universal design new york 2

City of New York Department of Design and Construction in partnership with The Mayor's Office for People with Disabilities

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Preface

New York City remains committed to furthering universal design and to encouraging architects to integrate universal design concepts into their work. To make it easier for architects to access the universal design concepts that were defined in New York City's 2001 book "Universal Design New York", this handy desktop reference manual has been developed. This desktop manual concisely presents the most common universal design principles from **Universal Design New York** and offers simple, straightforward examples of how to incorporate those principles into real projects.

Incorporating universal design into projects benefits everyone. We urge you to use this desktop manual in conjunction with **Universal Design New York** to make that a reality.

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Kenneth R. Holden, Commissioner
Department of Design and Construction
City of New York

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Introduction

Without a legal mandate, adoption of universal design depends on acceptance by a broad consistuency, including designers and other decision makers.

Universal design is an approach to the development of "products and environments that can be used effectively by all people, to the greatest extent possible, without the need for adaptation or specialized design" (North Carolina State University, 1997).

Universal Design New York 2 (UDNY2) provides best practice design strategies for implementing universal design. It is a companion document to Universal Design New York. The first book presented an introduction to the concept of universal design, described the Principles of Universal Design and how they can be applied to buildings, and provided many guidelines for implementing the Principles in many kinds of buildings. This book augments the first book by providing strategies to address the guidelines, a checklist for use in design and more examples from actual buildings and projects. It also shows how universal design differs from accessible design.

The book is designed to assist architects, developers, city officials and others in the City of New York to implement universal design principles thereby helping the City become a "universal access city." Thus, many of the examples are from New York. However, the ideas and examples presented here are clearly relevant to other cities.

The format of the book compares accessible design with universal design so that the differences are made clear. While many publications have been written about universal design, they often equate the two concepts. But, they are really very different.

There are many accessibility laws in the United States and abroad. The Americans with Disabilities Act (ADA) is perhaps the most well known of these laws. The purpose of accessibility laws are to eliminate barriers in buildings for use by people with disabilities. By definition, accessibility

laws distinguish between people with disabilities and able-bodied people. While certainly valuable and necessary for insuring the rights of people with disabilities, this distinction implies an arbitrary dichotomy for designers. In reality, there is plenty of room for improvement in usability and safety for the entire population. Focusing only on improvements for people with disabilities brings unnecessary attention to that group and perhaps adds to the stigma of disability itself. It creates an "us" versus "them" mentality.

Universal design, on the other hand, seeks to provide improved usability and safety for all groups in the community. It seeks to extend the ideals of accessible design to previously underserved groups like people of short stature, older people, pregnant women, parents with children in strollers, people who do not speak the local language and others. It recognizes that improved usability enhances the value of buildings for all of us and, piece by piece, it creates a city that is a true home for everyone and one that welcomes all visitors with grace and dignity.

A group of experts developed the Principles of Universal Design in 1997:

Principle 1 **Equitable Use**
The design is useful and marketable to people with diverse abilities.

Principle 2 **Flexibility in Use**
The design accommodates a wide range of individual preferences and abilities.

Principle 3 **Simple and Intuitive Use**
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Principle 4 **Perceptible Information**
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principle 5 **Tolerance for Error**
The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Principle 6 **Low Physical Effort**
The design can be used efficiently and comfortably and with a minimum of fatigue.

Principle 7 **Size and space for Approach and Use**
Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

Following these principles leads to a design approach that does not discriminate and provides increased usability for everyone.

Accessibility is a civil rights issue focused on eliminating discrimination against one minority group. In contrast, universal design is a market driven concept. Rather than responding to legal mandates, it reflects the realities of contemporary societies with their diverse populations. Instead of a focus on one minority group, universal design is an inclusive approach that benefits the entire population.

Accessibility codes are focused on functional issues and minimal solutions. They do not guarantee good design. Universal design expands on the lowest common denominator of codes to address a broader mission that recognizes choices and differences. It integrates usability with other important design concerns like aesthetics, sustainable design and urbanism.

Accessibility is a finite concept. It can be measured by compliance with standards. Universal design however, has no predefined end state. Unlike a legal mandate, there is no predefined minimum level of compliance. Universal design is an ideal rather than an end state. Success in universal design has to be evaluated by how well a building meets the Principles given the resources available and the socio-physical context of the project. We like to use the term universal designing, a verb rather than a noun, to emphasize this evolutionary imperative.

Without a legal mandate, adoption of universal design depends on acceptance by a broad consistuency, including designers and other decision makers. This means that universal design has to provide added value beyond accessibility for people with disabilities. For example, the design of products like grab bars has been driven mostly by accessibility codes. The result is that most grab bars are direct responses to the diagrams in the codes and provide no benefits beyond meeting code requirements. In contrast, one manufacturer took a universal design approach that resulted in a very different product, a grab bar system that provides a far greater level of safety for everyone than the minimum code requirements and integrates many accessories to improve the usability and safety of a bathing environment for a wider range of people. The result is far more attractive and functional.

There are many myths about universal design. In Universal Design New York, we identified these myths and described the facts that disproved them. The myths include:

Myth #1 There are only a small number of people who can benefit from universal design; thus we should not let their needs dictate.

Throughout our lifespan, we all experience variations in our abilities. In fact, more than 50% of the U.S. population could be

characterized as having some sort of functional limitation. Therefore, universal design eventually benefits all of us.

Myth #2 **Universal design only helps people with disabilities and older people.**

Universal design extends the benefits of good functional design to many groups of people who are not necessarily classified as having a disability or aged, but who routinely encounter functional obstacles in their daily lives (short people, tall people, large people, frail people, pregnant women, parents with children in strollers, visitors in an unfamiliar city, etc).

Myth #3 **The Americans with Disabilities Act (ADA) and other disability rights laws have created equality, so there is no need to do any more.**

The ADA addresses physical and sensory limitations, while universal design goes beyond just physical function and considers the differences in the way people think and interpret things (e.g., understanding signs, wayfinding, using products, understanding alarms and warnings, etc.).

Myth #4 **Improved medical technology is reducing the incidence of functional limitations, thus the need for universal design is short lived.**

Actually, quite the opposite is true. Due primarily to the rapid aging population, the incidence of functional limitations have been increasing since the 1970s, and continue to do so. As the Baby Boom generation reaches old age, the numbers of older people are projected to increase significantly, and the need for universal design will intensify.

Myth #5 **Universal design cannot sustain itself in the marketplace because people who need it most cannot afford it.**

There are two marketplaces for universal design, the free market and the public sector. While aging Baby Boomers impact the free market economy with higher incomes, large numbers and higher levels of consumption, the lower income population plays an important role in driving the direction of government services and not-for-profit organizations.

Myth #6 **Universal design is simply good ergonomic design.**

Human factors and ergonomics engineering have generally focused on the majority of users, as opposed to

universal design, which demonstrates that with good ergonomic design, those who are not in the majority can also be included.

Myth #7 Universal design costs even more than accessible design.

If buildings were usable by everyone from the start, then fewer renovations would be necessary in the future and those renovations that were required would be less expensive. Many universal design features cost nothing, and those that have marginal additional costs may have a value that exceeds their expense.

Two key trends are fueling the advancement of universal design. First, the disability rights movement has recognized that regulating accessibility may increase function and reduce discrimination but it does not guarantee full participation in society. Promoting universal access that benefits all people is a more effective way to promote social participation. There have been many inventions that were originally created to help people with disabilities compensate for impairments. They became hugely successful when introduced into the broader market. Examples include the typewriter, the sound recording, text to speech systems, voice recognition and email. All these inventions not only allowed people with physical and/or sensory limitations to participate more fully in social roles but they also enhanced productivity for all people. Examples like these demonstrate the value of universal design and confirm the universal design concept.

Second, as the 21st Century proceeds, even in the less developed countries, societies throughout the world are experiencing a rapid increase in the number of older people in their population. In the U.S., it is expected that by 2030, the portion of the population over 65 years of age will reach 20% of the population. As described in more detail in Universal Design New York, the new generation of older people, and the coming baby boomer generation even more so, has considerable purchasing power and will have a significant impact on the market for goods and services. Cities everywhere will have to respond to their desire for continued independent lifestyles or risk losing the most affluent of this group as they vote with their feet for more accommodating environments. From a public sector perspective, the burden of supporting the ever growing number of aging citizens through personal assistance will prove to be a great burden on a declining number of working taxpayers. Universal design of products, facilities and systems is a way to maintain independence in late adulthood without increasing the burden to the taxpayer.


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Student Services

2

How to Use This Book

Universal design is a rapidly expanding area of practice in all the design professions. The growing demand to design buildings and sites that are usable by everyone regardless of their intellectual, functional or sensory abilities is a demographic fact of professional life because of the aging of the population.

This book was designed as a companion to Universal Design New York, produced by the City of New York's Mayor's Office for People with Disabilities in the Fall of 2001. That book introduced the idea of bringing universal design principles to the design of buildings and facilities throughout New York City. It presented a definition of universal design, a rationale for adopting universal design principles and many guidelines for incorporating universal design into development projects of all types. Extensive illustrations were used to demonstrate "best practice" universal design solutions.

Universal Design New York was received enthusiastically, not only by people in the City but by professionals and experts all over the world. The success of the first book prompted the Department of Design and Construction to produce a second publication. The idea was to both follow the model established by UDNY and provide a publication that was more focused on technical solutions to problems, especially in the context of compliance with accessibility regulations such as those that implement the Americans with Disabilities Act and the New York City Accessibility Code.

Strategies

UDNY2, like its predecessor, purposely avoids recommending prescriptive design standards for the universal design of buildings and sites. Instead, it provides strategies that broaden and enhance the usability of buildings and sites for everyone. The illustrations of best practices are not meant to be copied or imitated. Rather, they are provided to use as examples, promote an understanding of the concepts and to inspire others to develop their own creative applications.

It is particularly important for the reader to understand that the strategies listed under the accessibility sections of this book are not to be viewed as substitutes for the codes and regulations. We have simplified and condensed the requirements to make them easier to follow and understand within the context of universal design. Designers should refer to the actual codes and regulations for details. We, nor the City of New York, make no warrant or guarantee that the accessibility strategies are complete and accurate.

Audience for this Guidebook

The strategies can be applied to all buildings and sites – private as well as public. This book is targeted primarily at professional designers, including architects, landscape architects, urban designers, interior designers and graphic designers who are engaged in design of new buildings as well as additions or renovations to existing buildings. It could also be used effectively by facilities managers and developers to evaluate existing buildings and sites and to develop problem statements for their improvement.

Universal design is a rapidly expanding area of practice in all the design professions. The growing demand to design buildings and sites that are usable by everyone regardless of their intellectual, functional or sensory abilities is a demographic fact of professional life because of the aging of the population. This guidebook introduces professional designers to principles and strategies of universal design that will enable them to rise to the challenges posed by the new demographics. Moreover, universal design contributes to social and ethical responsible design of buildings and sites. It promotes replacement of our current discriminatory exclusive designs with new affirming inclusive designs that are usable by all of us. And it does this without burdening the professional designer with prescriptive standards that stifle design innovation. The benefits of universal design are best achieved by reinforcing design innovation rather than design imitation, or worse, design duplication.

Evaluation and Improvement Over Time

Universal design is a continuous process of innovation targeted at improving

usability for everyone. As with any innovative process, improvement upon the status quo is always possible. But with universal design, the motivation to continually enhance the usability of a building is ever present because we are constantly interacting with the built environment around us. A universally designed building or site is as much about becoming universally usable as it is about being universally usable. There are always improvements that can be made.

Universal design strategies can also be improved over time. Through post-occupancy evaluations of buildings and sites, universal design principles and strategies can be tested, improved and documented. Through such evaluations, even our best current examples of universal design in buildings and sites will, over time, be challenged and replaced by better examples. Building in an evaluation cycle in the lives of all buildings and sites can go a long way to improving our knowledge and practice of universal design. This book can be a valuable resource for post occupancy evaluations. By including a Universal Design Audit Checklist, we hope to encourage such uses.

Through new construction, renovation and maintenance projects, cities are constantly undergoing improvement. Improving usability should be an important part of that process. We hope that this book will be useful to designers who are engaged in improving cities and help them to insure that their work will have a meaningful impact on the lives of citizens for many years to come. In the future, we hope to update and expand this volume with new information that we glean from the ongoing program of research at the IDEA Center. Any suggestions that readers have for us would be welcome. Please visit our web site and send us your comments and suggestions.

Key Design Goals section offers a short background and important points for each topic area.

Helpful tips for implementation of accessible requirments indicated in green sidebar.

Metric conversions indicated for all units.

Cross references are indicated by the eyeglass icon. All cross references are conveniently summarized at the end of each topic area.

Tips:

- Design tips are located on the sidebar of every topic specific page.
- Consider the tips in the green sidebar to help you to make better informed choices about the planning, design, and post-occupancy analysis of environments that meet access requirements.

Design of the Book

This new book is designed for easy use during work tasks. The guidelines from the first book have been used to generate more detailed "strategies for universal design." We have also included some new ideas.

Each two-page spread features one topic area, with requirements of accessibility codes and standards have been separated out (on the left “green” page) from the other universal design strategies (on the right “brown” page) so that it is clear to the designer what the law requires and how universal design extends beyond the legal mandate of accessibility. "Tips" are provided throughout the document to give advice and suggestions. Some detailed technical notes have been included in places where we know from experience that more technical information is needed. Illustrations are used to give examples of how to implement selected strategies. The new book is spiral bound so it can be laid flat on a desk for easy reference.

Accessible codes and standards follow the rectangular **green** “Accessible” header:

Accessible

Important areas of Key Design Goals are highlighted for quick reference.

Spiral binding allows book to remain open and flat while working.

Text is set in easy to read font, at large 12 point size.

Helpful tips for implementation universal design guidelines indicated in brown sidebar.

Convenient summary of all cross references noted in topic area.

We have also included a Universal Design Audit Checklist to be used in the evaluation of designs and completed projects.

How This Book is Arranged

This book has been arranged and color coded to help you compare Accessible conditions to Universal Design conditions. Refer to the diagram above for an explanation of the features of this book.

Universal design criteria are indicated by the rounded **brown** "Universal" header:

Universal

Tips:

- Design tips are located on the sidebar of every topic specific page.

Tips provided in the brown sidebar feature Universal Design insights to help you design environments and create situations that can be enjoyed by everyone – equally.

3

Principles of Universal Design

Universal design is a market-driven process intended to create environments that are usable by all people.

Purposes and History

Accessible design is primarily about court-enforced compliance with regulations. The regulations are intended to eliminate certain physical barriers that limit the usability of environments for people with disabilities. Historically, accessible design has focused on compliance with state or local building codes. These typically were based on the American National Standards Institute's requirements. With the passage of the Americans with Disabilities Act (ADA) in 1990 and the subsequent development of the ADA Accessibility Guidelines, accessible design has focused more recently on satisfying these minimum technical criteria to allow most people with disabilities to use most of the designed environment (Salmen, 1996).

Universal design is a market-driven process intended to create environments that are usable by all people. While considerations for people with disabilities are certainly necessary for universal design, they are not sufficient when planning and designing for the whole population. Accommodating the needs and wishes of everyone – e.g., children, the elderly, women and men – is also necessary for universal design (Norwegian State Council on Disability, 1997).

Acknowledging this greater inclusiveness, in the mid-1990s the Center for Universal Design in Raleigh, NC asked ten leading advocates to identify the underlying performance requirements of universal design. The resulting Principles of Universal Design (Connell, et al, 1997; North Carolina State University, 1997), developed through funding provided by the U.S. Department of Education's National Institute on Disability and

Rehabilitation Research (NIDRR), has since become the most well referenced definition.

Explaining and Illustrating the Principles

These seven principles are not without their critics. Some consider them vague and difficult to understand. Others argue that they are more applicable to product and graphic design than building design. And yet, as evidenced by their growing international acknowledgment, these principles continue to maintain their status as the definitive statement of what constitutes universal design. This guidebook also acknowledges the seven Principles of Universal Design by explaining and illustrating their applicability to the universal design of the built environment.

Principle 1 **Equitable Use**

The building's design should make it equally usable by everyone. Ideally, the means by which people use the building should be the same (e.g., providing one means of entry to the building that works well for everyone). If it cannot be identical, the several means provided must be equivalent in terms of their privacy, security, safety and convenience. The building must never employ means that isolate or stigmatize any group of users or privilege one group over another.

Principle 2 **Flexibility in Use**

The building's design should allow people to use its design features in more than one prescribed way (e.g., providing a countertop orientation map that is viewable from either a seated or standing position). It should accommodate both right-and left-handed use and be adaptable to the individual pace. The building's design should have the built-in flexibility to be usable even when it is employed in an unconventional or unanticipated manner.

Principle 3 **Simple and Intuitive**

The building should make it easy for everyone to understand the purpose of each design feature and how to use it (e.g., providing washroom lavatory faucets that make their method of operation readily apparent and relatively easy). Moreover, its means of use should be intuitively obvious so that it operates as anticipated and, therefore, can be used spontaneously.

