. In the Pre-design phase, you and the client came to an understanding about the scope of services you would perform. The client has signed a contract, completing the pre-design phase of the project.

## Phase 2: Programming

The usual name of the document that contains the information and criterion you need to design the spaces is the client's *Program*. The Programming phase for IEC has two parts. First, you will gather information and compile a list of needs the client has for their new spaces. The gathering of data often includes a walk-through of existing spaces as well as their future spaces, personal interviews, focus-group sessions, and employee surveys, **Figure 14-31** and **14-32**.

The second step of the Programming phase is to use written summaries, spreadsheets, diagrams, and charts of the research to compile the collected data into a **Program Report** that presents an ideal scenario for the client's new space. Depending on the size of the project, this report may be the size of a spiral-bound book or may utilize several three-ring binders. During the Programming phase, the designer determines the client's existing furniture, fixtures, and equipment (FF&E) and spatial needs, gatherers data that informs the design, and develops a summary for client approval and signature. The designer may complete this phase without knowledge of the building the client intends to lease or use.

Helen Filatova/Shutterstock.com

**Figure 14-31** Prior to beginning a design project, it is important for a designer to walk through a client's space.

| Questions for Programming Data | |
|---|---|
| **Survey Questions** | **Questions for Personal Interviews and Focus Groups** |
| ■ What type of work does this organization, department, or unit do?<br>■ What is the culture of the organization? What are the interior design goals to reflect this culture?<br>■ What is the philosophy of the business related to customers? Does a mission statement exist?<br>■ What is the client's vision for the business in five and ten years? Is there projected growth that should be considered?<br>■ How many employees work at this location? Are there satellite offices?<br>■ What are the employee demographics in regard to age, gender, and culture?<br>■ What are preferred employee work styles?<br>■ Will the furniture be new or repurposed?<br>■ What type of organizational branding should be visible in the client space?<br>■ What type of communication is preferred between administration and key individuals?<br>■ What sustainable and green design factors are to be encouraged?<br>■ What do the current spaces look like now? How do they reflect or not reflect the needs of the corporation?<br>■ Do employees prefer to work in traditional workstation configurations or flexible cafés? | ■ What is your department? What is its function?<br>■ Do you have a department organization chart to understand who reports to whom?<br>■ What adjacency requirements does your department have?<br>■ Who are your personnel? Are you expecting additional personnel?<br>■ What type of tasks of [specific personnel] are completed in a common workday?<br>■ What is your preferred work style?<br>■ What, if any, are the security requirements for specific tasks or departments?<br>■ What tasks are hindered by the current work space(s)? |

**Figure 14-32** Formulating survey and interview questions is key to the designer's programming work. *What questions might you add to these?*

The Program Report serves two purposes. First, the designer and team need finite details of the client's needs and functions for space. Second, others need macro-information from which to pull economic information or specifics about the space (such as the total square footage of project). The Program Report is often divided into six sections that include

■ **Preliminary information.** Cover sheet, title page, and table of contents.

■ **Executive summary.** Generally two to six pages in length, the **executive summary** compiles information and quantities from other sections of the report into a summary of data outlined in the Program. It includes an opening statement, objectives of the report, methods for gathering data, and a summary of data findings.

■ **Organizational charts.** These charts diagram corporate departments and their relationships to each other. Usually there is a hierarchy within a company even if it is relatively innovative in design.

■ **Adjacency or relationship bubble diagrams.** These diagrams indicate both internal and departmental interactions and associations. The internal diagrams focus on individuals, units or groups, and the support functions within each group. The external diagrams focus on interactions across departments or divisions. Designers can create diagrams using the matrix style or bubble diagrams.

■ **Typical layouts.** Copies of a typical office furniture arrangement and size, workstation, and support room layout are also part of the Program Report. The designer creates a list of furniture needs and calculates the average square-foot-totals per person. Commonly called **prototypical layouts,** or *typical*, the designer develops them based on the minimum square-footage requirement for the tasks people perform in a space. The quality of the furniture, fixtures, and equipment (FF&E) relates to the organizational philosophy and budget. *Typicals* are easy to develop in CAD software.

■ **Additional materials.** These can include interview summaries, existing or future floor plans, and budgets.

Once the client reviews the Program Report and the designer or design team makes all changes, the client will sign and date the report as a legal document. For a commercial project, it is possible that two weeks to six months may pass before *space planning* begins. At that time, the Program Report becomes the source for every aspect of the planning process, **Figure 14-33**.

Once the designer identifies the programmatic requirements, the client may ask the designer to perform a test fit. A **test fit** is the process of using the client's square footage needs and testing it—or diagramming it—into different available building spaces the client may lease in the desired location. The goal is to see if there is enough space available both for the current client needs and any future needs.

If the client has already leased space, as with IEC, the commercial interior designer reads the lease agreement to review details that might impact a design solution. If your client signs a multi-year lease, it is a common practice for building landlords to pay for all or part of the structural remodeling costs. This specialty of interior design practice is called *tenant improvement (TI)*.

## Phase 3: Schematic Design (SD)

The Schematic design phase involves identifying a concept, analyzing the client's needs using a matrix and bubble diagrams, and preliminary suggestions for furniture, fixtures, and equipment (FF&E). As the designer performs the analysis of client needs, it is important to consider the zones of the spaces and the building envelope. The **building envelope** consists of the walls, floors, and ceilings of the building footprint. Drawings during this phase can be manually or computer generated.