Principle 4 **Perceptible Information**

The building should provide all essential information in a variety of modes (e.g., written, symbolic, tactile, verbal) to ensure effective communication with all users regardless of their sensory abilities. The information provided must be presented with sufficient contrast to surrounding conditions so that it is

distinguishable from its context and decipherable in all its various modes of presentation.

Principle 5 Tolerance for Error
Ideally, the building's design should eliminate, isolate or shield any design features that could prove hazardous to or inconvenience any user.
When potentially dangerous conditions are unavoidable, users should receive warnings as they approach the design feature (e.g., providing proximity warnings in a variety of sensory modes near the top of stairs.) The building's design should also anticipate accidental or unintended actions by any user to minimize the inconvenience and/or protect the user from harm.

Principle 6 Low Physical Effort
The building's design should employ design features that require little or no physical force to use them (e.g., replacing a traditional door knob with a lever handle that does not require the ability to grasp and turn the wrist). If a low level of force is required, any user should be able to engage the feature without assuming an awkward or hazardous body position (e.g., providing a smooth travel surface with minimal slope along the path of travel leading to the entrance).

Principle 7 Size and Space for Approach and Use
A building's design features should provide an adequate amount of space that is appropriately arranged to enable anyone to use them (e.g., providing knee space under a washroom lavatory to enable use by someone in a seated position). In addition, the space needs to be arranged to provide a clear path of travel to and from important design features for all users.

4

Using Circulation Systems

Moving around outdoors and inside buildings is the quintessential activity of urban life. Accessibility of resources, in its broadest sense, and the mobility required for that access is what cities are all about. Accessibility laws mandate that certain accommodations need to be made for people with mobility and sensory limitations, but, in fact, increasing accessibility for all users should be a primary goal for planners and designers.

Key Design Goals

Designs for outdoor spaces should **address individual needs and preferences**. They should also ensure the **security and safety** of all users during all times of normal use.

- Provide a **continuous path of travel** with no obstacles to any user from site access points to all site destinations.
- Provide **security** for all users.

ⓘ Tips:

- Curb ramps on existing sites can have slopes steeper than 1:12 if there are space limitations, although a slope can never be steeper than 1:8.
- Between 1:10 and 1:12 slope allowed for a rise of 6 inches (150mm) maximum.
- Between 1:8 and 1:10 slope allowed for a rise of 3 inches (75mm) maximum.

Accessible

Minimum number of accessible parking spaces

At least one accessible pathway from main access points (e.g., subway stations, bus stops, parking lots to the building) to the accessible building entrance they serve

Accessible pathways that connect all accessible buildings and facilities on a site (e.g. site amenities and attractions)

Clear width of at least 36 inches (915 mm)

Passing spaces at least 60 inches by 60 inches (1525 mm by 1525 mm) located at reasonable intervals that do not exceed 200 feet (61 m) for accessible pathways with less than 60 inches (1525 mm) clear width

Stable, firm, and slip-resistant walking surfaces

Transition height of no more than ¼ inch (6.5 mm) between different flooring surfaces

Pathways steeper than 1:20 meet different requirements because they are considered ramps

Cross slopes not exceeding 1:50

Curb ramp, ramp, elevator, or

- Provide **illumination** at all parking areas, passenger loading zones and along pedestrian pathways.
- **Eliminate hazards** to passage.

platform lift where changes in level are greater than ½ inch (13 mm)

Spaces no greater than ½ inch (13 mm) wide in one direction for gratings located on walking surfaces

At least 80 inches (2030 mm) vertical clearance

Objects mounted to the wall with bottom edges between 27 inches (685 mm) and 80 inches (2030 mm) high from the floor project less than 4 inches (100 mm) from the wall

ⓘ Tips:

- If vertical clearance along an accessible route is below 80 inches (2030 mm), provide a barrier that will detectable by a cane for people with visual impairments.
- Objects mounted with their bottom edge lower than 27 inches (685 mm) are detectable by a cane and may protrude any amount from the wall.

Key Design Goals

Tips:

- Recreation areas and historic facilities often include challenging paths with steep grades, unpaved surfaces, or other potential obstacles. Information can be provided to let the users know the conditions along such paths so they can decide for themselves whether they want to traverse them.

Universal

Direct access from all access points to all facilities and building entrances

All pathways accessible unless there are alternative pathways that begin and end in the same location

Separate pedestrian, vehicular and bicycle/skating pathways with clearly marked boundaries

Emergency communications equipment at strategic locations wherever potential security or safety threats may exist

Video surveillance as a deterrent in dangerous areas

Seating areas for resting provided at intervals out of the circulation path

Lighting along pathways reflected downward onto the path without creating hot spots or glare

Edges of pathways defined with curbs, contrasting textures or other means

Width of the path based on the expected volume and direction

Potentially hazardous stairs, ramps and transitions marked with contrasting colors, textures or materials to alert users

Avoid irregular textures, ridges, rough or uneven traveling surfaces and those that have large or protruding joints

Avoid obstructions and hazards that intrude into the path of travel (e.g. drainage grates, signs, overhanging trees, manholes, light fixtures or benches)

Avoid highly reflective surfaces

Tips:

- If there are steep grades that prohibit the construction of accessible direct paths, provide a short cut with steps for people who can walk stairs.

Also Refer to:

- **Parking**

Mechanical Circulation Systems

Key Design Goals

Mechanical circulation systems (e.g. elevators, moving walkways and escalators) are used to transport people to their various destinations. Although fully compliant elevators are part of an accessible path of travel, adding universal design features will provide additional benefits.

ⓘ Tips:

- "Up" button must be above the "down" button.
- Main entry floor button of the building should be distinguished from the rest of the buttons.

Accessible

Elevators

At least one passenger elevator required in all multi-story buildings with some exceptions

Located along an accessible route

Elevator cars self leveling with a vertical gap of no more than ½ inch (13 mm) and a horizontal gap of no more than 1 ¼ (32 mm) at the floor levels

Hall call buttons centered at 42 inches (1065 mm) above the floor

Visible and audible signals provided to indicate the direction of the car that is answering the call

Hall lanterns mounted at least 72 inches (1830 mm) high from its centerline to the floor

Visual elements at least 2 ½ inches (64 mm) in the smallest dimension and visible from the vicinity of the hall call button

Call buttons raised or flush and at least ¾ inch (19 mm) in the smallest direction

Car doors open and close automatically and stop instantly and reopen if the door is interrupted by any object or person

Car doors remain open for at least 3 seconds when called

Braille, alpha numeric characters and pictograms on control panel for floor and function buttons

Illumination level of at least 5 footcandles (53.8 lux) at the car controls, platform, car threshold and landing sill

Emergency controls and alarms grouped at the bottom of the control panel

Floor area that allows maneuvering room for wheelchair users to enter the car, reach the controls, and exit; center opening door width at least 36 inches (915 mm), cab depth 51 inches (1291 mm), and cab width at least 80 inches (2030 mm); side opening door width at least 36 inches (915 mm), cab depth 54 inches (1370 mm), and cab width at least 68 inches (1730 mm)

Elevator controls located no higher than 54 inches (1370 mm) above the floor for side approach and 48 inches (1220 mm) for front approach

At least one passenger elevator serving each level, including mezzanines in multi-story buildings

If more than one elevator is provided, each one should be accessible (elevators are not required in buildings that have less than 3 stories or have less than 3000 square feet per story unless the building is a shopping mall)

Platform Lifts

At least 30 inches (760 mm) by 48 inches (1220 mm) clearance for a person in a wheelchair to reach the controls and enter lift

At least 30 inches (760 mm) by 48 inches (1220 mm) for platform lift

Lift controls no higher than 48 inches (1220 mm) for a forward reach and 54 inches (1370 mm) for a side reach

Controls operable with one hand and without requiring tight grasping, pinching or twisting of the wrist

Change in level no greater than ½ inch (25 mm) and beveled edge with a slope of 1:2 or less where lift meets the ground

Escalators and Moving Walkways

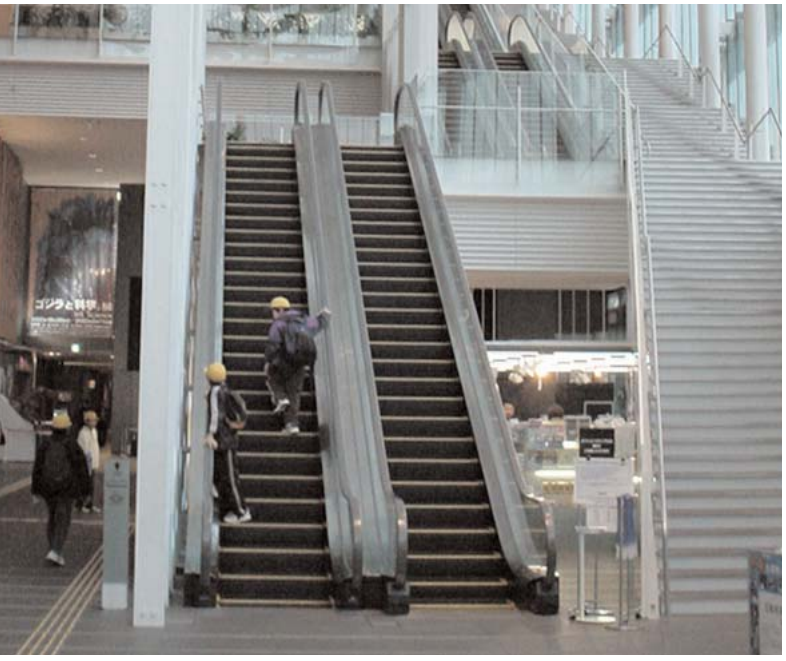
Escalators are not considered accessible paths of travel

Moving walkways are not addressed in accessibility codes

ⓘ Tips:

- Lifts are not permitted in new construction except where no other alternative is possible. If a platform lift is installed, it must be usable without assistance.
- Floors in and adjacent to the elevator must be stable, firm, and slip-resistant.

Mechanical Circulation Systems (continued)



Key Design Goals

- The location and the physical characteristics of lobbies, car and platform interiors, call buttons and control panels should support the usability of mechanical circulation systems.
- Provide escalators and moving walkways to move large numbers of people quickly and overcome long distances.
- Limit the use of platform lifts to provide access to existing buildings where it is not feasible to install ramps.

Tips:

- Snow can accumulate under the lift and they can be very uncomfortable when it is raining.
- Lifts are often not used regularly but when needed, it is important that they are operating properly. Thus, the best locations are those where their use can be under visual surveillance of an employee who can provide assistance if needed.

Universal

Elevators

Elevator lobby within short distance from main building entrance and other main function facilities

Clear floor area of the lobby wide enough to allow people to assemble and gather prior to entry without obstructing the circulation flow

Clear floor surface of the landing area wide enough for all users to approach and use from a forward or a parallel direction

Clear floor surface of the elevator car allows people who use wheelchairs, push strollers or pull wheeled luggage to make a 180 degree turn

Standard telephone keypad layout to "dial up" the floor desired

Contrasts between objects (e.g. doorway frames, calling buttons, faceplate, key numbering) and their backgrounds or their adjacent environments (e.g., using complementary colored backgrounds to enhance the color tenacity phenomenon)

Voice synthesis or recorded announcements to describe the floor reached and its contents, where applicable

Operable parts of all calling buttons and control panels between 35 inches (890 mm) and 48 inches (1220 mm) to serve all users

Platform Lifts

Ensure that power to lifts will not be inadvertently turned off

Lifts that have a manual override to both raise and lower the platform if it malfunctions

Lifts located under overhangs or other climate protected areas for outdoor placement

Escalators and Moving Walkways

Elevators in proximity to escalators where they are provided

Moving walkways that allow use in a wheeled mobility device

Inclined moving walkways as alternatives to escalators

Tips:

- Telephone keypad layouts are well known to everyone. They reduce the space needed for controls in very tall skyscrapers where the number of floors exceeds the space available for controls on the panel. They also can be kept within a more comfortable reach range.

Ramps and Stairs

Key Design Goals

Many buildings have level changes beyond the allowable height. When an elevator is not a practical solution (e.g. change in level of a few inches), designers frequently use ramps or stairs to provide access to these areas. Even though the change in level may be slight, if not designed properly, people can find negotiating ramps and stairs difficult and dangerous.

ⓘ Tips:

- A broom finished concrete ramp is considered sufficiently slip resistant to comply with accessibility codes.
- Continuous handrails at both sides and ends of handrails, have unobstructed gripping surfaces and are rounded or returned smoothly to floor, wall or post.

Accessible

All steps with uniform riser heights and uniform tread widths

No open risers on stairways

At least 11 inches (280 mm) for stair treads depth measured from riser to riser

Nosings that project no more than 1 ½ inches (38 mm) and have undersides sloped at 60 degrees from the horizontal

Handrail height between 34 inches and 38 inches (865 mm and 965 mm)

Clear space of 1-1/2 inches (38 mm) is provided between handrails and adjoining walls

Where handrails end, they extend 12 inches (305 mm) beyond the top riser of the stairs and the landing of the ramps and 12 inches (305 mm) plus the width of one tread beyond the bottom riser

Ramp at least 36 inches (915 mm) wide and landing at least 60 inches by 60 inches (1525 mm by 1525 mm)

Protect pedestrians from hitting their heads on the underside of free standing stairways

- Where stairs are provided, they should be as safe as possible for all people who may choose to use them.

Universal

Ramps and stairways wide enough to accommodate the expected traffic flow which may exceed minimum required width

Stairways have no more than 10 risers between landings

Seating at landings of long ramps and stairways

Handrails, treads and walking surfaces evenly illuminated without strong shadows

Slip resistant traveling surfaces without impeding the mobility of wheelchairs, strollers and other wheeled devices

Treads on stairways no deeper than 14 inches (355 mm) and risers between 4 inches (100 mm) and 7 inches (180 mm) high

Tactile indicators on railings like grooves or bumps to mark the beginning and end of a stairway, changes in direction or location of specific facilities

Ramps with a less than 1:12 slope, which are more manageable

Tips:

- Avoid winders and curved stairways.
- The easiest way to measure a ramp slope is by using a digital level. Make sure the level is calibrated properly and test the slope in at least three places; near the bottom, the middle and the top. Use the steepest slope as the actual measurement since the slope of the ramp can vary along its length.

Hallways and Corridors

Key Design Goals

Although hallways and corridors are often thought of as transitional spaces that connect rooms, they can be a challenge if not designed properly. Poor lighting, protruding objects and narrow spaces are just a few features that can render hallways and corridors both dangerous and unusable.

ⓘ Tips:

- Avoid carpet and underlayment combinations that are susceptible to buckling. They can cause tripping and impede the use of wheeled mobility devices.
- Intersections of corridors can serve as passing places as long as each connecting link is at least 36 inches (915 mm) wide.

Accessible

Minimum clear width of 36 inches (915 mm) except at doors

Passing spaces at least 60 inches (1525 mm) by 60 inches (1525 mm) wide at reasonable intervals not exceeding 200 feet (61m) apart where an accessible route is less than 60 inches (1525 mm) wide

Clear width of at least 32 inches (8155 mm) at doorways

At least 80 inches (2030 mm) minimum clear headroom at hallways and corridors

Stable, firm and slip-resistant floor surfaces

Carpet with no more than pile height of ½ inch (13 mm) and is securely fastened to the floor

Objects with leading edges between 27 inches (685 mm) and 80 inches (2030 mm) protrude no more than 4 inches (100 mm) into hallways or corridors

Exterior stairs designed so water does not accumulate on walking surfaces

- Provide comfortable and easy movement throughout the building.
- Use markers, signs, and other information devices to facilitate wayfinding.

Universal

Stairways kept out of the direct path of travel

Ramps running in the direction of normal travel

Hallways and corridors wide enough for two people traveling in the opposite direction to pass each other

All corridors and hallways evenly illuminated

Gradual transitions from dark to bright spaces, especially those that have high levels of natural illumination

Paths of travel distinguished with material, floor textures or color differences to assist in orientation

Also Refer to:

- **Entering and Exiting**

Tips:

- Detectable warnings are textured surfaces applied to help people with severe visual impairments locate hazardous areas in the path of travel.
- Exterior stair treads can be sloped slightly to drain.
- Drains can be located to drain movewater away from the bottom landing of the stairway.

Street Crossings

Key Design Goals

Traffic intersections often pose serious safety concerns for people of all abilities. However, these fears are often exacerbated for people with limited abilities. Improvements to intersections' signage, as well as the condition and length of street crossings can help to alleviate these concerns.

- Provide continuity for pedestrians by bridging vehicular areas with a safe, accessible path of travel.

Tips:

- Diagonal curb ramps are allowed by accessibility codes but are not recommended. If they are used, a 48 inch (1220 mm) long run-off area should be provided within the safe crossing area at the bottom of the curb ramp.
- Place gratings with elongated openings, so that the long dimension is perpendicular to the dominant direction of travel.

Accessible

Curb ramps located within the boundary of the marked safe crossing area including any flared sides

Gratings located on walking surfaces with spaces no greater than ½ inch (13 mm) wide in one direction

Islands that occur within the path of a marked crossing are cut through level with the street or have curb ramps at both sides and a level area of at least 48 inches (1220 mm) between the curb ramps

Universal

Reduce pedestrian crossing distance on major crossing routes by providing expanded corners and/or safety islands

Storm drains located outside marked crossings

Clearly mark boundaries of crossings using permanent materials like thermoplastic strips or a change of paving material, e.g. brick in contrast to concrete or asphalt roadways

Pedestrian crossing signals provide enough time for slower moving people to cross

Visual and auditory crossing signals at all busy crossings

Higher illumination levels in the safe crossing area

Signals timed to insure that slower moving pedestrians will be able to cross the street safely

Sonic beacons or Talking Sign® technology installed to guide people with visual impairments across the street

Use pedestrian barriers to control crossing locations in areas where there are particularly high levels of pedestrian traffic that overload sidewalks and add to traffic congestion

"All stop" signal period when traffic from all directions comes to a stop and pedestrians can cross in any direction within the intersection, including diagonally. This reduces the number of pedestrian crossing cycles by 50% although pedestrians have to wait longer between cycles

Tips:

- Talking Signs® or "remote infrared signage," use infra-red transmitters and special receivers to communicate orientation and direction information. The City of San Francisco has implemented talking signs at many intersections in the downtown area. They provide more information than sonic beacons and can provide very precise directional information.

www.talkingsigns.com

Curb Ramps (Curb Cuts)

Key Design Goals

A curb ramp is one tool that can improve the safety and usability of traffic intersections. In addition to enhancing pedestrians' safety, curb ramps permit people using wheelchairs or pushing a stroller to more easily cross the street.

- Design curb ramps to promote pedestrian safety and provide a smooth transition in level changes.

Tips:

- Built-up curb ramps should not project into vehicular traffic.

Accessible

Provided whenever an accessible pathway meets a curb

Slopes no greater than 1:12 wherever an accessible route crosses a curb

Flush transitions at the top and bottom without abrupt changes

Maximum slopes of adjoining road surfaces not exceeding 1:20

Width of the curb ramp, not including the flared sides, at least 36 inches (915 mm)

Stable, firm and slip resistant surface

Flared sides with a maximum flare slope of 1:10 where pedestrians must walk across a curb ramp

Narrow curb ramps located to the side of marked crossings

Curb ramps located where they will not be obstructed by parked vehicles

Safe islands in crossings cut through level with the street or have curb ramps on both sides and a level area of at least 48 inches long between the curb ramps in the part of the island intersected by the crossings

Universal

Curb ramp design standardized throughout a site, an urban district or a city

Detectable warnings extending the full width and depth of the curb ramp, contrasting in color with the walking surface and constructed from a material that provides a distinctly different sound when tapped by a cane

Eliminating curbs entirely at intersections where unimpeded flows of pedestrians are desirable

Bollards and chains used to protect pedestrians where there are no sidewalks to separate vehicular and pedestrian traffic. This approach also helps people with visual impairments find street crossings

Returned curbs without flares where pedestrians would not normally walk across the ramp, for example, where there are plantings or utility poles on both sides of the curb ramp

Tips:

- Cane and guide dog users are trained to find curbs at the edges of sidewalks. However, where there are no curbs, like at curb ramps, there is concern that the cane traveler may miss the edge of the sidewalk and step out into traffic.

Key Design Goals

In all facilities, especially multi-story buildings, emergency egress is a major concern. While codes have requirements to help people exit a building quickly and safely, they neglect the fact that everyone is "impaired" during an emergency situation since conditions are unusual.

- Provide both good escape routes and places of refuge for emergency use.

ⓘ Tips:

- Local authorities may reduce the minimum number of wheelchair spaces to one for each area of rescue assistance on floors where the occupant load is less than 200.
- The fire department or other local authority may approve a location for two-way communication device other than at a primary entry.

Accessible

At least two areas of rescue assistance with waiting spaces for at least two wheelchairs within a smoke proof enclosure at all floors except those that have accessible means of egress

No less than 30 inches (760 mm) by 48 inches (1220 mm) space for each wheelchair to be accommodated

At least one wheelchair space for every 200 people per story

Two-way communication device provided between the area of rescue assistance and the primary entry with both audible and visual signals

"Area of Rescue Assistance" sign with the International Symbol of Accessibility in each area of refuge

Area of rescue assistance sign illuminated when required and additional signage posted at inaccessible exits indicating the direction of areas of rescue assistance

Areas of rescue assistance with instructions for use during an emergency

Universal

All accessible entrances designed to serve as emergency egress routes as well

Reserved stairway for the fire service

Total building sprinkler system

Elevators designed to be safe for emergency egress

Two-way emergency communications in all remote areas

Evacuation plan for people who need assistance in an emergency

Directional signage when the direction of emergency egress is not easy to understand

Visual and audible signaling systems under fire service control to help direct people along the best route given the building condition at any one time

Public address system for use by the fire service to give instructions during an emergency

Supplemental illuminated exit signs near floor level

Tips:

- Facilities should keep a list of all people who work or live in the building who would need help leaving in an emergency. It should indicate the floor and location so firemen know where people may be waiting for help.
- Since smoke rises, emergency exit signs at low levels are easier to see when trying to escape a building during a fire.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Please come in!
welcome
Grooming hours
Mon. - Fri. 7-9
Sunday 9-5
4 lbs. free
bonus dog

5

Entering and Exiting

The act of entering and exiting a building is more involved than simply opening and closing a door. There are many variables involved in the process that can cause difficulty for even the most intelligent and able-bodied person. Prior to entering a building, users must determine where they are, locate where they want to go, establish the best route to get there, locate the appropriate entrance and negotiate the path of travel to the entrance. Once they arrive at the entrance area, users must attempt to proceed through the doorway to enter the building and eventually find their way out. Accomplishing all of these tasks successfully and in a timely manner in a complex building can be challenging, but a well-designed circulation system can make the process more manageable.

Key Design Goals

People who are unfamiliar with a facility need to **identify their destination** in order to devise a strategy for finding it. Once they have a plan, they must **execute it without becoming disoriented.** Architectural elements, landmarks, signs and other universal design features all play an important role in determining how easily users find destinations.

- Establish a circulation system that provides a **direct path of travel** to

Accessible

The ADA Guidelines and other accessibility codes do not include standards for locating destinations, although if signs are used, they must comply with rules for character proportion, character height, finish, and contrast

Tips:

- When using signs and other visual cues, it is important to avoid visual clutter. Too many signs not only detract from the aesthetic quality of a space, but can be overwhelming and create unnecessary confusion.

Also Refer to:

- **Wayfinding**

all facilities and is identifiable, understood and usable to everyone.

- Provide a **comprehensive sign system** that includes directories, maps, and graphics to assist in finding destinations.

- Include **key landmarks** in the site or building design.

Universal

Signs at major vehicular entrances that are simple, functional and readable at distances and speeds of moving vehicles

Immediate and easily detectable information center provided at prominent site entry points and other decision making areas

Talking Signs® that help provide directions and identify objects for people who are visually impaired

Orientation maps for motorists, pedestrians and bicyclists at major intersections

Landmarks such as canopies, plazas, columns, fountains, flagpoles, statues, etc., that add identifiable features to buildings

Building names and logos in large size mounted in locations where they can be easily seen from primary vehicular and pedestrian access routes

Tips:

- The concourse of The Lincoln Center for the Performing Arts is an effective landmark. A large circular fountain is located near the drop off area on Columbus Avenue and is visible from most areas within the multi-level complex. With many buildings and plazas on the site, it is a valuable physical landmark and a highly visible point of reference.

Key Design Goals

After finding the building, users must be able to identify where the entrances are before approaching. At large complex sites, **the task of locating entrances and exits can be challenging**, especially when there are multiple points of entry/exit or visitors are unfamiliar with the layout. This is particularly relevant to those people arriving by automobile. Motorists typically try to unload people as close to an entrance as possible, so they must be clearly identifiable from a distance.

Tips:

- The key to making entrances identifiable is to provide visual interest. One method for doing this is to provide an entrance atrium that not only introduces natural light into the building but also reveals activity inside the building. They not only serve as landmarks and enhance wayfinding for those approaching but also function as a recognizable point of reference to people within the building.

Accessible

No accessibility requirements that address identification of entrances and exits from the exterior

Accessible entrances marked with the International Symbol of Accessibility if not all are accessible

Sign directing people to an accessible entrance if entrance is not accessible

Also Refer to:

- **Circulation**
- **Wayfinding**

- **All public entrances recognizable** to all types of users regardless of their abilities.
- **Entrances clearly distinguishable** for both people arriving by foot or automobile.

Universal

Directional signage that guides users towards entrances and exits

Higher than normal lighting levels at entrances to make it easier for users to identify points of entry and to enhance safety

Materials, color and form to differentiate the entrance from the rest of the building

Different roof line above entrance to create a hierarchy among the parts of the building

Clear visual access to building entrances from points of site entry

Alternative glazing applications that make entrances distinguishable when glass panels are used on the building facade

Non-reflective glass and other surfaces to prevent them from becoming a source of glare

Paving, plant material, and other site elements that can be used to guide pedestrians

Tips:

- Many facilities have a main entrance which they use as a formal entrance for the public and secondary entrances, which are purely functional and used by staff. When there are multiple building entrances, they should be clearly identified with signs to describe their function, e.g. "Delivery Entrance," "Staff Entrance," and "Visitor Entrance."

Key Design Goals

Once the user identifies the point of entry or exit, they must be able to **navigate to their intended destination.** Accessibility requirements for paths of travel address the actual routes one would take in approaching the door and ensure that there are no obstructions or level changes that would impede access. But access codes do not address user preferences and decision-making abilities. Although standards are necessary for ensuring basic access, they only address the needs of a portion of the population.
Incorporating universal design

Tips:

- Many older buildings have grand staircases at the front entrance that designate the main point of entry. Although this feature makes them easily identifiable, they are not usable by people who cannot climb stairs. When alternative public entrances are designated for accessibility, routes should be at least as convenient to those serving the primary entrance.

Accessible

At least one accessible route within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones, and public sidewalks to an accessible building entrance

All accessible spaces, venues, and elements within the facility or site connected with an accessible path of travel

Clear width of pathways at least 36 inches (915 mm) wide

Accessible pathways with less than 60 inches (1525 mm) clear width, passing spaces at least 60 inches (1525 mm) by 60 inches (1525 mm) located at reasonable intervals not to exceed 200 feet (61 m)

Cross slope of an accessible pathway not exceeding 1:50

features relating to spatial organization, multi-sensory information, etc., will improve users' abilities to easily approach the entrance or exit.

- **Enable** all users to approach entrances or exits with clearly perceptible spatial organization.
- Make facilities manageable and **safe to both pedestrian and vehicular traffic.**
- **Design pathways that facilitate ease of movement** without any obstructions or abrupt change in level.

Universal

Smooth, paved pedestrian pathways approaching all buildings to support easy movement

Waiting areas along lengthy paths that don't obstruct movement

Gradual slopes for grade changes that are not greater than 1:20, eliminating the need for a ramp with handrails

Pathways free of overhanging trees, bushes, debris, and other temporary barriers that impede people from using them

Surfaces that are slip-resistant and prevent water from accumulating

Tactile guide strips that have raised markers indicating a safe path of travel

Heated walkways that eliminate slipping hazards

Adequate illumination along all pathways and stairs that prevent accidents after dark

In large buildings, at least two doors designated as either "entry" or "exit" for traffic traveling in opposite directions

Tips:

- Wherever paths of travel are sloped, provide a level surface at the beginning and end of the grade change. The landing area should not infringe on maneuvering space.
- Transitional space between interior and exterior environments could take place indoors (as a bright, temperate foyer or atrium) or outdoors (as a shaded or sheltered walkway).

Maneuvering Through the Entrance or Exit

Key Design Goals

Often the impediment to using an entrance or exit is the width of the doorway. Although the ADA Guidelines have minimum requirements for door openings, many people still have difficulty negotiating entries. The clear opening requirement of 32 inches (815 mm) accommodates average sized wheelchairs, which are 25 inches (635 mm) to 28 inches (712 mm) wide, but wheelchairs are available from 20 ½ (525 mm) inches to 34 ¾ inches (885 mm) wide. People who use larger wheelchairs find it difficult, if not impossible, to maneuver through many doorways without hitting their elbows or causing damage to door frames.

Tips:

- Door force can be measured with a door force gauge.
- If there is a raised threshold at the door, the installation of an aluminum or vinyl threshold ramp will eliminate the vertical change in level without interfering with the swing of the door.

Accessible

No revolving doors and turnstiles as part of the accessible route unless there is an accessible door or gate adjacent that facilitates the same use pattern

When a door is open 90 degrees, a clear opening at least 32 inches (815 mm) measured between the face of the door and the door stop on the latch side

When openings are more than 24 inches (610 mm) in depth, clear width of at least 36 inches (915 mm)

Maneuvering clearances at doors as illustrated on the next page

If the doorway has two independently operated door leaves, at least one active leaf that provides a 32 inch (815 mm) clear opening and adequate maneuvering clearance

If there are two doors in series, clear space between the walls at either end of the vestibule at least 48 inches (1220 mm) plus the width of any door swinging into the space

Doors in a series to swing in the same direction or away from the space between them

Handles, locks, and latches operable with one hand and without requiring tight pinching, tight grasping or twisting of the wrist

Doors not used for passage (e.g. a closet door), width no smaller than 20 inches (510 mm) but maneuvering clearances required to open a door still apply

Hardware mounted no higher than 48 inches (1220 mm) above the floor (also applies to locks on doors, including dead bolts and chains)

A period of at least 3 seconds for a door with closing hardware to move from 70 degrees open to a point 3 inches (75 mm) from the latch

Door opening force of 5 lbf (22.2N) minimum for interior doors

Compliance with ANSI/BHMA A156.10 for automatic doors

For low powered or power-assisted doors, compliance with ANSI/BHMA A156.19; opening time no faster than 3 seconds, no more than 15 lbf (66.6N) to stop door movement

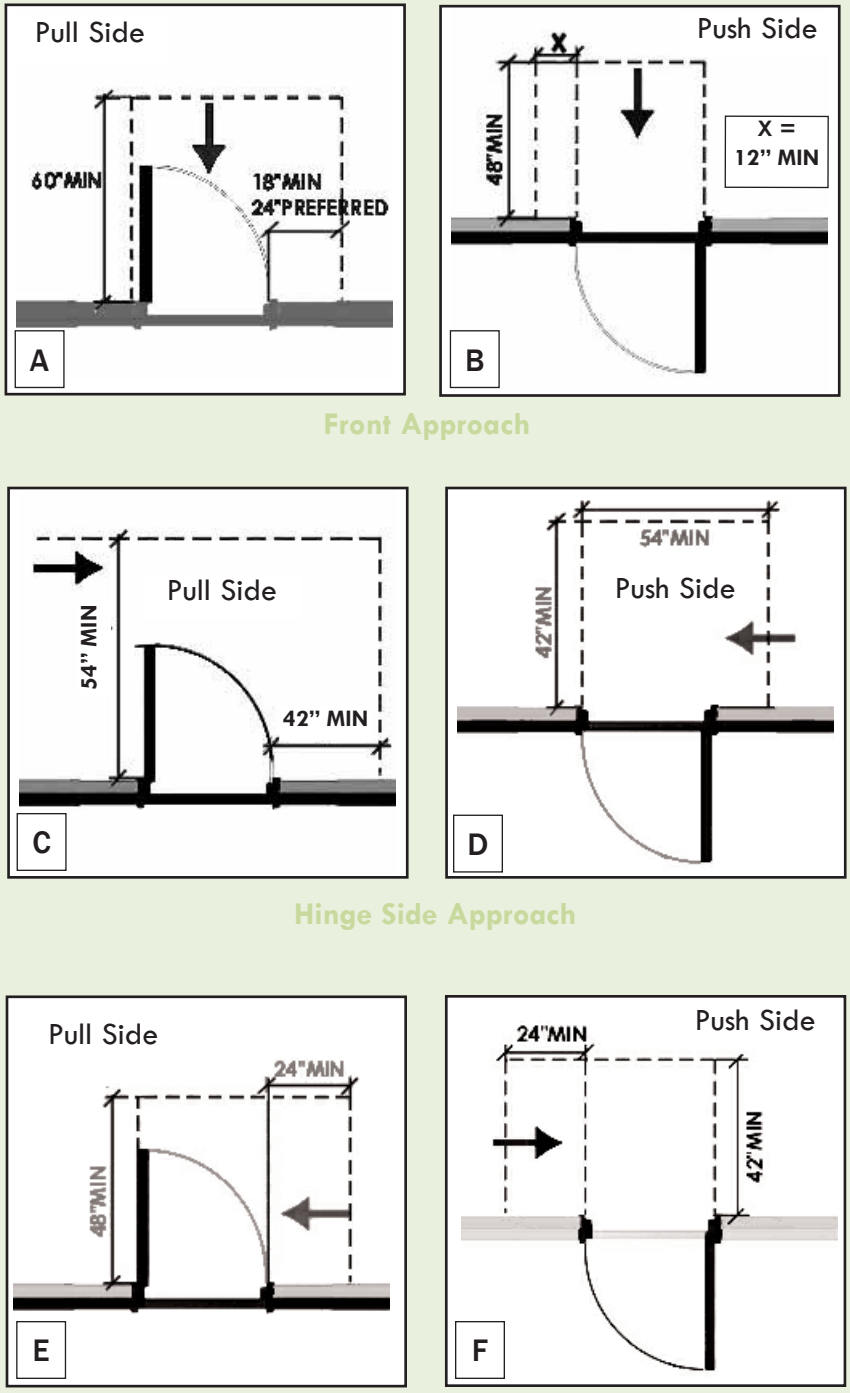
Notes for Figures at right:

B: Latch side clearance (X) only required if door has both a closer and a latch.