### Concept Development

After brainstorming ideas and selecting three to present to the client, *Innovativ Entrepreneur Corp* chose an *urban rustic* concept. The existing building has rough-hewn woods, exposed brick walls, and wide-plank floors. This space looks raw and unpolished to attract start-up entrepreneurs.

These materials are a throwback to a time when Americans built physical products and things without the use of modern tools. Likewise, employees and clients want to feel they are part of building something from the ground up—wanting to feel part of something greater than themselves. People want a raw space in which hierarchy is nonexistent—making all feel they are part of something distinctive. Such environments change the thinking of employees and clients from hierarchy to collaborative team, **Figure 14-34**.

## Innovativ Entrepreneur Corporation: Program

The following Program outlines the client functions and needs for the *Innovativ Entrepreneur Corporation* new corporate offices.

***Executive Summary:*** IEC is a well-known company headquartered in Seattle, Washington. It is fast-growing and employs young experts (20-somethings) that are knowledgeable and educated in the development of start-up companies. Their leased spaces will occupy one large floor of a short, multilevel, warehouse building on the shores of Puget Sound.

IEC's employees are environmentally conscious, untethered to corporate offices, highly collaborative and interactive, tech-savvy, and conscious of community-driven social responsibilities.

Five divisions occupy the fifth floor: administrative core, business and legal, research, marketing, and education and training. In addition, the public or service areas to be designed into the space include reception/waiting, conference room(s), copy centers, storage rooms, and café. (Note: The café is to be designed as an alternate workspace because many employees like to wander as they work or collaborate near food.) Public restrooms currently exist as part of the building core.

To mimic the new way of start-up companies, IEC wants to move away from strict use of workstations and move toward more open floor plans, where collaboration is as simple as looking across the desk to talk with a coworker sitting five feet away. In addition, the company wants to include *tertiary spaces*—spaces that are not conference rooms nor are they personal desks. They are in-between spaces—such as cafés or alcoves—that are quiet and engaging, where technical people can focus and collaborate without being separated from others in a sterile environment. A space that is full of collaborative areas but has zero quiet space is just as unsuccessful as a space that is full of offices and without collaborative space.

### Programmatic Requirements

**Public/Service Core**
- Reception/Waiting Area: 400 SF (includes waiting for 6 people)
- Two (2) small conference rooms: one private
- Two (2) Copy/print rooms: 600 SF
- One (1) Café/Alternate Work space: 800 SF with a view outside
- One (1) Conference/Training room: 600 SF; technology proficient
- Two (2) Storage rooms: 150 SF

**Administrative Core**
- Four (4) Workstations: 150 SF each; grouped together; semi-private; space on wall to hang bikes; teleconference capabilities

**Education/Training Division**
- Fifteen (15) Workstations; semi-private; 100 SF ea.
- Two (2) Perch and plug-in collaborative areas; semi-private; 150 SF each
- One (1) Storage room; 50 SF

**Business/Legal Division**
- Five (5) Workstations; semi-private; 100 SF ea.
- One (1) Conference room; seats six; 200 SF
- Twenty (20) lateral files, minimum

**Marketing Division**
- Five (5) Workstations; semi-private; 100 SF each
- One (1) Conference room; seats six; 180 SF

**Research Division**
- Three (3) Workstations; semi-private; 100 SF each
- Five (5) lateral files, minimum

**Restrooms; existing**

**Figure 14-33** Read through the sample Program Report for the *Innovativ Entrepreneur Corporation. Give examples explaining how this report remains the source document for the designer throughout the planning process.*
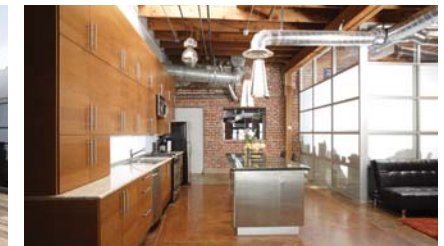
melis/Shutterstock.com
photobank.ch/Shutterstock.com
RoyStudio.eu/Shutterstock.com
ifoto/Shutterstock.com
Horiyan/Shutterstock.com
Franck Boston/Shutterstock.com
imging/Shutterstock.com

**Figure 14-34** The materials in these spaces offer the feel of the urban rustic design of the Innovative Entrepreneur corporation. *Examine the photos. How do these images capture the client's desire for its offices summarized in the Program Report?*

## Matrixes and Bubble Diagrams

To analyze the client's programmatic needs, a matrix was developed and relational—also known as adjacency—bubble diagrams were drawn. Once the relationships between the administrative core, divisions and public/service areas were determined, another series of bubble diagrams were drawn within the building footprint. When the second set of bubble diagrams is placed in the building footprint, the designer considers such space planning issues as:

- views/daylight
- furniture, fixtures, and equipment (FF & E)
- employee and user health, safety, and well being

Next, bubbles are moved around as needed within the building footprint to address the above issues as well as the client's needs, such as relationships between divisions and specific square footage to be allocated to each space. Once the location of the bubbles placed appropriately, you can shape the bubbles into blocks and begin the blocking stage, **Figure 14-35**. Again, as you do so, you consider the following four issues: building and fire safety codes, ADA regulations, circulation patterns, and wayfinding.