C: Latch clearance can be reduced 6 in. (155 mm) if depth clearance is increased 6 in. (155 mm).

D: Add 6 in. (155 mm) to depth clearance if door has both a closer and a latch.

E: Add 6 in. (155 mm) to depth clearance if door has a closer.



ADA Guidelines for Maneuvering Clearances at Doors

Maneuvering Through the Entrance or Exit (continued)

Key Design Goals

People who use wheelchairs are not the only ones who have difficulty maneuvering through doorways. People carrying packages, pushing strollers, arthritis sufferers, small children, etc., also experience some difficulty. This may not be the result of door width but some other variable including inadequate maneuvering clearances, hardware, thresholds, door force, etc.

- Provide adequate clearances for approach and continuous pass-through for all users.

Tips:

- Automatic doors, activated through floor mats or sensors are most often used in facilities with heavy traffic (e.g. airports, hospitals, hotels, supermarkets, high rise office towers, retail stores, etc.). Power-assist doors, activated by a push pad or button, are designed for a lower level of use (e.g., shelters, apartment buildings, health clubs, etc.).

Universal

Wider openings and maneuvering clearances at doors that accommodate different users and styles of movement (e.g. a person in a wheelchair, a person with a dog, a child in a stroller, adults carrying bags of groceries, etc.)

Lightweight doors that can be opened and closed with very little force

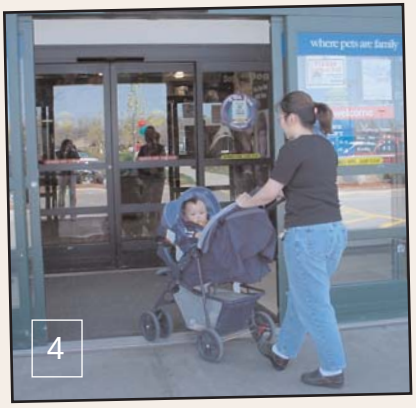
Automatic sliding doors that open without any effort

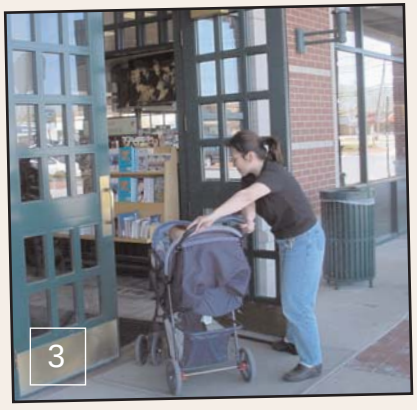
Push-type, lever, or U-shaped handles that can be operated easily by someone with poor hand strength

While the height requirement for hardware also applies to peepholes in the door, two peepholes to be installed for use from both seated and standing positions

Glazing in doors to see people approaching from the other side

Metal kick plate installed on the bottom of the door that prevents scratches and other abrasions by users employing wheeled devices





Maneuvering through a doorway can be easier with the addition of universal design features.

ADA Compliant Door

Although the entrance shown in figures 1, 2 and 3 meets all the requirements of the ADA Guidelines, they illustrate the concept that people who use wheelchairs are not the only ones who have difficulty maneuvering through doorways.

As illustrated in figure 1, a person pushing a baby stroller encounters some difficulty when trying to enter. Although there is adequate maneuvering clearance, it is difficult to hold the door open and maneuver the stroller through the doorway at the same time. As illustrated in figure 2, the person is forced to hold the door open with her foot so she can use both hands to propel the stroller. Figure 3 reinforces the difficulty encountered and effort required.

ADA Compliant Door with Universal Design Features

Figures 4 and 5 depict the same person pushing a stroller through the entrance and exit with ease and convenience. The automated sliding doors are activated by a motion sensor when she approaches. Automated doors are a good example of universal design because they enable all people, regardless of their ability, to open the doors without effort.

Departing the Entrance and Exit Area

Key Design Goals

Strategies for successfully exiting a building are **similar to those for entering**, except that egress is sometimes done under emergency circumstances. When a crisis occurs and egress must be swift and under difficult conditions, finding one's route can be problematic. Although primary entrances can be used as a means of egress, current fire regulations and **building codes have specific requirements for locations of emergency exits.** While these standards are implemented to ensure the overall safety of the building occupants, the task of finding these unfamiliar and seldom

Tips:

- The New York City Building Code has provisions for means of egress that are not specifically mentioned in the ADA Guidelines, but are applicable to all buildings. For additional requirements that go beyond those listed, refer to the most recent version of the New York City Building Code.

Accessible

Accessible spaces located along an accessible route to emergency exits or accessible area of rescue assistance

Accessible means of egress not required in alterations to existing buildings

Accessible means of egress equal to the number of exits required by local building/life safety regulations for each occupiable level of a building or facility except in alterations to existing buildings

Directional signage posted at all inaccessible exits indicating the direction to areas of rescue assistance

Each door along a means of egress providing clear opening width and maneuvering clearances

A horizontal exit, meeting the requirements of local building/life safety regulations can satisfy the requirement for an area of rescue assistance

Areas of rescue assistance (ARA) are not required in buildings or facilities having a supervised automatic sprinkler system

used locations is difficult for most users. This difficulty is heightened in stressful situations that are likely to limit mobility and sensory abilities.

- **Locate means of egress** where they are detectable and usable from all locations in the building.

- **Design configuration of exits should enhance users' orientation,** prevent expected congestions and enhance the safety of user groups, particularly during emergency situations.

Universal

All the entrances designed to be usable for both normal and emergency egress situations

Pathway lighting system used exclusively during emergency that guide users to exits or to the nearest area of rescue

Clearly detectable audible messaging system that convey directional information

Human assistance and evacuation plans in place for people unable to navigate independently

Multi-sensory indicators that help detect the exits of a building

All automatic doors with a fail-safe mode so that when power fails, they still can be used to exit

Also Refer to:

- **Circulation**

Tips:

- In facilities that primarily serve children, provide design features at different scales (e.g., toilets, drinking fountains, tables and chairs, etc.). In the example above, this building has two sized automated doors, which provide options for entering and exiting.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6

Wayfinding

Unfamiliar environments make special demands upon us. Even the simplest of settings can involve a jumble of information that has to be sorted and processed before it becomes meaningful

Dorothy Pollet and
Peter C. Haskell

Design for wayfinding includes the communication of information to assist the building user in finding destinations and understanding where they are at all times (orientation). This involves both design of building features that assist users to find their way and maintain their sense of orientation as well as direct delivery of information. Thus there are two types of wayfinding design strategies that reinforce and complement each other architectural wayfinding design and information wayfinding design. All strategies used for wayfinding should communicate effectively to the broadest group possible including people with a wide range of sensory abilities, intellectual abilities, literacy levels, languages and physical statures.

Certain architectural and interior design features help users to construct a mental map by creating familiar models of how space is organized, by supporting access to information in all the senses and by distinguishing one place from another. There are five attributes of buildings that support the construction of accurate mental maps: (1) clearly defined paths and circulation systems, (2) markers that stand out from the general background stimuli, (3) recognizable nodes where paths intersect, (4) strong edges like walls or landscape features, and (5) well defined zones/districts.

Key Design Goals

Paths, including walkways, hallways and corridors, generally define the circulation system in a building or a site. Usually the path system is organized into one of many common models. If users know which one is used, they can anticipate and predict where paths will lead. Clearly defined paths help people find their way more easily. In complex buildings and sites there are usually two orders of pathways: main pathways that connect major spaces, and secondary pathways that lead from primary paths to less important destinations. Differences between the two orders of paths and individual paths within

Accessible

No ADA Guidelines that address architectural wayfinding design

Universal

At least one key circulation node to help people understand where they are in the building through reference to that point

An easily identifiable circulation plan that users can understand from their initial contact, e.g. single loaded corridor, double loaded corridor, racetrack layout, etc.

Primary paths that are different in design than secondary pathways, e.g. wider, have higher ceilings, different color scheme and different lighting

each order help people remember their journey through the circulation system.

- **Create a hierarchy** of path types using major architectural features like width, height and surface material.
- Make the overall path system **obvious to the user.**
- **Expose important adjacent activities** to the path, where appropriate.
- Make progress toward **destinations obvious.**

Nodes connected with directly by pathways

Well defined edges like walls, fences, landscaping, screens or column lines to define places the public is welcome from places where access is restricted

Vertical circulation like ramps, stairs and elevators located where it is visible from entries and/or major nodes

Reoccurring elements like restrooms, elevators, and exits in the same place on each floor in multi-story buildings

Emergency exits located in places that people pass on a daily basis

Tips:

- Columns, doorways, and windows establish a pattern to help people to understand where they are going. This enables users to anticipate where their destinations are located.

Markers

Key Design Goals

Markers are unique features that people associate with different parts of the building or site. A marker can be a special building feature like a lighting fixture, material, window or raised ceiling area. It can also be an art piece, a window with a special view or a unique activity area like a water feature or even exposed equipment. They can also be multi-sensory, involving touch, smell, humidity and air movement. Markers have to be unique in the building or in a part of the building. If there are too many, they lose their effectiveness.

Tips:

- People use a "mental map" of a place to orient themselves and plan their trips from one point to another. Providing information through the building design itself helps to create an accurate mental map and thus is an important aspect of universal design.
- An information desk or kiosk can be a key marker at the entry to a building or site.

Accessible

Access codes do not require any particular markers with the exception of signs to identify certain accessible elements.

Universal

Markers located at intersections (nodes) and at locations that are highly exposed

Markers located so that they can be perceived from as many directions as possible

Markers positioned so that they do not physically interrupt the path of travel

Make entrances into markers by adding features that contrast with the surrounding building enclosure like recesses, overhangs, and/or

- **Associate key markers** with the most important places in the building.
- Use **connections to the site** to aid orientation to the surroundings.
- Make key markers **visible or audible from a distance.**
- Use **multi-sensory markers** wherever possible.
- **Avoid cluttering** the building with too many unique elements.

landscaping
Building exits marked by exposing exterior features from the interior near or through the exit

Sound, temperature differences, air movement, humidity, tactile stimuli and pleasant odors used to augment visual markers with non-visual information

Markers include art pieces, bold environmental graphics, unique acoustic qualities and sounds, unique landscape features, plants when inside buildings, pleasant smells,

humidity changes
Markers that provide a multi-sensory experience are most memorable

High ceilings that provide greater visibility for markers and facilitate hanging markers like banners and mobiles from above

Also Refer to:

- **Destination/Directional Information for Wayfinding**

Tips:

- A window can become a marker by revealing a particularly interesting view. Windows and glazing in doors should not create glare inside the building.

Key Design Goals

Nodes are places where paths come together. In buildings with many nodes, it is very important to distinguish them clearly through the use of markers and general architectural features. It is also important that the level of information provided at nodes is not too overwhelming, especially for first time visitors who need to find the essential information they need for finding their way.

Districts are areas defined by a particular character, either visual, social or geographic. In cities, districts might include a waterfront area, a

Tips:

- Ensure that information overload does not occur.

Accessible

Accessibility codes and the ADA do not have any requirements for design of nodes although a passing space is required every 200 feet on pathways and intersections can be used to fulfill that requirement

The ADA and other accessibility codes do not have any requirements for design of zone/districts

Also Refer to:

- Circulation

Universal

System of a few major nodes linked directly by major paths

Easy-to-understand circulation systems, such as a grid, linear spine, hollow square or hub and spoke configuration, to help people establish a clear mental map of the circulation system

Information content of intersections within manageable levels to reduce confusion and mental workload

Multi-sensory maps of the circulation system provided at all primary nodes

neighborhood on the side of a prominent hill, a historic or ethnic neighborhood, or an area with many skyscrapers. Buildings and sites can also be designed to incorporate zones that have a strong identity. This will help to break down the scale of large and complex facilities and even to make parts of smaller facilities more memorable.

- Make intersections in the path system **memorable places**.
- **Include important information** for direction finding at nodes.

Unique character created for urban districts using sign systems, street furniture, street trees and other landscape features, e.g. Greenwich Village, Battery Park City, SOHO, etc.

Complex and large buildings divided into more understandable zones, East Wing, Sixth Grade Wing, etc.

Visual identity created for each zone in a facility that is unique and memorable in its context

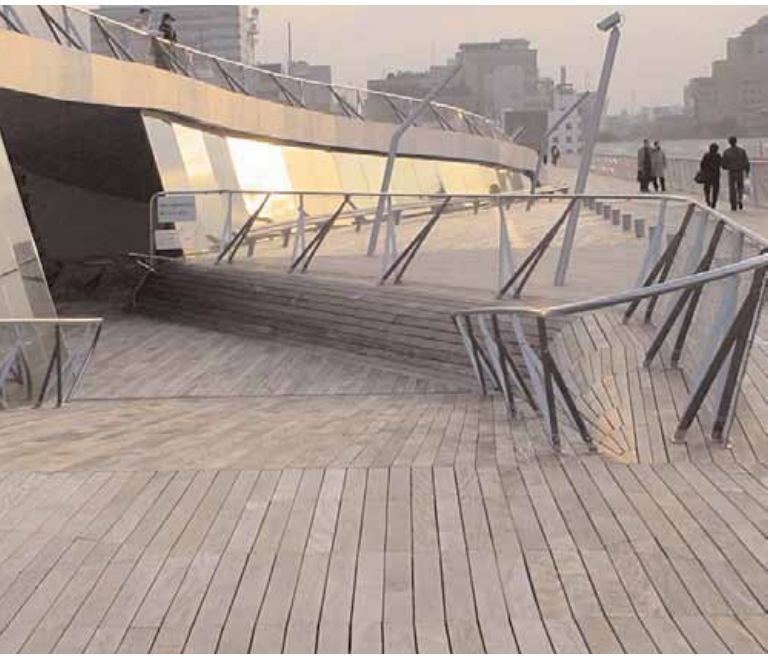
Zones in buildings identified with a zone prefix such as a letter, color, or cardinal direction. Orange-215 might be used to indicate room 215 in the Orange Zone, North-101, might be used to indicate North Wing, Room 101, etc.

Identifying characteristics of the zone explained with signs at primary building entries and the entry points to urban districts

Tips:

- Too many nodes in a building can cause confusion and make it difficult to remember the spatial layout, especially if they all look alike.
- An area with a strong identify as a district is easier to remember than one that does not have such an identity.
- Create zones within the city, on sites and in buildings that have strong and unique identities,

Edges



Key Design Goals

Edges provide a physical means to orient oneself in space. Edges include features of the built environment like the walls of buildings, the wall of a hallway or corridor or a handrail. They also include landscape features like the edge of a forest or a river or a planting strip along a sidewalk. An edge provides a boundary that people use to orient themselves in space and to keep themselves moving in the right direction. Moving along the edge also provides a sense of progress toward a goal if its features change periodically. Since every path has an edge, it can be used to carry information that users

Tips:

- Handrail systems are good locations to incorporate tactile and audible sign systems. Recorded messages can be inserted into the rail with buttons to activate and Braille or tactile markers can be installed on the inside of the rail so that they can be found easily while using the rail as a "shoreline."

Accessible

Warning strips provided along the edge of transit platforms that have color and texture that contrasts with the background flooring

Continuous handrails provided on both sides of ramps and stairs including landings

Also Refer to:

- **Curbs and Curb Cuts**

need to obtain along a travel path. Edges can be used at the micro-scale to mark the boundary of places intended to be used differently. Strong edges are much more easily remembered than weak edges.

- Design edges to **help in orientation and in wayfinding.**
- Incorporate **strong edges to provide shorelines** for navigation.
- **Reinforce edges** in more than one sensory mode.

Universal

Walls, fences and landscape features used to guide people to key destinations

Visual and tactile warning surfaces included at the entry to stairs in the path of travel

All edges of walking surfaces protected from accidental falls, e.g. edges of reflecting pools, abrupt changes in level

Contrasting building floor textures and hardness to establish edges to guide people across undefined open areas

Continuous handrail systems provide a natural guide for people with visual impairments

Tactile marking systems on handrails inform people of changes in conditions – particularly potentially hazardous conditions (e.g., top step of stairs)

Tips:

- Handrails can become major aesthetic elements.

Information System Design

Key Design Goals

Signs are the most common element of information systems and are often the only type provided. There are three basic kinds of signs: identification signs, directional signs and descriptive signs. Signs can be visual and tactile.

- **Provide access** to several levels of information content.
- **Adjust the amount of information** to the needs.

Tips:

- Talking signs can be incorporated into the sign system that provides visual and tactile signs or remain separate as in the Caltrans terminal. A consensus approach should be developed for the locations of talking signs in a community so that all people with visual impairments who use them will know where to search for them.