### Building Codes and ADA Requirements

In addition to the issues above, it is critical to incorporate appropriate building and fire safety codes. Building codes protect the health, safety, and well-being of the public by providing guidelines for constructing spaces under various conditions. The nationally recognized building code is the *International Building Code (IBC)*. The Americans with Disabilities Act (ADA) codes support and mandate accessibility to the workplace, regardless of physical ability. After working in commercial design, code requirements become second nature to the designer. It is the designer's responsibility, however, to verify codes relevant to the location of the project.

### Circulation Patterns

As bubbles and blocking diagrams are used to allocate the client's space in a building footprint, the designer must consider circulation patterns. There are two types of circulation: primary pedestrian passageways—usually part of means of egress—and secondary passageways to facilitate the general flow of people. The designer addresses circulation in such areas as

- walking space
- standing space
- sitting space
- space to open doors and drawers
- space to move items such as furniture
- leftover or unusual space

As the design of paths occurs, one goal is to avoid dead-end corridors. These corridors do not lead to any means of egress. They may lead to an office or restroom, but not to a stairwell that building occupants can use to travel to safety. In buildings *without* sprinkler



Drawings courtesy of Boulder Associates Architects

**Figure 14-35** Block and stack diagrams are essential to evaluate alignment of building features such as stairways and elevators in all levels of a building. Note the circled areas on these drawings are a key area the designer must evaluate for egress and circulation.

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## DESIGNER MATH SKILLS

### Codes, Occupancy, and Fire Exits

Daily people move in and out of supermarkets, hotels, malls, restaurants, medical facilities, entertainment venues, and even amusement parks with a sense of confidence, knowing that public spaces are regulated for health and safety by international building codes. Fire codes and safety regulations are the result of lessons learned from horrific commercial fires resulting in staggering numbers of fatalities. Causes for these fatalities include flammable materials, toxic fumes, inoperable doors, blocked hallways and exits, props, faulty wiring, inappropriate working conditions, and projects completed without permits or inspections.

Two critical design components when addressing safety to adequately serve the number of occupants in specific spaces include
1. establishing maximum occupancy limits
2. designing an appropriate emergency exit system—known as the means of egress

Maximum occupancy limits can be determined from the *International Building Codes (IBC)*. Its classification system categorizes spaces based on function (for example, airport terminals, bowling centers, courtrooms, day care, commercial kitchens, retail malls, warehouses and private residences). Using floor area allowances per occupant, known as *Occupant Load*, the IBC provides the following method for calculating maximum occupancy limits.

| Size of Space | Function of Space | Occupant Load Factor* | Maximum Occupancy |
|---|---|---|---|
| 1200 sq. ft. | Library reading rooms | 50 net** | 1200 sq. ft. ÷ 50 net load = 60 occupants |
| 2000 sq. ft. | Assembly hall without fixed seats (standing space) | 5 net | 2000 ÷ 5 = 400 occupants |
| 2000 sq. ft. | Airport terminal—baggage claim area | 20 gross*** | 2000 ÷ 20 = 100 occupants |
| 13,448 sq. ft. | Skating rinks, swimming pools (average public pool is 82 ft. × 164 ft. = 13,448 ft.) | 50 gross | 13,448 ÷ 50 gross = 692 occupants |
| 512 sq. ft. | Stages and platforms | 15 net | 512 ÷ 15 = 39 people |
| 644 sq. ft. | Assembly unconcentrated (with tables and chairs) | 15 net | 644 ÷ 15 = 43 people |

*Occupant Load Factor is the net floor area per occupant (sq. ft.).

**Net is the actual workable space i.e., a classroom, office, stage.

***Gross is the outside dimensions of a building minus the exterior walls, atriums, mechanical closets providing a refinement in the occupant load determination.

Once the designer calculates the maximum occupancy, the means of egress—the unobstructed exit system—must be addressed. For all portions of a building that can be occupied, design decisions are determined by the following *three* components of egress:

- *Exit access* is the area leading occupants of a building to exits (for example, a corridor, aisle, pathway, stairwell, or ramp). On a plane, travelers are asked to stow all items securely under their seats or in overhead bins to keep the exit access—the space under a passenger's feet and the aisle—free of interference. Elevators, escalators, and moving walks cannot be included in the egress system.
- *Exits* are exterior exit doors at ground level, exit passage ways, exterior exit stairs, and/or exit ramps.
- *Exit discharge* is the area that provides direct access to a lawn, courtyard, street, sidewalk, or open space, and must be large enough to accommodate the building occupants likely to use the exit route at any one time.

The three components of egress apply to all portions of a building that people can occupy including spaces such as boiler rooms, locker rooms, and meeting rooms. No building element or object can obstruct the means of egress at any time. For example, a piano cannot temporarily block a backstage fire exit. Likewise, stairwells cannot provide temporary storage for any reason. Proper maintenance of the egress system must occur for the life of the building.

*(Continued)*

## DESIGNER MATH SKILLS

### Codes, Occupancy, and Fire Exits *(Continued)*

According to the *Occupational Safety & Health Administration (OSHA)*, "…more than two exit routes must be available in a workplace if the number of employees, the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would not be able to evacuate safely during an emergency."

When designing the means of egress, a designer requires additional information about a specific property to determine the exact number of exits. The designer considers the number of floors, seating (fixed seats, benches, and booths), door direction, travel distance to an exit, and the distance between exits. Posting the maximum occupancy of an assembly area is a requirement. This avoids overcrowding which would compromise an evacuation.