Accessible

Accessibility codes do not include any information on system design

Universal

Consistent text, graphic style and location of signage throughout a building, site or campus

Mounting system that allows specific signs to be changed easily and inexpensively

Artificial and natural illumination designed to prevent glare on signage

Directional signs located where they are most visible which is usually overhead and perpendicular to the path of travel

Avoid blocking signs with building elements such as lights and air vents

Avoid more than five messages and five lines of text in a single directional sign

Familiar or easy-to-learn pictograms used to reinforce text and to bypass language-based information

Information offered in directional signage emphasized with architectural indicators such as wall graphics or landscaping that lead to the destination

Directional information supplemented with maps at key decision points to reduce the amount of directional signage

Signs placed in transitional areas to reassure people that they are on the correct route

Floor levels and their uses (e.g., entrances to the complex, offices, concourse, parking) clearly identified in elevator lobbies and at the tops of ramps, stairs, and escalators

Signs placed at intersections to ensure that those coming from all directions can detect the information

Provide directions to the information desk at all secondary entrances where there is more than one entrance

Audible signs to provide a higher level of support for direction finding by people with visual impairments, especially where there is no human assistance for wayfinding

If technology is available, use talking sign systems that can benefit all users, e.g. hand held computers that provide visual as well as audible information

Where public address systems are used to broadcast event schedules, announcements, pages and emergency conditions, provide monitors, electronic message boards or other forms of dynamic information with the same information in visual form

Tips:

- Audible signs include infra-red transmitters, pre-recorded digitized messages that are manually activated, short range radio transmitters, and wireless web approaches using hand held or wearable computers.

Sign Content

Key Design Goals

The design of letters and numbers used on signs and electronic displays has a great impact on their legibility. Design factors that affect legibility include character height, stroke width, color, font type and surface characteristics. Attributes of characters that optimize tactile legibility are different than those that optimize visual legibility. Text on electronic displays should be designed specifically for use in dynamic displays.

Tips:

- Where pictograms are used, the border dimension should be no larger than 6 inches (152mm) high and be accompanied by an equivalent verbal description placed directly below the pictogram.

Accessible

Characters have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-height ratio between 1:5 and 1:10 based on the lower case "X"

Tactile characters and Braille on all directional and identification signs

High contrast letters and symbols on visual signs and visual/tactile signs

Room numbers, letters and pictograms raised 1/32 inch(.8mm), upper case sans serif between 5/8 inch (16mm) and 2 inches (50mm) high based in the uppercase letter "I"

Raised borders not required at least 3/8 inch (9.5mm) from tactile characters

The height of letters and numbers on visual signs based on viewing distance

Grade 2 Braille under the visual signs

- Design signs for **both visual and tactile use.**
- Ensure that the **sizes and proportions of text is readable.**
- Ensure that the **meaning of the information on signs is clear.**

Universal

Text on electronic displays is designed for readability based on the specific technology adopted e.g. CRT monitor message board, etc.

Common rather than obscure or technical names (e.g., Ear, Nose, and Throat rather than Otorhinolaryngology)

Abstract or difficult to learn symbols or pictograms avoided

Text as well as symbols or pictograms included, where possible

Color schemes that can be easily described by name such as blue, orange, gray rather than turquoise, magenta or ochre

Red, yellow, and green reserved for public safety uses

Information on complex signs grouped to increase comprehension

Consistency of arrow styles and use maintained throughout the system. Consider the plain language option of "straight ahead" instead of an arrow pointing up or down to avoid confusion with "upstairs" and "downstairs"

Tips:

- Light letters on a dark background appear larger than dark letters on a light background and therefore are recommended for directional signage.

Orientation Aids

Key Design Goals

Even in simple buildings, it is useful to provide a map for orientation purposes. These maps can be provided in both visual and tactile modes and can also incorporate audible messages.

- Provide information to **help people understand where they are.**
- Provide information to **help people understand the whole of the building.**
- Locate and design orientation aids so that **everyone can benefit from them.**

Tips:

- In development of an information system for wayfinding, it is important to maintain consistency throughout the facility while allowing flexibility to accommodate different physical conditions as well as change in room occupancy and usage over time.

Accessible

The ADA and other accessibility codes do not have any requirements for orientation

Universal

Maps of the building or site at key nodes in the circulation system

Maps oriented to correspond with the direction the user faces when using the map

"You are here" symbol to help in orientation

Key landmarks included in the site or building plan

Text labels on maps correspond to the labels used on directional and destination signs

Also Refer to:

- **Circulation**

Familiar or easy-to-learn pictograms to reinforce text and reduce the need to use language-based information

Tilted maps and plans displayed for pedestrian use so that people of all statures and those who are seated can access them

Information desks placed near building maps and directories so that attendants can use them to explain directions to visitors

Exterior maps placed in locations that are legible from a parked vehicle

For building directories, provide visitors with level and room numbers for all destinations, listed alphabetically

All upper case text in directories avoided to increase legibility

Map provided on each level with room numbers and tenants identified

Maps oriented with floor plan with key markers included for the level

Hours of service displayed in a prominent area near or on the building entrance as well as in the vestibule area

Tips:

- Resistance to weather in outdoor settings and to vandalism in uncontrolled settings is important to insure stability of the system.

Key Design Goals

In most buildings, **users need more information to find their precise destination than the building itself can provide.** Wayfinding information systems can include many different elements. To serve a full range of users, information should be provided through several senses. Contemporary computer technology can be used to provide a higher level of information content than was possible even a few years ago. In particular, dynamic information can be provided that changes as events in a building change.

Tips:

- The Graphics Artist Guild has developed a set of symbols for advertising access services (see above).

Accessible

Accessible toilet stalls and telephones should be marked with the International Symbol of Accessibility (ISA)

Room signs mounted on the wall adjacent to the latch side of the entry with the exception of doors that swing open in the direction of travel and there is no wall space to the right of the double doors (if these have closers and but don't have hold open devices, the sign can be mounted on the push side of the door)

Mount room signs between 48 inches (1220mm) and 60 inches (1525mm) from the centerline of the sign to the floor

Tactile text and Braille on room identification signs

Pictograms to mark the presence specific accessible features, e.g. public telephones, assistive listening systems, etc.

- Provide **multi-sensory destination information**
- Accommodate **different languages.**

Universal

Outdoor signage to identify all buildings by name

Signs located for legibility from both roadways and pathways

Floor numbers detectable at each entrance

Room number signs beside doors so that they can be easily detected when the door is open

Public amenities (e.g., restrooms) and restaurants that are identified with pictograms, text, and Braille

Multiple languages where visitors who do not understand English are expected

Tips:

- The numbering system used in buildings should be intuitive and simple. For example, in multi-story buildings, all room numbers should correspond to their floor number (e.g., B1 for the basement, 101 for the first floor, 201 for the second, etc.). Even numbered rooms should be on one side of double loaded corridors and odd numbered rooms on the other. Avoid splitting even and odd numbers for different wings.

Event Identification

Key Design Goals

There are many events that occur in buildings that all inhabitants need to know about. During events, **individuals need access to assistive devices to help them get all the information being provided.**

- Provide information on the **availability of assistive devices** for use in meetings and other events.

Tips:

- It is surprising how many people can benefit from Assisted Listening Systems. But, most people don't know what they are. Providing leaflets explaining their use can be helpful.

Accessible

Visual alarms where audible alarm systems are installed

Assistive Listening System (ALS) for people with hearing impairments where a public address system is provided

Signage to indicate the availability of an ALS

- Provide **information on scheduled events.**
- Ensure that emergency warning systems are **usable for all people in the building.**

Universal

Pictograms, text, and color-coding to label all emergency equipment

Standard sign shapes for specific purposes (e.g., circles for regulation, squares and rectangles for identification, and triangles for warning)

Standard sign colors for specific purposes (e.g., yellow for warning signs, red for emergency signs or devices, and green for life protection equipment or facilities signs)

Information desks and kiosks identified with signs

Monitors located in high visibility locations and strategic locations where the information will be needed quickly, e.g. where transportation passengers are searching for departing vehicles

Tips:

- Protect monitors against uncontrolled glare from natural and artificial illumination.


STOP

7

Parking and Passenger Loading Zones

While architects are required to adhere to accessibility requirements in facilities, they must not ignore key design features that extend beyond the actual building. Parking and passenger loading zones are critical components of any design and therefore deserve as much attention as building entrances or circulation spaces. Without sufficient parking, certain people are inconvenienced, or worse, excluded. Inability to park near a building prevents them from participating in activities, attending an event or purchasing products. Public facilities that provide adequate parking can make locations more usable, safe and appealing. These are all fundamental tenets of universal design.

Parking

Key Design Goals

- Make parking **manageable and safe** for both pedestrian and vehicular traffic.
- **Provide options** for parking in alternate lots.
- Provide passenger loading zones in areas that **minimize congestion.**
- **Install signs or other identifiers** for wayfinding in large parking areas.

ⓘ Tips:

- Two accessible parking spaces can share an access aisle.
- Two accessible parking spaces may not share a reserved parking sign.
- Accessible parking spaces do not need to be provided in the main parking lot. They can be located in alternate locations if they provide more convenience.

Accessible

Accessible spaces on the shortest accessible route of travel from adjacent parking to an accessible entrance

Dispersion of accessible parking spaces for buildings that have several accessible entrances and each one has adjacent parking

Accessible parking spaces as illustrated in the ADA Guidelines (refer to chart)

Parking spaces at least 96 inches (2440 mm) wide with an access aisle at least 60 inches (1525 mm) wide

Accessible parking spaces designated with a sign showing the symbol of accessibility located where it will not be obscured by a parked car

96 inch (2440 mm) access aisle designated as "van accessible" below the International Symbol of Accessibility for one in every eight accessible spots (but not less than one)

Level parking spots, vehicle standing spaces and access aisles with a slope no more than 1:50 (2%) in any direction

Required Minimum Number of Accessible Parking Spaces

Total Parking Spaces in Lot	1 to 25	26 to 50	51 to 75	76 to 100	101 to 150	151 to 200
Minimum Accessible Spaces	1	2	3	4	5	6

Total Parking Spaces in Lot	201 to 300	301 to 400	401 to 500	501 to 1000	1001 and over
Minimum Accessible Spaces	7	8	9	2% of Total	20 plus 1 for each 100 over 1000

Vertical clearance of at least 114 inches (2895 mm) at accessible passenger loading zones and 98 inches (2490 mm) at van accessible spaces and along at least one vehicle access route from site entrances and exits

If provided, access aisles at passenger loading areas at least 60 inches (1525 mm) wide by 240 inches (6100 mm) long parallel to the vehicle pull-up space

Curb ramps where passenger loading zones or drop-off areas are adjacent to a curb

Accessible passenger loading zone at valet parking facilities

At least 20 percent of total spaces accessible for facilities specializing in treatment or services for people with mobility impairments

At least 10 percent accessible for outpatient medical facilities

Tips:

- Universal Parking Space design is an alternative to the provision of van accessible spaces with a wider aisle and a "van accessible" sign. Instead, all accessible spaces are 132 inches (3350 mm) wide with a 60 inch (1525 mm) access aisle.

Parking (Continued)

Key Design Goals

Tips:

- In certain facilities, loading zones may have to be located on public streets. These locations limit the design and use of loading zones since they cannot encroach on public sidewalks.
- Many times parking lots are covered in gravel which makes it difficult for a person using a mobility device to maneuver. All parking lots should have a paved surface.

Universal

Shuttle service that is equipped with a wheelchair lift to eliminate the need to travel lengthy distances in certain facilities (for example, stadiums and amusement parks), with parking that is far from any entrance

Emergency phones at large parking facilities

Alternate parking area for buses, RV's and other larger vehicles

Adequate lighting in all parking areas and at passenger loading zones

Routes from accessible parking do not pass behind parked vehicles

In large parking facilities, color coded zones with easy to remember locator identifiers such as names identified on prominently displayed signs in that area

Pedestrian pathway indicators (including signs, crosswalks, planters, bollards, etc.) that identify

pedestrian pathways through parking lots

Speed bumps and “slow” signs strategically located in parking lots to prevent speeding and increase safety

Covered areas of parking for protection from inclement weather

Passenger loading zones that do not impede vehicular or passenger traffic

Temporary parking areas, such as “15 minute parking” to prevent double parking at entrances

Easy-to-use, secure, short-term bicycle parking that does not obstruct main circulation paths

Separate entrance and exit points into parking areas to eliminate traffic

Valet parking service where parking lots are located a long distance from building

Also Refer to:

- **Circulation**

Tips:

- Parking and passenger loading zone needs vary depending on the size and function of the facility. In a school for instance, it is typical for parents to pick up their children. Loading zones often become congested during peak hours. These areas should accommodate many vehicles arriving at the same time without impeding the flow of traffic.


115

8

Seating

Typically, wheelchair seating in stadiums, arenas, theaters and other public places of assembly are segregated in the back or front of the venue. Often spectators are unable to enjoy the performance or event from those locations. Typically they are considered the "worst seats in the house" yet are sold at the highest ticket prices. Not only are lines of sight and sound quality frequently inferior to other seating areas, but wheelchair users are blocked from seeing the event when other spectators stand.

Although the ADA mandates accessible seating areas in all places of public assembly, incorporating universal design features into the overall design will ensure equal enjoyment for all spectators.

We're really designing products that touch the lives of many different generations.

Brian Donnelly
designer

Seating

Key Design Goals

- Provide **directional signage to guide people** to their destination.
- **Provide an information booth** in large facilities to provide directions and assistance.
- **Provide flexible spaces** that can be adapted to changes in program.
- Make **amenities easy to locate** and accessible by everyone.

Tips:

- For assembly areas without fixed seating, the ADA requires either a permanently installed sound system or electrical outlets and supplementary wiring for a portable system.
- The number of required receivers for assistive listening systems is at least four percent of the total number of seats, but never less than two.

Accessible

Seating located along an accessible path of travel connecting all public areas including entrances, concessions, public amenities and exits

At least one percent of total seating wheelchair accessible

When 300 or more seats are provided, accessible seating locations dispersed throughout all seating areas to provide options for views and ticket prices

Companion seat provided next to each wheelchair seating location

Clearance of at least 66 inches (1675 mm) wide and 48 inches (1220 mm) deep for forward or rear access and 66 inches (1675 mm) wide and 60 inches (1525 mm) deep for side access at wheelchair seating locations in a series

Wheelchair seating locations that provide comparable lines of sight to other spectators

Wheelchair seating locations with a line of sight over standing spectators

At least one percent of all fixed seats in all seating areas must be aisle seats with removable arms on the aisle side, making it

easier for those with mobility problems (such as a leg cast) to get in and out

Seats supporting assistive listening devices located within a 50 foot (15 m) distance from the viewing area or stage where fixed seating areas accommodate at least 50 people and audible communication is integral to the use of a space

Accessible route connecting wheelchair seating areas with the stage, arena or stadium floor, and dressing or locker rooms

Signage to notify spectators of the availability of assistive listening devices

Wheelchair seating locations provided in all areas, including sky boxes and specialty areas

Do not use removable temporary platforms to provide wheelchair seating in new facilities

Also Refer to:

Circulation

Seating (Continued)

Key Design Goals

Tips:

- Removable or folding chairs can be placed in accessible seating areas when not occupied by a person using a wheelchair.

Universal

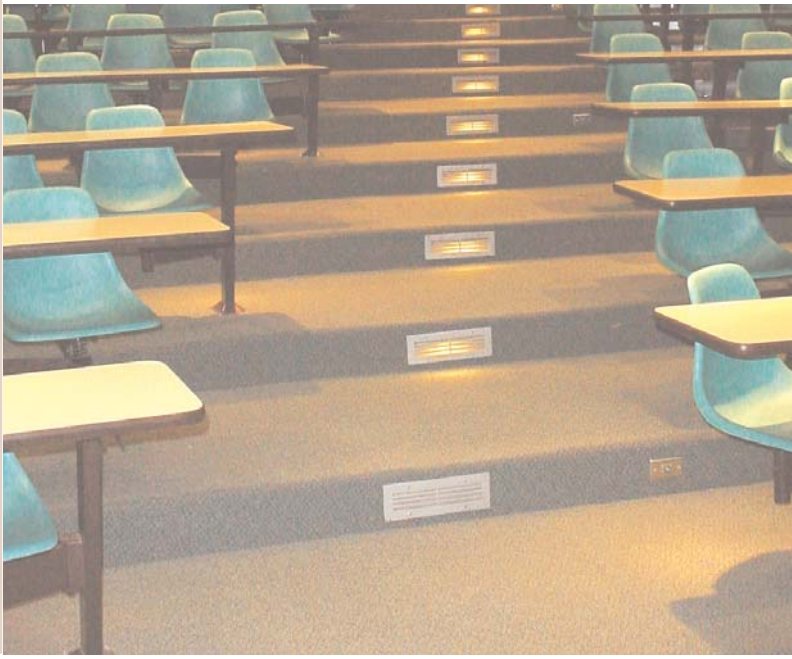
Accessible seating designed as an integral part of the seating plan so that people using wheelchairs are not isolated from family and friends

Color coded levels of seating to help locate seats easily. Row and seat numbering clearly indicated by using large type in high contrast to the background

Electric outlets located near wheelchair seats for recharging power chairs

Signs located throughout the facility (especially at entrances) to identify the most convenient routes to accessible seating areas

Seats with proper support systems to prevent fatigue



Tips:

- It is often easier to make a forward approach into a wheelchair space than a side approach, especially when they are paired. Paired spaces allow flexibility for people attending a performance together.