When designing a space with two or more exits, you must know the maximum distance of the space, and then calculate it based on whether a sprinkler system is present. To determine the maximum distance in a space (for example, in a cafeteria), you measure the furthest distance in the space (see diagram) then calculate it with or without a sprinkler system. If fire or smoke blocks one exit, the occupants can safely move away from the hazardous conditions evacuating through the second exit.

If there is *no* sprinkler system, divide the maximum distance of the space by two.

80'-0"
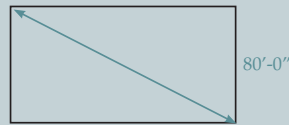
80'-0" ÷ 2 = 40'-0" distance between exits.

If there *is* a sprinkler system, divide the maximum distance by three.

80'-0" ÷ 3 = 20'-7" distance between exits

Additional detail information about the means of egress for specific commercial and residential buildings is available online by searching OSHA or the International Fire Code.

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systems, dead-end corridors may not exceed 20 feet. In buildings *with* sprinkler systems, these corridors may not exceed 50 feet.

The designer plans large circulation paths around escalators, elevator banks, and stairwells. Security and emergency systems, ADA, and codes for fire safety must all factor into the design plan. Some of the issues that impact systems and circulation paths include

- **Number of end users.** The public can be several hundred or thousands.
- **Wayfinding strategies.** Upon entry of public building, the expectation is that a person can easily self-guide from point A to point B and back out again.
- **Safety and security.** Safely and securely moving occupants through the space and offering efficiency in customer service.
- **Health of end users.** Use a design approach that incorporates physical activity into the design plan for building and neighborhoods.

A designer must analyze the circulation needs and develop a design that enhances public safety and comfort of the end user. Some common strategies include

- Common paths of egress travel, including analysis of the distance people will travel before they have an option to take another path to safety.
- Egress corridors with a minimum of 44 inches and whether or not the space has sprinklers. For a commercial building with sprinklers, 44-inch wide corridors can serve floors up to 22,000 square feet. As square footage increases on each floor, wider corridor widths are a requirement. The higher the building, the wider the hallways must be at lower levels to address the volume of people exiting at the same time.
- Most organizations require at least two exit doors from its space, although office areas less than 3,000–5,000 square feet may provide only one exit door depending on code.

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- Egress doors are double doors with **panic bars**—spring loaded metal bars on the inside of an outward-opening door used to push in emergencies.
- Lobby spaces appropriately sized to hold number of people moving through space and out of the building.
- **Airlock entries** which are small, enclosed spaces just inside a commercial building that keep bad weather out.
- Appropriate signage and wayfinding techniques related to fire exit.
- Compartmentalized spaces within the organization. Compartmentalization occurs when fire-rated walls are used to keep any fire contained in a specific location for a period of time—usually one hour—to allow safe public egress from the building.

### Wayfinding

Wayfinding has been mentioned a number of times in this chapter. Helping people to find their way is the essence of effective wayfinding. Moving people from one space to another in large buildings (such as a 440,000 square foot hospital) is a challenge. **Signage**, the symbols and text used to visually communicate directions and locations of divisions must be well developed,  **Figure 14-36**. Effective wayfinding includes

- **Spacing and location.** Sign placement can be best viewed when placed at consistent and strategic decision-making locations.
- **Legible signage design.** The ADA suggests options that have proven helpful when creating legible signage design.
- **Landmarks.** Those elements that help people remember a location as they find their way through a building (e.g. café, water feature).
- **Color.** Color visually connects one part or wing of a building to another.
- **Lighting.** This allows designers to accentuate areas within the building through light.

As blocking of spaces take place, the designer adds furniture and fixtures to determine if the allocation of square footage is appropriate and if shapes of proposed spaces require revisions. This is a fun part of space planning. It is like solving a jigsaw puzzle without a picture to look at!

In addition to space planning, the designer or design team also puts together suggested lighting plans, interior finishes and color palettes, signage and wayfinding strategies, as well as budget information. Sometimes, more than one space plan and interior material presentation board may be developed, although presenting too many options to the client is dangerously confusing. Your expertise guides the best design solution.



Photos courtesy of Boulder Associates Architects

**Figure 14-36** Developing accurate and adequate signage symbols is important to visually communicate directions.

## STUDENT SPOTLIGHT

### Passion for Interior Design

**Michael Bent.** "I am interested in hospitality design specifically because I love the idea of third place and creating a home for people that is shared with their community. Whether it is restaurant café, a nightclub, or a hotel, these are places people go to relax and enjoy themselves while experiencing some unique and different that isn't offered anywhere else. I enjoy the flexibility and wide range of design concepts and creativity that can be expressed in hospitality design. I think society is moving toward smaller personal living spaces and more public spaces. These public spaces include restaurants, theaters, coffee shops, and more. I want to create a place that is someone's "spot." I want to design hotels that feel like home when you're thousands of miles away—or the favorite restaurant a person goes to every week because their favorite in the back is available every time.

"It is also my goal to get involved with projects internationally and eventually live abroad. After spending a semester in Paris, I am passionate about the idea of learning new cultures and ways of living. It adds a unique challenge as a designer to create a space for a client with a diverse background and differentiating values and habits. The world is shrinking everyday and it is the interior designer's duty to create spaces that understand various cultures and are as inclusive as possible."

**Paul Vanderheiden.** "I have a passion for family values and an intrigue for human relationships and behavior. Throughout my life, I have always been diligent and found happiness in the success of my creativity and hard work. I was the one always trying to draw the best portrait, or paint the best painting, or mold the best sculpture, and I was upset if my artwork didn't win the awards at the end of the year. I enjoyed pushing myself in analytical and creative ways with high school classes such as photography, studio art, architecture and engineering, as well as algebra, trig, and statistics. I was fortunate to receive some exposure to Autodesk Revit during my senior year, and I eventually won the award for Engineering Student of the Year partly because of my projects and work in the program. All of these things naturally led to my interest in interior design and architecture."

At the end of the Schematic Design phase, the designer presents the proposed design solution and preliminary budget to the client. Movement to Phase 4: Design Development requires a client signature on the design proposal and preliminary budget.

## Phase 4: Design Development (DD)

During the Design Development phase, the designer refines the space plan and relevant design features developed in the Schematic Design phase. It is important to finalize the plan because all other features and subsequent construction and installation guidelines hinge on its successful completion. Typically, the designer develops the final drawings and FF & E specifications in this phase which become part of the contract documents that are signed prior to construction. The designer executes the drawings using CAD or REVIT software.

Guidelines for the refinement of the design and execution of final drawings include

- Evaluate the building footprint one more time. Verify accurate dimensions for the client's space.
- Determine the location of columns and **plumbing chases** (false walls—either horizontal or vertical— that conceal plumbing). The plumbing will guide the location of public restrooms and break rooms.
- Block out the public corridors, including locations and egress.

## DESIGNER MATH SKILLS

### ADA Standards for Wheelchair Accessibility

The Americans with Disability Act (ADA) *Standards for Accessible Design* of 1990 was established to ensure *equal access* to public facilities for people with disabilities. Structures built after the early 1990s are considered new construction and must meet all ADA standards. Buildings existing prior to 1990 are addressed as "alterations" or "exceptions" and are considered remodels, renovations, reconstruction, or historic preservation projects. Because of the construction and features of these buildings (for instance, a historic site) it may be impossible to comply with the standards and maintain the integrity of the building. ADA guidelines indicate these properties must comply with the "maximum extent feasible" or provide approved alternative methods of access.

A commercial property must provide access once an individual arrives on the property. The parking lot, unloading zone, or public transportation stop becomes the *site arrival point*. The *accessible route* (path of travel) includes curb ramps, sidewalks, ramps, entrances, elevators, hallways, and restrooms leading to the *primary function areas* where the major activities for which the facility is intended occur (for example, legal or financial services, sporting or concert events, theater productions, lecture halls, theme parks, courtrooms, ballrooms, hotels).

ADA Standards for Accessible Design indicate the following:

1. At least one *accessible route* shall be provided within the site from accessible parking spaces and accessible passenger loading zones, public streets and sidewalks, and public transportation stops to the accessible building or facility entrance they serve. *Exceptions or alteration to the standards* for qualified historic buildings or facilities state that no more than one accessible route from a site arrival point to an accessible entrance is required.
2. The accessible route is to be readily accessible and usable by individuals with disabilities. If accommodations cannot be made for an individual with certain disabilities (for example, those requiring wheelchairs) the facility is expected to provide access to individuals with other types of disabilities (for example, those requiring crutches, or suffering from vision or hearing disabilities).
3. Any new additions to an existing older structure or additions made to affect the access must comply with the ADA accessibility standards.
4. If alterations are made to a primary function area (for example, a particular screening room in a movie theater), an accessible route must be provided to facilities servicing that area (restrooms, drinking fountains), as well as entrances, accessible routes, and site arrival points. The cost of the new accessible route and all that it includes cannot exceed 20 percent of the total cost of alterations to the primary function area.
5. If alterations are limited only to elements in a room or space (for example, the addition of restroom grab bars), then the accessibility standards apply only to the elements altered. If a room or space is completely altered, the entire room or space is fully subject to the accessibility standards.
6. The areas—such as supply storage rooms, employee lounges and locker rooms, janitorial closets, entrances, and corridors—are not areas containing a primary function.

When it is cost prohibitive to comply with accessibility standards, information or services must be offered in an alternative accessible manner or location. *Example:* When the location of a classroom, public meeting or courtroom is accessible only by stairs, someone in a wheelchair would not be able to participate. Other options would be to move the activity to a different location or provide audio access or teleconferencing.

Additional specific standards information is available from ADA Standards for Accessible Design or the United States Access Board.

- Insert the reception area into the space plan. It should be right off lobby or elevators. This space may fluctuate in size based on the room available and its location. It must also be an accessible, integral and unobtrusive design solution.
- Add private offices and then the large conference room. Determine the placement of offices as *window* or *interior* rooms.
- Insert workstations into the blocked space allocated to them.
- Add support rooms near appropriate offices. Continue to review your bubble and block plan analyses from the Schematic Design phase. Verify the adjacencies.
- Double-check the circulation including minimum widths for hallways and look for dead-end corridors.
- Use sound judgment to determine if there is any leftover space that could be incorporated into the space plan. If possible, allocate such space to additional storage units.
- Visually, walk your way through the client spaces from the point of entry to the exit. Complete this exercise several times as you look at circulation patterns that could impact different users of the space.