Also Refer to:

- **Other Section**


serve chilled
serve chilled
serve chilled
Silk
SOYMILK
Organic
Milk
Lactaid
parmalat

9

Obtaining Products and Services

Buildings that facilitate access to products and services should be designed to be barrier-free, age-friendly and usable by everyone. The design should enable a person to enter, determine their destination, perform a purchase or transaction, and depart with as little difficulty as possible. Such buildings include retail stores, banks, libraries, service centers, local and state government buildings, commercial facilities, and bill payment locations. Specific examples include the United States Post Office, New York State Department of Motor Vehicles, Brooklyn Federal Savings & Loan, Bloomingdales, Con Edison Customer Service Walk-in Centers, concessions at Yankee Stadium, ticketing areas at Kennedy Airport and supermarkets.

The first barrier to Universal Design is the human mind. If we could put a ramp into the mind, the first thing down the ramp would be the understanding that all barriers that people face in the environment are the result of narrow thinking…

George A. Covington

Entries & Circulation Spaces

Key Design Goals

In order to obtain desired products and services, individuals must be able to maneuver through spaces and aisles until they reach their desired destinations. Often, retail stores try to maximize selling space by using floor and wall space for display, which can create severe obstacles. Floor displays create tripping hazards and severely limit maneuvering space, while protruding objects from walls reduce the clear width of circulation space.

ⓘ Tips:

- Where carpet is used, it should be tectured loop or pile and be securely attached with a cushion or pad.

Accessible

At least one accessible public entrance

Entrances, hallways, corridors and other circulation spaces connected along at least one accessible route

Directional signage installed at all inaccessible entrances indicating route to accessible entrance

For Electronic Article Surveillance (EAS) devices at entries, width at least 32 inches (815 mm) but less than 36 inches (915 mm) wide and no longer than 24 inches (610 mm) in length

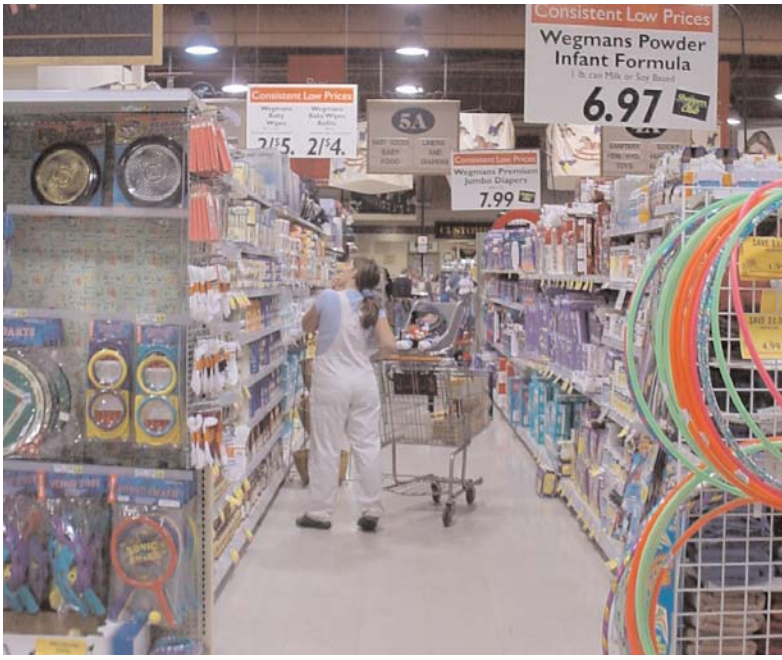
At least a 42 inch (1065 mm) wide aisle and 48 inch (1220 mm) turning aisle for a turn around an obstruction (such as a display case) less than 48 inches (1220 mm) wide

At least a 36 inch (915 mm) wide aisle for a 90 degree turn around an obstruction (such as a display case) no less than 48 inches (1220 mm) wide

Product displays protruding from walls with their bottom edges between 27 inches (685 mm) and 80 inches (2030 mm) above the floor project no more than 4 inches (100 mm) into the aisle

At least 60 inches (1525 mm) by 60 inches (1525 mm) of space to turn around at all dead end corridors

- Provide **easy entry** for everyone regardless of ability or stature.
- Provide circulation spaces that **permit comfortable maneuvering** throughout facility without encountering barriers.
- Design circulation that facilitates **access to all** products and services provided.



Universal

All entries accessible

Automatic door opener at all entries, either by sensor or push pad

Transition area at entry to help visitors get oriented to the facility without impeding movement into the building

All circulation paths at least 36 inches (915 mm) wide for one-way traffic and short paths or 60 inches (1525 mm) wide for two-way traffic

Accessible reception desk or information booth at entry when visitors need to register or show identification for entry

Sufficient space so queues will not create congestion in the lobby

Preview of resources in the facility with special exhibit, views into the building, displays and descriptions of exhibits

Seating in or adjacent to all queuing areas for people who cannot stand for long periods of time

Access to amenities like drinking fountains and telephones from the entrance lobby

Tips:

- Provide an accessible entry serving specific spaces that are used when the rest of the facility is closed, e.g. community meeting rooms, bookstores.
- Employ “you are here" maps to orient users once they enter the store.

Case Study: Tenement Museum

It is important to emphasize that many types of buildings offer goods and services to the public. As an example, the Tenement Museum on the Lower East Side of Manhattan has a bookstore that sells a wide variety of literature and gift items. They also have a schedule of tours to a restored tenement building in the neighborhood. Not only are the items in the bookstore goods and services but the tours themselves, which require entry fees, also fall under this category.

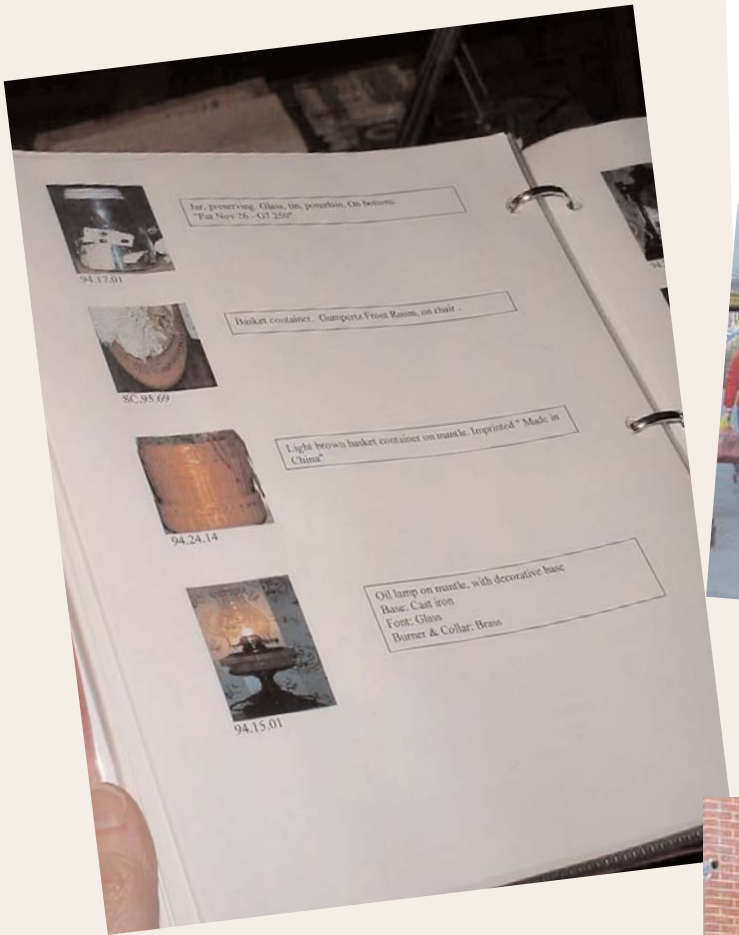
The bookstore is located at their main site, an old corner storefront with high visibility. It is at grade level with no steps at the entry. The building also houses restrooms and a room in which videos are projected. These are also at grade level and accessible without walking stairs.

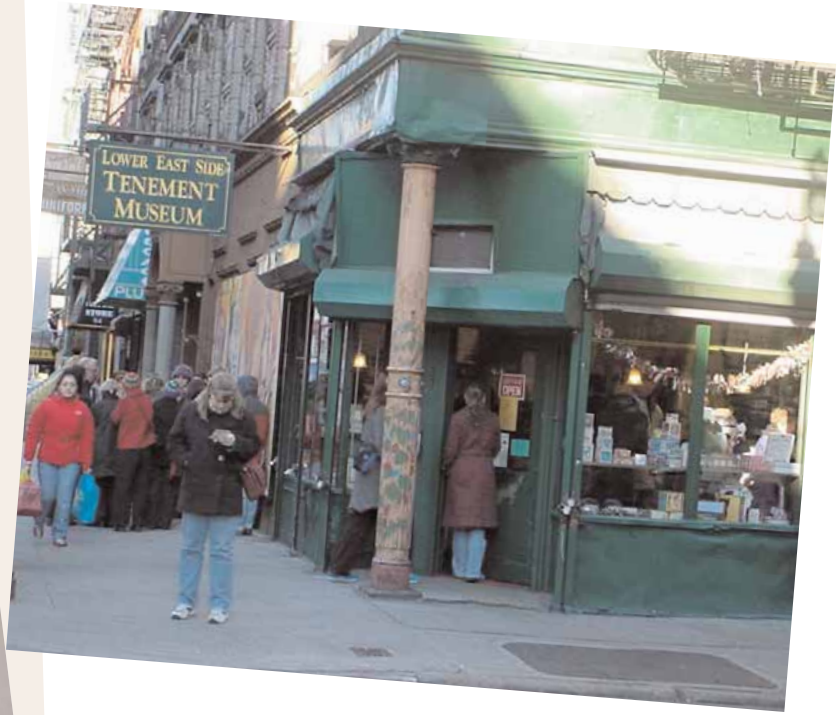
Although the main Museum site is accessible, the restored tenements are in a building that does not have an accessible entry or elevator. The number of people allowed on each tour is limited because of the cramped spaces in the old tenement building. As a historic structure, the crowded spaces capture the essence of tenement life; thus, it is unlikely that full accessibility could ever be provided to this building without significantly changing its character. Yet, the Tenement Museum has made an effort to provide an equivalent experience for those who cannot take the tour. With little resources, they created a book of photographs and tour descriptions that allows people who cannot walk stairs to take a virtual tour and gain access to the same information that tour participants would receive from their guides. Alternate media are also available to people who have vision impairments.

Although the tour book is designed primarily for people who cannot access the tenement buildings, it is also useful for people who may visit the Museum during a time when no tours are available or the next set of tours are booked up. These visitors can at least read the book and may decide to either wait, come back again at the next available tour time or visit the museum on another day. Thus, the book not only helps the Museum achieve accessibility but it provides a means to market their tours more effectively to everyone.

The Tenement Museum demonstrates that providing an equivalent service does not have to be expensive. It just takes some thought and effort to create an equivalent experience. Moreover, this requirement of accessibility can be used as an opportunity to improve service delivery to everyone. With more resources, information technology could be used to create an even more effective resource.

For more information on adapting historic structures and renovations, please see Section 17 Renovations and Additions.





clockwise: tour book, entry to Tenement Museum main building, entry to the building where tours are conducted.

Product Distribution

Key Design Goals

When people go shopping, they like to have choices in the kinds of products they buy (e.g., brand name, size, quantity, price, etc.). Therefore, products must be located where all people can access them. This offers the opportunity for shoppers to make decisions based on personal preference and need rather than what is within their reach.

Tips:

- Certain kinds of stores, particularly pharmacies and supermarkets, have candy displays along checkout aisles. Often they protrude beyond the 4 inches (100 mm) permitted by ADA requirements. When planning the store layout, designers should plan ahead for candy racks and other impulse shopping items.

Accessible

Floor area of at least 30 inches (760 mm) by 48 inches (1220 mm) for approach

Reach between 15 inches (380 mm) and 48 inches (1220 mm) from the floor for a forward approach or between 9 inches (230 mm) and 54 inches (1370 mm) for a parallel approach

Dispensing mechanisms operable with one hand without requiring tight gripping or twisting of the wrist

Side reach over an obstruction no higher than 46 inches (1170 mm) and no deeper than 24 inches (610 mm)

Forward reach over an obstruction no deeper than 25 inches (635 mm)

Forward reach over an obstruction no higher than 48 inches (1220 mm) when depth is less than 20 inches (510 mm)

Forward reach over an obstruction no higher than 44 inches (1120 mm) when depth is between 20 inches (510 mm) and 25 inches (635 mm)

Locate items where they will **not be obstructed.**

Provide products within a **comfortable reach range** for all users.

Provide **adequate illumination** at all product areas.

Place signs to aid wayfinding.

Universal

All products kept at a comfortable reach range between 24 inches (610 mm) and 48 inches (1220 mm) above the floor so that they are reachable from either a standing or seated position

Signage above each aisle listing contents so that products can be found easily without too much searching

Adequate illumination in product areas to allow people with low vision to read names on labels, prices, product ingredients, etc.

Access to shelving and other self service displays not obstructed by displays and boxes of stock

Width of all aisles at least 60 inches (1525 mm) to allow two people traveling in the opposite direction to pass each other

Customer service phones installed in selected aisles for assistance in finding items, reaching shelves, price checks, etc.

Heavier items located at a lower height for easier retrieval

Tips:

- Featured products or those on sale located easily from the entry (e.g., at the front of an aisle, near checkout areas, etc.).

Waiting Areas

Key Design Goals

In buildings where services are provided to the public, **there may be instances where people have to wait.** It is important to **make waiting areas comfortable and pleasant places.**

People form their opinions of a person or place based on what they see in the first few seconds. The waiting area is **one of the first things people see.**

Tips:

- If there are different departments within a facility, each department should have its own waiting area. For example, in a supermarket, a person waiting for a prescription at the pharmacy most likely will not be waiting in the same area as someone waiting to have their film developed.

Accessible

Waiting areas located on an accessible route

At least one 30 inch (716 mm) by 48 inch (1220 mm) clear floor space for wheelchair users to wait

Universal

Located in an area where people waiting will not impede the flow of traffic along the path of travel

Seating area provided for those who are unable to stand for short periods of time or when long periods of waiting are required

A system for tracking who is next in line when several people are in the waiting area; both text and audio systems to notify the next individual to be served

- Provide a **transition area between the exterior and interior** facilities.
- Locate where **traffic congestion is unlikely** to occur.
- Provide access to restrooms, public telephones and drinking fountains.

Adequate lighting for all levels of activity, including filling out paperwork, reading and casual conversation

Restrooms, public telephones and drinking fountains in close proximity

Play area in waiting room to occupy small children

Bulletin board mounted at a viewable height whether standing or seated for information, announcements, policies, etc.

Television monitors with closed captioning where long waits are expected

Brochures, pamphlets and other reading material placed in the waiting room to help people be more informed about the facility

Tips:

- Seats should be comfortable and easy for people to use. Chairs that are too lowor don't have backs or arms make it especially difficult for older people to stand.

Service Desk & Offices

Key Design Goals

One of the most important design considerations of counters and service desks is to allow **comfortable interaction between staff members and visitors.** Therefore, spatial organization and features should ensure usability by everyone.

- Provide **direct access** from the entry to service areas.
- Allow **sufficient space** to conduct business transactions.

Tips:

- If users are required to ring a bell to alert an employee, the button should be mounted no higher than 48 inches high.

Accessible

Accessible route between store entry, hallways, corridors and service counter

Where counters have cash registers, a portion of the main counter at least 36 inches (915 mm) long and no higher than 36 inches (915 mm)

Where counters do not have a cash register (e.g., ticketing counters, bank teller stations, hotel registration counters and box office counters), a portion of the main counter at least 36 inches (915 mm) long and no higher than 36 inches (915 mm) or an auxiliary counter no higher than 36 inches (915 mm) in close proximity to the main counter or provision for a shelf attached to the main counter on which a seated individual can write

Clear floor area of 48 inches (1220 mm) by 30 inches (716 mm) at service desks

- Include **provisions for privacy** and noise containment.
- Locate horizontal work surfaces at a **comfortable height for all users.**
- Provide discussion areas that **establish equitable relationships.**

Universal

Service desk and offices located to prevent congestion along the path of travel

Service desk strategically located close to entry to control access

Lowered sections of counter that offer knee clearance for a seated user

Enough space for people in line to maintain appropriate interpersonal distances

Background noise in the reception area controlled enough to ensure that quiet talking is understandable by all parties

A separate alcove or area where users can talk discreetly to staff when they wish to speak privately

A level of privacy provided through partitions or other measures at counters where transaction requires confidential information to be exchanged

Areas around counters that provide enough space to accommodate different patterns of use

Tips:

- Provide a motorized adjustable height surface in one section of counter for increased flexibility.