Once you complete the above process, look for good and poor **lines of sight**—views down a corridor or passage, either good or bad. For example, a good sight line is one by which you look down a corridor and see a view outside. A poor sight line is one in which a column blocks the receptionist's view of the entry in a reception area. Effective lines of site can also help direct guests to public spaces and keep them from private spaces. For instance, wide hallways invite passage while narrow hallways suggest a private passage.

Until the designer feels the space plan meets all program requirements in the best possible way, the plans should remain in work. Analysis of hallway widths and aisles between workstations, points of entry into an office, and workstation planning in a block diagram continues until the plan meets the program requirements. Although this seems like a standardized process, it actually necessitates creativity and technical expertise.

As refinement of the space plan continues the designer points out any changes in room size and/or workstations to the client. Depending on the scope of the project, the designer may hold ten or more update meetings throughout a year to inform the client about the design process. Each meeting involves a client presentation and often additional signatures to ensure everyone is up to date with the plans as the process moves forward. Once the basic plan is firm, the designer

- adds suggested furnishings to each space
- refines workstation configurations and specifications
- ensure outside views are maximized
- considers human factors such as ergonomics
- verifies all program requirements and circulation layouts are in a logical order
- puts critical rooms together or separates them per adjacency requests of the client
- ensures the design meets such code requirements as building, fire, and the barrier-free requirements of ADA
- verifies the incorporation of the creative concept
- confirms the design has some unique features that mirror the brand and philosophy of the client's business
- considers optional requirements such as universal design and sustainable design
- labels all areas clearly

The interior designer works with a lighting designer to determine how light will shape the newly designed spaces. Lighting enhances first impression of the space on the client as he or she walks through the front door. Specific lighting strategies are important for such other key areas as the large conference room, private offices, and workstation areas.

The designer then selects interior materials for upholstery, workstation panels, flooring, ceilings, walls, and window treatments. These materials must meet specific standards for commercial applications. Selecting *green* materials and products is important in this part of the design process.
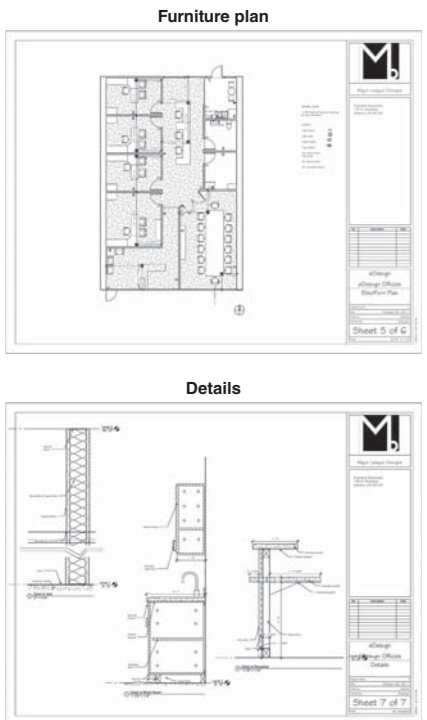
## Phase 5: Contract Documents (CD)

Eventually, everything comes together. Another client presentation takes place. Once the designer acquires client approval and the appropriate signatures, construction begins.

**Floor plan**

**Furniture plan**

**Elevations**

**Details**

Meghan Bentheimer, Sophomore Design Student, Colorado State University

**Figure 14-37** Contract documents contain the working drawings and specifications needed for construction.

Contract documents, or CDs, are the working drawings and specifications required to obtain a building permit and construct the finished space. CDs, by strict definition do not include the furniture plan, although it is often included to reference other details in the plan, **Figure 14-37**. CDs do include

- dimensioned plans
- reflected ceiling plans (RCP)
- power and communication data plans
- finish specifications
- elevations and sections
- mechanical, electrical, and plumbing (MEP) plans
- structural plans as needed

Another client presentation often takes place after the designer develops these documents.

## Phase 6: Contract Administration (CA)

Contract administration involves managing your contracts to make sure you comply with and fulfill the contract conditions. Good contract administration

ensures customer satisfaction and minimizes disputes. To successfully administer contracts, it is helpful to

■ have significant experience with design and construction

■ understand construction techniques and methods

■ understand building codes and standards

■ have the ability to communicate, negotiate, and resolve dispute

■ review and understand drawings and product information

■ have ability to organize and manage project records.

For commercial projects, tasks the designer must complete include the review, negotiation and finalization of subcontracts; management and tracking of project expenditures; administration of RFI's (requests for information) to clients, architects and consultants; and preparation of subcontractors' packages. If you are involved in contract administration, you need to be a detailed-oriented person with good communication skills.

## Phase 7: Move-In and Post-Occupancy Evaluation

The design process ends with the construction of the space and the client move. Once the client moves in, the designer addresses **punch lists** along with the installation of the art and accessories. A punch list is a list of tasks the builder or subcontractor completes after construction. An example of an item on a punch list might be touching up wall paint that was nicked during the move-in process.

Many times, if the client is moving from one location to another, the client will hire a *move management* company to organize the move in the most efficient way, **Figure 14-38**. After a certain preset time period, a post-occupancy evaluation may take place in *Phase 7: Move-In and Post-Occupancy Evaluation (POE)*.



bikeriderlondon/Shutterstock.com

**Figure 14-38** Often the most overlooked aspect of the design process, move-in and post-occupancy evaluation is essential to ensure client satisfaction.

## Analyzing a Commercial Design

Designers often look at case studies and precedents to evaluate and analyze design work that has been installed to determine how the client's problem was solved. They are also interested in the impact of design on the end users.