Dining Areas

Key Design Goals

Dining areas that require self-service are often difficult, if not impossible, for many people to use. After purchasing food, people typically carry items on a tray to their seat. This is especially difficult if there is not adequate clearance through the dining area. Also, carrying a tray requires good dexterity, strength, balance and the ability to grasp.

Tips:

- Dining areas typically serve a large number of people during short periods of time. There are defined task areas including food service lines, seating area, and checkout that should be usable by everyone.

Accessible

Access aisle at least 36 inches (915 mm) wide between parallel edges of tables or between a wall and the table edges

Food service lines at least 36 inches (915 mm) wide with a preferred clear width of 42 inches (1065 mm) to allow passage around a person using a wheelchair

Where there are fixed tables, at least 5%, but not less than one, of the fixed tables to be accessible

Self-service shelves and dispensing devices for tableware, dishware, condiments, food and beverages located no higher than 48 inches (1220 mm) above the floor for a forward approach and 54 inches (1370 mm) above the floor for a parallel approach

Self-service shelves and dispensing devices provided on a table no higher than 48 inches (1220 mm) above the floor to permit access by everyone

Tray slides mounted no higher that 34 inches (865 mm) above the floor

Only one level of multi-level facilities required to be accessible if the same services and amenities are provided on all levels

Provide **adequate maneuvering clearances** at food service lines and at seating areas.

Provide **equal access** to food items, condiments, straws, silverware, etc.

Provide a **comfortable eating environment.**

Universal

Seating that is both movable and removable for the highest level of flexibility

Areas around food service lines adequately spaced to prevent traffic congestion and accommodate wider patterns of use

Lowered counters at cash registers to ensure usability by everyone

Routes of travel defined with flooring materials to prevent congestion near task areas

Lifts or elevators connecting all levels

Non-slip flooring along circulation paths

Tips:

- Condiment, straw and napkin dispensers should be usable by anyone without having to lift, squeeze or pinch a mechanism to obtain items.

Information Transaction Machines

Key Design Goals

Information Transaction Machines (ITMs) include any **interactive terminal in which the primary purpose is to accept input from a user, display information, and/or dispense media.** Such machines include automatic teller machines or cash machines, postage stamp dispensers, fare machines, automated airport check-in machines, and information kiosks.

Tips:

- Drive-up only machines are exempt from clear floor space, operable parts and visibility height requirements.
- Controls must be operable without requiring tight grasping or twisting of the wrist.

Accessible

ADA Requirements include located on an accessible route, have enough space to access machines and have operable parts

All transaction machines operable without vision

Same level of privacy of input and output provided to all individuals using the equipment

Input

Key surfaces offset from the surrounding surface by 1/25th inch (1 mm), maximum radius of 1/50 inch (0.5 mm) and tactually discernible

Minimum space of 1/8 inch (3.2 mm) between keys

Function keys separated from the keypad equal to a distance that is not less than three times greater than the actual distance between the numeric keys

Numeric Keys

Numeric keys arranged in a 12-key telephone keypad layout with the number one key in the upper left hand corner and the number five key marked by a single raised dot

Numeric keys arranged in the order of ‘enter’, ‘clear’, ‘cancel’, ‘add value’, and ‘decrease value’ horizontally from left to right or vertically from top to bottom

Function Keys

Add value and decrease value grouped with other function keys, where provided

Tactile markings for functions - e.g. raised circle for ‘enter’ or ‘proceed’, raised vertical line or bar for ‘clear’ or ‘correct’, raised "x" for ‘cancel’, raised "+" for ‘add value’, and raised "-" for ‘decrease value’

Color coding function keys - e.g. green for ‘enter’ or ‘proceed’, black for ‘clear’ or ‘correct’, red for ‘cancel’, blue for ‘add value’, and yellow for ‘decrease value’

Output

Visual and audible instruction for operations initiated by user

User input and transaction prompts

Audible instructions provided through a telephone handset, wireless transmission system or standard mini-jack

Video display screen visible from 40 inches (1015 mm) above the floor in front of the machine with contrasting characters 3/16 inch (4.8 mm)

For machines that provide paper currency, bills dispensed in descending order with lowest denomination on top

Options where a receipt is available: printed receipt, audible presentation of the transactional information provided on the receipt, or both

Tips:

- Each operable part should be able to be differentiated by sound or touch without activation.

Information Transaction Machines

Key Design Goals

Universal design goes beyond the basic requirements to address the design features that make the machine more usable:

- Provide a simple, intuitive interface.
- Provide easy to use controls.
- Equip with tactile and audio feedback.
- Provide instructions and information in alternative formats.

Tips:

- Banks should have headsets available for general use so that visually impaired people do not have to carry around earphones to use with audio enabled ATMs.
- Provide enough space for both side and front reach approaches for any user whether standing or sitting.

Universal

Simple, uncomplicated interface design that is easy for everyone to use and makes less demand on visual capacity

Instructions for use in alternative formats (e.g. text, Braille, voice)

Input slots that allow for the insertion of bank cards, credit cards, cash, etc., without the need for fine motor control

Adequate lighting for all controls and directions

Adjustable display screen to reduce glare and optimize contrast

Both visual and audio feedback on all transactions to reinforce correct choices

Back-up and cancel modes to provide the option of correcting entry mistakes

Standard connector for headphones or personal listening devices (e.g., phone-like handset) which mute the external speaker when product delivers audio output

Interference with hearing technologies (e.g., hearing aids and cochlear implants) should be kept at a minimum

Knee clearance to provide a forward approach by those in a seated position

Controls and money dispensing areas located within a comfortable reach range for all people whether seated or standing

User guides in alternate languages, availability of alternative formats or modes, voice and TTY numbers for receiving technical support and customer service in close proximity to ITM

Tips:

- If there is motion of graphics or text, provide at least one mode where presentation of information is static or a control to adjust the pace.

Staff Assistance

Key Design Goals

Staff assistance is not something exclusive to people with disabilities. Often products are difficult to reach or locate, especially if people are unfamiliar with the layout of the store. Since all facilities that offer products and services strive for customer satisfaction, they should implement a universal service that provides access to all products.

- Provide **signs at the entry** indicating the type of services available.
- Provide a staffed **information desk.**

Accessible

Compliance with Title III of the ADA Guidelines allows assistance in existing buildings where parts of the facility are not accessible

Examples of assistance include, but are not limited to:

Retrieving merchandise from inaccessible shelves or racks

Providing curb service or home delivery

Clipboards to provide a flat writing surface when counter is too high

Assistance in dialing the telephone for outgoing calls

Tips:

Do Not:

- Care for service animals
- Provide customers with wheelchairs, hearing aids, etc.
- Asssistance of a personal nature including eating, toileting, or dressing
- Transactions that impede on confidentiality, e.g. ATM or debit card PIN code

Universal

Signs located in appropriate areas indicating that assistance is available, e.g., self-service equipment areas (photocopiers, computers and audiovisual equipment) and retrieving items from high shelves

Centrally located information desk where people can get general information, directions, have questions answered, assistance in the usage of self-service equipment, etc.

Service desks that could accommodate seated users, when required

Policy instituted where any user can get on-site personal assistance by appointment

Tips:

- Most people do not want assistance so it is unlikely that such services will be abused unless the environment makes it difficult for people to obtain what they want by themselves.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10

Using Public Amenities

The essence of universal design lies in its ability to create beauty and mediate extremes without destroying differences in places, experiences, and things.

Bill Stumpf & Don Chadwick
designers

Public amenities are essential to the experience of any building, facility or space serving the community or general public. The ADA Guidelines and other accessibility codes have specific requirements for toilets, telephones and fountains, while other public amenities not specifically mentioned (e.g. public information displays and garbage receptacles) still must comply with accessible paths of travel, clearances, and heights.

Strictly following accessibility guidelines make facilities more usable for people with disabilities but does not address other issues affecting the general population. For example, the ADA requires at least one accessible toilet stall in restrooms but does not account for the total number of standard stalls in high occupancy areas like stadiums and arenas, some of which can hold up to 80,000 people. Women endure long lines waiting to use restrooms, while lines at men's restrooms are often nonexistent. As a result, many states have enacted the "potty parity" law which calls for the installation of more women's stalls in the restrooms of newly-constructed or remodeled sports or entertainment facilities. The law has been passed in New York, California, Florida, Texas, Pennsylvania, Washington and Tennessee and legislation is pending in many others. In New York, the ratio of required women's toilets to men's toilets (not including urinals) is approximately 2:1. The "potty parity" law supports the comfort, convenience and enjoyment by everyone, thereby making it a good example of universal design.

Public Restrooms

Key Design Goals

The ADA Guidelines and other accessibility codes have extensive requirements for all parts of public restrooms. These requirements focus on wheelchair access. **Universal design expands on these basic functional requirements to** provide a higher level of convenience and more flexibility to **accommodate a wider range of user groups.**

- Locate in areas where the **highest level of activity** occurs.

Tips:

- If the toilet is next to a lavatory, a 24 inch (610 mm) grab bar is acceptable.
- All flush controls and faucets must be operable with one hand without tight grasping, pinching, or twisting of the wrist.
- In the dimensions here, we have added some generally accepted tolerances for toilet placement and grab bar width.

Accessible

Toilets

Public restrooms located on an accessible route

An unobstructed 60 inch (1525 mm) diameter or T-shaped turning space for a single user restroom

Centerline of the toilet between 16 inches (405 mm) and 18 inches (455 mm) from a side wall or partition

Clear floor space at least 48 inches (1220 mm) wide by 66 inches (1675 mm) long if the toilet is approached from the front and there is a lavatory alongside the toilet

Clear floor space at least 48 inches (1220 mm) wide by 56 inches (1420 mm) long if the toilet is approached from the side and there is a lavatory alongside the toilet

Clear floor space at least 60 inches (1525 mm) wide by 56 inches (1420 mm) long for a side approach if there is no lavatory alongside the toilet

- **Make entering and exiting** as effortless as possible.
- Design restrooms to **provide flexibility for individual user** needs.
- Provide dispensers, controls, and fixtures with **easy to reach controls.**
- **Avoid slippery or hazardous surfaces.**
- **Promote independent use** but also accommodate those who typically require assistance.

Top of the toilet seat between 17 inches (430 mm) and 19 inches (485 mm) from the floor and without automatic spring back to an open position

36 inch (915 mm) grab bar mounted on the back wall with one end at least 12 inches (305 mm) from the centerline of the toilet for water closets not located in a stall

Side bar at least 42 inches (1065 mm) long with the front end 54 inches (1370 mm) from the back wall

Grab bars mounted horizontally between 33 inches (840 mm) and 36 inches (915 mm) above the floor

Diameter of the grab bar between 1-1/4 inch (32 mm) and 2 inches (51 mm) or shaped to provide an equivalent gripping surface

Space between the grab bar and the wall at 1-1/2 inches (38 mm)

Grab bars do not rotate within their fittings and are free of any sharp or abrasive elements

Flush controls mounted on the open side of toilet no higher than 44 inches (1120 mm) above the floor

No doors should swing into the required clear floor space at an accessible fixture

Tips:

- Where the centerline distance from the toilet to an adjacent wall for mounting a grab bar is no more than 19 1/2 inches 495 mm), a ledger strip can be used to block out the bar so it is located closer to the toilet.

Tips:

- Stall doors can open in if there is enough space (e.g. stall at end of aisle that extends across entire width of room).
- Use floor mounted urinals for less mess.

Accessible

Toilet Stalls

If five or less are provided, at least one that meets the ADA Guidelines for standard stalls. Where there are six or more, another stall that is 36 inches (915 mm) wide with parallel grab bars and a self-closing, outward swinging door

Located on an accessible route

Stalls at least 56 inches (1420 mm) deep for wall mounted toilets

Stalls at least 59 inches (1500 mm) deep for floor mounted toilets

Stall door located at the open side of the toilet

Front partition and at least one side partition with toe clearances at least 9 inches (230 mm) above the floor for stalls less than 60 inches (1525 mm) deep

Clear opening at least 32 inches (815 mm) measured between the face of the door and the edge of the partition on the latch side when the stall door is open 90 degrees

At least 18 inches (455 mm) of maneuvering space at the latch side of the stall door if the stall door opens out at the end of an aisle

Grab bars placed between 33 inches (840 mm) and 36 inches (915 mm) above the floor

Paper dispenser mounted no more than 36 inches (915 mm) from the back wall and at least 19 inches (485 mm) from the floor to permit unobstructed use of the grab bar

Paper dispenser allowing continuous paper delivery

Lavatory

Where provided, at least one accessible lavatory

Lavatory rim or counter surface no higher than 34 inches (865 mm) above the finished floor

Clearance of at least 29 inches (735 mm) from the floor to the bottom of the apron

Clear floor space at least 30 inches (760 mm) by 48 inches (1220 mm) in front of at least one lavatory and at least one of each type of dispenser

Area below the lavatory free of sharp or abrasive surfaces

Insulated hot water and drain pipes

Self closing valve, if used, remains open for at least 10 seconds

At least one mirror with the bottom edge of the reflecting surface no higher than 40 inches (1015 mm) from the floor

At least one accessible dispenser no higher than 48 inches (1220 mm) for a forward approach and 54 inches (1370 mm) for a side approach

Urinals

At least one accessible urinal where provided

Elongated rim no more than 17 inches (430 mm) above the floor

Clear floor space 30 inches (760 mm) wide by 48 inches (1220 mm) deep at urinal which allows a forward approach

At least 29 inches (735 mm) between privacy panels that do not extend beyond the front edge of the urinal rim

Flush controls mounted no more than 44 inches (1120 mm) above the floor

Tips:

- An "elongated" toilet refers to the shape of the front of a toilet bowl. Generally, elongated toilets are 2 inches (50 mm) longer than the standard "round front" bowl with dimensions of 14 inches (350 mm) wide by 18 ½ inches (468 mm) long from the center of seat hole hinges to the front outside rim edge.

Tips:

- Use automatic controls, lavatories, soap dispensers, and hand dryers. These controls have electronic sensors that allow “no-touch” operation, making all fixtures more usable by everyone.

Universal

Maze-type entry system that eliminates the need for doors

Well lit entry spaces for safety

Enough stalls ("potty parity") appropriate to the function and capacity of the building

Stall depth large enough to accommodate luggage and briefcases

Non-slip flooring that is designed to dry quickly and provide easy maintenance

Disposable toilet seat covers from a dispenser mounted at a height reachable by all people

Floor-to-ceiling mirror usable by anyone

Shelf or ledge in stalls and at lavatories to keep personal items off the floor

Lavatory, soap and paper towel dispenser located inside a large toilet stall for convenience

Additional family style restroom with emergency alarm to provide parents the opportunity for assisting young children

Toilet with an adjustable height seat

Diaper changing station in at least one restroom at a height usable from both a standing and seated position

A hook 48 inches (1220 mm) above the floor to hang clothing

Garbage Recepticles

Key Design Goals

Garbage receptacles are one of the most important features in **keeping buildings clean.** If people are not able to approach and use receptacles, it can create an **uninviting and unhealthy environment,** especially in facilities that serve food.

- Place receptacles in **highly visible locations.**
- **Reachable and usable** by everyone.

Tips:

- Garbage bins attached to lamp posts or wall mounted protrude into the path of travel and may be undetectable to a visually impaired person using a cane.
- If recycling bins are provided, accessibility requirements would apply.

Accessible

Not specifically mentioned in the ADA Guidelines, but reach range, protruding objects and clearance requirements apply

Located on a smooth, level surface

Operable with one hand without requiring tight grasping, pinching or twisting of the wrist

Universal

Garbage receptacles distributed throughout building so that items to be disposed do not have to be carried long distances

Receptacles without heavy lids

Practice of emptying receptacles often to promote cleanliness and avoid overflow

Textural changes along the path of travel to help people with low vision identify the location of trash receptacles

Key Design Goals

Physical access within a location is not always the only obstacle. Many travelers find it difficult to determine where to go and what services are available in places they travel to only occasionally or have never visited before. Maps, directories, diagrams and information displays **understood by everyone** make finding destinations and services more apparent.

Tips:

- Many airports use audible public address systems in the terminals to notify passengers of boarding information and procedures. Visual announcements should also appear on monitors so that people with hearing impairments are able to participate equally in the boarding process.

Accessible

Not specifically mentioned in the ADA Guidelines, but path of travel and clearance requirements apply for approach to information displays intended for close viewing

Letters and numbers on signs sized according to viewing distance with a width-to-height ratio between 3:5 and 1:1 and a stroke-width-height ratio between 1:5 and 1:10

When applicable, activation switches that are operable with one hand without tight grasping, pinching or twisting of the wrist

Also Refer to:

- **Circulation**
- **Wayfinding**

- **Organize information** for intuitive use by everyone.
- Make **identifiable and legible** from both a standing and seated position.
- Provide **alternative formats**.
- Use text to **reinforce pictograms** where necessary.

Universal

Displays located where they will be accessed and usable by everyone

Information organized in a style that is easy to comprehend

Legend or key for any pictogram, symbol or character that requires further explanation

Information provided in alternate formats such as audio, Braille, large print, and other languages

Information in the largest practical format

Spacing of information to avoid information overload and confusion

Graphically consistent information throughout facility for familiarity

Tactile maps in addition to visual maps

Talking Signs® or similar technologies that communicate locations through a receiver

Tips:

- Strategically locate directories and floor plans in close proximity to entrances, elevators and stairwells so that users can easily identify where they are and where they want to go in unfamiliar settings.