Following is a case study of a growing, innovative organization known as OtterBox. Since water sports such as surfing and scuba diving were gaining in popularity, this waterproof product is an electronics case. His wife, Nancy, dubbed it the *OtterBox*, in reference to the animal's waterproof fur.

The client problem was to take an existing building in a college town, and establish the headquarters for the organization using sustainable and green design features. While they had a projected growth planned into the design of the building, by the time the renovation was completed, the number of employees had increased so much that they had to purchase a second building shortly thereafter. Using points in the design process outlined above, and using their website online, analyze the design of the spaces.

### Analyzing OtterBox Headquarters

OtterBox—located in Fort Collins, Colorado—is known particularly as an innovator in the development of protective covers and cases for cell phones. Created in 1998, these protective cases were designed "for all the klutzy, spontaneous, chaotic, graceless individuals who have broken a device … due to their active lifestyle, and like our customers, we've been there, too." Similar to an otter's fur, their original line of cases is waterproof. The company considers its organization cultural characteristics similar to the otter's—fun, creative, works hard, and plays hard.

OtterBox began as a start-up company. A small team began in the modest garage of the founder's private residence. In between developing product prototypes in the garage, meals were served in the residence's kitchen where additional product ideas were tossed around.

As OtterBox became a mainstream product manufacturer—a cell phone case, their first office headquarters was designed using an existing building and a new addition. In the interior spaces, the design team in charge of working on the project used many elements from the "beginnings" of OtterBox. For example, every floor has a full-sized kitchen to encourage employees to gather, munch on treats, and engage in brainstorming conversations that encourage the refinement or development of new ideas (**Figure A**).

As part of their public space, OtterBox headquarters has a unique, fun lobby that reflects its corporate philosophy. A unique, internationally designed "Otter" slide (accessible to employees) clearly communicates the OtterBox brand (**Figure B**). It doubles as a circulation path, moving people quickly from second floor to first floor. The unconventionally stylish café area is located right off the receptionist workspace.

OtterBox workplace has in-house departments such as sales, customer service, accounting, engineering, public relations, marketing, Web design, and graphics (**Figure C**). In addition, they have a gymnasium for their employees to use (**Figure D**), and bike storage areas to support the employees traveling from one OtterBox building to another in their downtown campus.  Shapes such as the "O" for OtterBox and the square for "box" are used repeatedly throughout these departments to enhance the brand. In addition, garage doors are used on various floors in place of ordinary conference room doors. OtterBox has seven buildings as part of their corporate campus and have since branched into a number of countries where their design "brand" is still replicated throughout their facilities.



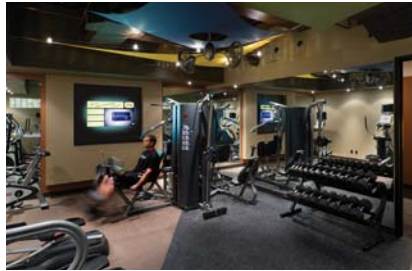**Figure A**                                    *(Continued)*

## CASE STUDY



**Figure B**



**Figure C**



**Figure D**

**Investigate and Reflect** . . . . . . . . . . . . . . . . . . . .
Go to the OtterBox website and read through the case studies under the "Media Center" tab. How did OtterBox help enhance the success of the companies featured in the case studies? Discuss your findings in class.

# Chapter 14
## Review and Assess

## Summary

- Commercial design projects include offices, hospitals, healthcare facilities, educational institutions, and corporate offices. For these projects, interior designers must consider layout of interior walls, plumbing and power systems, and communications with other service providers.
- The design process for commercial design projects is similar to the process for residential design projects. In commercial design, however, interior designers must meet the needs of owners, employees, and customers or guests.
- Commercial interior designers need to be knowledgeable about building codes, including building occupancy classifications and accessibility codes.
- Commercial interior designers consider building systems and some specialty space needs during projects.
- Advances in science and technology (such as measures against nosocomial) affect current healthcare facility design. Current designs inspire an upbeat, encouraging attitude, but should always be sterile and safe.
- Hospitality establishment designs should transform the hectic lives of guests into a state of tranquility, relaxation, and enjoyment. Hospitality establishment interior designers design hotels, convention center, and spas; and restaurants and dining areas.
- When designing retail spaces, commercial interior designers must consider the types of retail layouts, incorporate a decompression zone, and strategically place fixtures.
- The design of educational facilities incorporates new technologies and promotes learning. Some educational facilities involve *academic villages*, or clusters of buildings.
- Corporate office design is concerned with enhancing corporate culture, supporting communication and collaboration, catering to changing work styles, supporting generational shifts with flexibility, and supporting the need for privacy.
- The process of designing commercial spaces is complex and involves Program Reports, the consideration of codes such as those established by the ADA, circulation patterns, and effective wayfinding.

## Chapter Vocabulary

*Write the definition of each of the following terms. Then write a sentence using each term in a design-related context.*

| | | |
|---|---|---|
| academic village | decompression zone | occupant |
| airlock entries | end user | panic bars |
| boutique hotel | executive summary | plumbing chases |
| building codes | free-flowing layout | program report |
| building envelope | grid layout | prototypical layout |
| building occupancy classification | lifecycle costs | punch list |
| circulation patterns | lines of sight | signage |
| corporate culture | loop layout | smart space |
| decibel | nosocomial | test fit |

## Review and Study

1. Why are commercial design projects larger and more complex than residential design projects?
2. List the phases of the commercial design process.
3. Why do commercial interior designers need to be knowledgeable about building occupancy classifications?
4. Name four building systems commercial interior designers may need to consider.
5. Identify five common issues to consider during healthcare facility design projects.
6. What is *nocosomial* and how does it affect patient room design?
7. What are three issues to consider during the design of a hotel?
8. What are *circulation patterns* and how do they affect restaurant and dining area designs?
9. What is the difference between a *grid layout* and a *free-flowing layout*?
10. List four things that educational space designs should do.
11. Define and give an example of *corporate culture*.
12. What are the typical office spaces a commercial interior designer would design?
13. What are the six sections of a Program?
14. What issues impact emergency systems and circulation paths?
15. Name the five components of effective wayfinding.

## Critical Analysis

16. **Analyze patterns.** Map a circulation pattern of your high school. How do students and staff get out of the building fast in case of a fire emergency?
17. **Make inferences.** The author states that "No issue has affected the design of inpatient rooms and units more over the past few years than increased emphasis on controlling nosocomial, or hospital-acquired infections." Make inferences about ways an interior designer can be most influential in creating designs and specifying materials to help control such infections.
18. **Analyze evidence.** Review the Design Insight quote by Frank Chimero at the beginning of the chapter. Then take a walking tour of various areas in your community. Cite evidence of design that either supports or does not support the quote. Discuss your findings in class.

## Think like a Designer

19. **Speaking/listening.** Interview a fire chief in your community about the importance of circulation patterns related to life safety. Give an oral report of your finds to the class.
20. **Speaking/listening/writing.** Interview an older adult about his or her abilities or diminished abilities to navigate public and private spaces. What types of spaces (shopping, medical appointments, recreational facilities) does the older adult feel need to be redesigned to be more functional? After the interview, spend additional time observing the older adult navigate through a daily or weekly routine. What design features would make the spaces the older adult uses more functional and easy to navigate? Write a summary of your observations.
21. **Research/writing.** Use the text and reliable Internet resources to research the following types of healthcare facilities: birthing center, dental office, assisted-living facility, outpatient diagnostic center, rural health clinic, ambulatory surgery center, or hospital. Analyze the needs and design of each facility. Write a summary of your findings.
22. **Math practice.** Commercial buildings, including schools, have a means of egress and emergency evacuation systems. Using your school as an example:

A. Quick-sketch this commercial property—or a section of it—and show all fire exits, color-coding the three components of egress for each exit.
B. Select two assembly areas of the school (for example, a gym, library, cafeteria, or auditorium) and determine the maximum occupancy for the area.
C. Next determine the maximum distance in each area (see page 527) and calculate the distance between fire exits with and without a sprinkler system.
D. Document measurements on the drawings. (*Note:* Local codes may vary for structures that are historical, new, or remodels.

23. **Research/writing.** Use the text and reliable Internet resources to research the following a hospitality facility of your choice. Analyze the needs and design of the facility. Write a summary of your findings.
24. **Math practice.** Visit a community building that was built before 1990 or is a designated historic property. Make arrangements to meet with a building supervisor. Walk the property to determine the *site arrival point, accessible route* (path of travel), and specific *primary function area* (destination) accessible for a person who uses a wheelchair.

   A. Using an 11" x 17" or larger piece of paper, quick-sketch the site arrival point, accessible route, and primary function area. You do not need to draw the plan to scale but give attention to drawing proportionate distances.
   B. On the sketch, label and highlight the accessibility features the facility provides, for example, curb ramps, ramps, entrances with door controls with activation switches, handrails, accessible water fountains and restroom stalls, height of customer service areas and the three components of the means of egress (see *Designer Math Skills* feature on *Codes, Occupancy, and Exits*). The building supervisor can assist in identifying ADA accommodations.
   C. Use a colored pencil to mark the accessible path from the *site arrival point* to the *primary function area*.
   D. Estimate an approximate distance the person with a disability will travel from the *site arrival point* to the *primary function area* destination by doing the following:
   - measure and record the distances between each location including the parking lot to the entrance, the entrance to the restroom, the restroom to the destination
   - round the number of steps when walking up to the nearest 10th step and record them on the diagram
   - add all segments together and record the distance on the drawing
   E. Using the same technique in 24-D, estimate the approximate distance and mark the most common travel route someone *without* a disability would take from the site arrival point to the same primary function area. The paths of travel may not be the same for the two people.
   F. Share your findings of the similarities and differences in accessibility for each person, including restrooms. During bad weather, would the individuals have the same quality experience from the site arrival point to arriving inside the building (time, distance, covered entrances)?

## Design Application

25. **Design a pop-up school.** Design a pop-up school for a different geographical location—national or international—based on information in chapter and additional Internet research. Locate case studies and characteristics of each. Do not be constrained with the design of schools today. Follow text guidelines for Programming and Schematic Design for your school design. Create the program documentation and schematic design plans.
26. **OtterBox revisited.** Suppose you and your design team have been asked to develop a design plan for an OtterBox satellite office. Develop the design concept and program for this satellite office. Present your design concept and program to your client (the class).
27. **Portfolio builder.** Place copies of the best examples of your work for items 21, 22, 24, 25, and 16 in your digital and hard copy portfolios.