Public Telephones

Key Design Goals

Although the ADA does not require a facility to have public telephones, if provided, they must be accessible. Adding universal design features makes telephones easier to use and benefits everyone.

- **Ensure clearance** for a forward or parallel approach.
- Mount within a **comfortable reach range.**
- Provide features that **accommodate the widest range of users.**

Tips:

- If an interior bank has three or more public telephones, equip at least one with a shelf and outlet.
- Push button controls should be used.
- If there is a base or enclosure, it should not impede approaches to telephones by people who use wheelchairs.

Accessible

Locate along an accessible path of travel

At least one accessible telephone where there is one or more single telephones located on a floor

At least one accessible telephone per bank (two or more adjacent telephones) on each floor

Clear floor space at least 30 inches (760 mm) by 48 inches (1220 mm) to allow for either a forward or parallel approach

Highest operable part no higher than 48 inches (1220 mm) for a forward approach and 54 inches (1370 mm) for a parallel approach

Telephones protruding from walls with the bottom edge between 27 inches (685 mm) and 80 inches (2030 mm) above the floor do not protrude more than 4 inches (100 mm) from the wall

At least 25% and not less than one are hearing aid compatible and have volume controls

Telephone books not higher than 48 inches (1220 mm) for forward approach and 54 inches (1370 mm) for parallel approach

Cord from the telephone to the handset at least 29 inches (735 mm) long

Pay telephones designed to accommodate a portable text telephone (TTY/TDD) equipped with a shelf providing 6 inches (152 mm) of vertical clearance and an electrical outlet within or (adjacent) to the telephone enclosure

At least one interior TDD/TTY telephone if there are four or more public telephones on the site

Directional signage adjacent to all banks of telephones that do not contain a text telephone indicating the location of the nearest TDD/TTY if applicable

TDD/TTY identified by the international TDD/TTY symbol

Universal

Telephones distributed so they are convenient to heavily used locations within the building

Telephones located in areas where excessive noise is not a distraction.

Acoustic barriers to control noise level in areas where noise is unavoidable

Phones designed for seated use

Volume control on all telephones

Calling card and coin slot indicated in Braille to enable those with impaired sight to use the phone

Handset design compatible with a TDD/TTY device mounted at an angle for comfortable typing and viewing

Adequate clearance in telephone booths sufficient to enter (accessibility requirements will apply), close the door, use the telephone and exit without inconvenience for everyone

Tips:

- To facilitate easy access, equip booths with a handrail, a reflective surface to see behind for safety, adequate lighting, a folding seat, and a door that is easy to open and close.
- Use contrasting colors and materials to differentiate buttons and keys.
- Equip at least one phone with a TTY, even if not required.
- Provide instructions for use in alternate languages.
- Equip phones with jacks for laptop computers that provide internet connection.
- Provide shelf adjacent to the telephone for placing personal items, writing, using phone book, counting change, etc.

Public Rain Shelters

Key Design Goals

A variety of design features can be integrated into public rain shelters to **enhance the convenience, attractiveness and usability of public transportation.** These include both physical (e.g., easy access and eliminating barriers) and emotional (e.g., feelings of comfort, safety and security) attributes that not only make them more usable but also encourage traditional non-users to try public transit. The appeal can be increased further by **providing convenience items such as public telephones and bicycle racks.**

Tips:

- Bus schedules, timetables and maps located in bus shelters are exempt from signage requirements.
- When old bus signs are replaced, new signs installed must meet requirements for character proportion, character height and contrast.

Accessible

Located along an accessible path of travel connected to streets, sidewalks and pedestrian paths

Maximum slope of 1:50 (2%) for water drainage

At least 96 inches (2440 mm) clear length and 60 inches (1525 mm) clear width at bus stop pads for the deployment of a lift

All new bus route identification signs accessible

Universal

Located so that entering and exiting is convenient

Sidewalk behind the shelter is wide enough to handle the expected levels of pedestrian activity and for two wheelchair users to pass each other traveling in opposite directions

Seats and benches that do not impede wheelchair access or maneuvering clearance within the shelter

Information display (schedules, timetables, maps, etc.) with

- Provide **adequate room** to enter and exit.
- **Provide protection** in adverse weather.
- Offer a **safe, comfortable resting area** with sufficient clearances usable by anyone.
- **Provide quick access** onto transit vehicles.
- **Include features that increase convenience.**

contrasting colors and large print for rider assistance

Transparent shelter walls enabling drivers to clearly see the bus stop area when approaching

Adequate lighting at waiting areas to promote a feeling of safety

Amenities (public telephones, ATMs, trash receptacles, toilet facilities and newspaper vending boxes) nearby to increase convenience

Stationary bicycle racks or safe storage facilities located nearby for those who prefer to ride to and from transit stops

Information in a variety of formats on waiting times for next bus

Tips:

- Usability of public transportation not only involves the design of the shelter, but getting to and from it safely and conveniently. Street crossings and paths of travel leading to shelters should be clearly marked, especially when they are placed in park-and-ride lots.

Drinking Fountains

Key Design Goals

Some drinking fountains and water coolers intended for people who use wheelchairs may be **too low for people with a limited ability to bend or stoop**. Accessibility codes recognize this and accommodate both user groups.

- Provide a design that **facilitates approach** from both the front and side.
- **Locate near areas of high visibility** and activity (restrooms, telephones, waiting areas).

Tips:

- Wall mounted fountains with bottom edges at or below 27 inches (685 mm) may project any amount as long as the required clear width of an accessible route of travel is not reduced.

Accessible

Located on an accessible route without being in the path of travel

Spout located at the front of the unit and no higher than 36 inches (915 mm) above the floor

Flow of water at least 4 inches (100 mm) high to allow a cup to be inserted under the flow of water

Water flow within 3 inches (75 mm) of the front edge if the fountain has a round or oval bowl

Controls located near the front edge and operable with one hand without requiring tight grasping, pinching or twisting of the wrist

Force to operate the controls no greater than 5 lbf (22.2N)

Clear floor space at least 30 inches (760 mm) by 48 inches (1220 mm) in front of the unit for approach

Knee clearance at least 27 inches (685 mm) high, 30 inches (760 mm) wide and between 17 inches (430 mm) and 19 inches (485 mm) deep for wall and post-mounted cantilevered units

- Ensure **minimum projection** into circulation space, if any.
- Provide controls that are **usable by anyone** whether standing or seated.
- Provide fountains at **differing heights** for people of different statures.

Universal

Drinking fountains grouped with other amenities (e.g., public telephones, restrooms) to make them easier to locate

Two-tired "hi-lo" drinking fountains on each floor that are usable by everyone

Activation that is obvious and usable by anyone (e.g. a single pushbar with raised letters conveniently located at the front of the unit to activate the flow of water)

Infrared or motion sensor activation to eliminate the need to push a button

Cup dispenser provided within a comfortable reach for those who cannot drink from the fountain or need to take medication

Vandal-resistant outdoor fountains

Outdoor model with attached pet drinking fountain appropriate for parks and playgrounds

Tips:

- Drinking fountains should not pose a hazard to people with visual impairments. Where drinking fountains are located in a corridor or hallway, they should not project into the path of travel unless they are detectable by a cane. This can be avoided by locating fountains in a recess or alcove.


PLANETS

11

Cultural Facilities

Cultural facilities include museums, galleries, zoological gardens and historic sites. They attract diverse groups of users including citizens and visitors of all ages, sizes, abilities and ethnicity. It is important to acknowledge this diversity and ensure usability by everyone. Unlike many other building types, access to information and knowledge is the key programmatic concern, in cultural facilities.

When we look at the accomplishments in universal design since 1990, it's obvious that the concept is finding growing support, but as we all know, there is still much to be done. We need to talk about ways we can infuse the concept of universal design into the thinking and practices of those who plan and build communities, own businesses, and teach in the important field of design.

Bill Ivey
Chairman
National Endowment for the Arts

Key Design Goals

The ADA Guidelines and other accessibility codes have minimum requirements for pathways, loading zones and parking, but **exceeding minimum requirements can improve access to cultural resources for all visitors**, encouraging repeat visits and helping to make these facilities valued by all citizens.

Tips:

- Although there is no requirement to provide accessible parking if no parking is on site, providing one or two accessible spaces near an accessible entrance may make it possible for some people to visit the facility who would otherwise not be able to do so.
- Protect accessible parking from encroachment by tour buses.

Accessible

At least one accessible route within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones, and public sidewalks to an accessible building entrance

Accessible parking spaces located as close as possible to an accessible entrance

Access aisles at passenger loading areas at least 60 inches (1525 mm) wide by 240 inches (6100 mm) long

Minimum vertical clearance of 114 inches (2895 mm) at accessible passenger loading zones

Clear width of pathways at least 36 inches (915 mm) wide

Firm, stable and slip resistant ground surfaces

Also Refer to:

- **Circulation**
- **Parking**

- **Ensure access from public transit, public sidewalks and other pathways,** and parking, if provided.
- **Provide sufficient space** for visitors who come in groups, including parking for tour buses.
- **Enable access to information** in all displays, exhibits and other cultural resources.
- Provide year-round **comfort.**

Universal

Continuity in the network of accessible pathways throughout the site

Site graded to provide gradual changes of level and avoid the need for stairs and ramps wherever possible

If provided, parking for buses used by tours and schools adjacent to an accessible building entrance

Overhangs, fabric structures, protective walls, recessed entries or other means of shelter from weather provided where people assemble or wait

Outdoor attractions and exhibits designed to provide good sight lines for visitors of different statures and for people who use wheeled mobility devices

Adequate lighting on exterior pathways

Strategically located speed bumps or "slow" signs to warn approaching motorists of pedestrian crosswalks

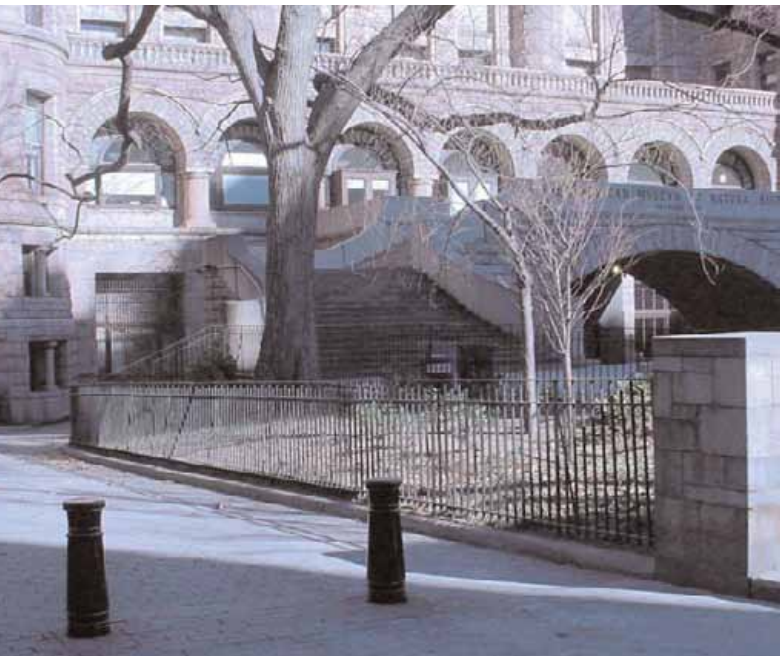
Convenient access to public transportation stops

Outdoor seating areas for passive recreation

Tips:

- Provide a staging area where buses can wait until their groups are finished so they will not block access to others or create noise near the main entrance.
- If the site does not have room for bus parking, arrange with the City to have an accessible loading zone designated at the sidewalk closest to an accessible entrance.

Entrances



Key Design Goals

The standards set forth in the ADA Guidelines make cultural facilities more accessible to certain groups, but **minimum requirements satisfy only a small percentage of the population.** For example, the ADA Guidelines require that 50% of public entrances be accessible. Entrances sometimes also serve as exits In an emergency, anyone using a wheelchair or pushing a stroller has to find the nearest accessible means of egress. Universal design expands on this basic requirement to provide a supportive environment for anyone.

Tips:

- Service entrances can only be used as accessible entrances if they are used as entrances by the general public as well.
- People with mobility impairments should not have to use a separate entrance, especially if it requires obtaining assistance from a staff member to use it.

Accessible

At least one accessible public entrance or where there are more than two public entrances, at least 50% of them to be accessible

At least one accessible entrance from parking garages, tunnels or pedestrian bridges providing access to the building

Located along an accessible path of travel

Signs that direct the public to the nearest accessible entrance on all entrances that are not accessible

Also Refer to:

- **Circulation**
  Entering and Exiting

- **Provide an introduction** to the resources in the building.
- **Control access** without reducing limiting amenities.
- **Provide support for transitional activities** like purchasing tickets, waiting, learning about the facility, etc.

Universal

Automated doors at all primary and accessible entries

Sufficient space so queues will not create congestion in the lobby

Seating in or adjacent to all queuing areas for people who cannot stand for long periods of time

Access to amenities like drinking fountains and telephones from the entrance lobby

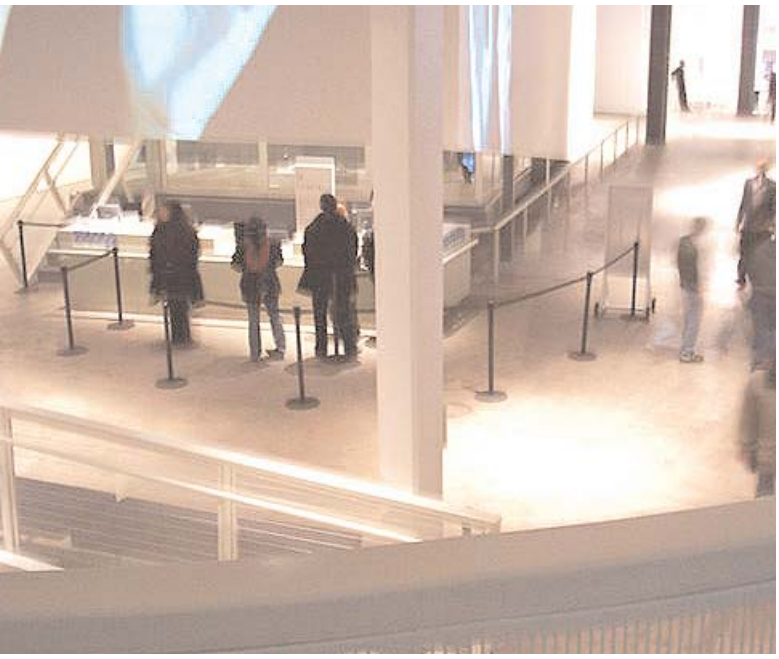
Accessible entry serving specific spaces that are used when the rest of the facility is closed, (e.g., community meeting rooms, bookstores, etc.)

Space to park carriages and service animals provided at waiting areas

Seating located near the main entry with a view of the entry and, if provided, the vehicular loading zone

Tips:

- Automated sliding doors are safer, eliminate the need for two doors (entry and exit) and increase the available space inside. Sensors at automated doors should be set to reduce excessive door opening caused by people walking in front of the door. If that is not possible, changing the orientation of the door may be desirable.



Key Design Goals

The ADA and New York City Building Code have minimum requirements that affect the design of specific amenities that are found along routes and pathway surfaces. The **codes also address the avoidance of hazards caused by protruding objects,** a common problem in cultural facilities. **Universal design,** on the other hand **addresses design features that support effective wayfinding.**

Tips:

- Museums often use portable posts, ropes, retractable straps, movable signs and other portable stanchions as queuing devices at counters and entrances. These devices should be placed so that they provide adequate clearance to maneuver through and are detectable by cane users.

Accessible

At least one clear path of travel hat connects all public and common use areas

Signs, exhibits and other objects placed to avoid being obstructions to people passing by

Also Refer to:

- Circulation

- Make entrances **easy to find.**
- **Ensure access to all spaces** within the facility.
- Provide **adequate resources and amenities** people need to use during their stay.
- Make crowd control devices **detectable by a cane.**

Universal

Entry that is prominent and communicates its function

Information desk provided immediately inside the entry

Building interior visually accessible

Readily understandable spatial prototypes, (e.g.double loaded circulation, raceway plan, etc.)

Amenities clustered and located off a main circulation path

More than one exit from each exhibit area

Seating area that provides a resting place without impeding the path of travel

Tips:

- Avoid placing artwork and other exhibits that have dangerous projecting elements in circulation areas, or put them on bases or behind barriers. Mobility cane users can easily be injured when a projecting object is not within the range of their cane.

Key Design Goals

The ADA Guidelines and other accessibility codes have minimum requirements for accessible signage. However, in cultural facilities, particularly museums, more attention should be paid to **making signage systems usable by diverse groups** of visitors.

Characters that are both visual and tactile may not provide optimal conditions for reading in either mode. The horizontal position is the better orientation for tactile signs because

Tips:

- If overhead signs are used and must infringe on the 80 inch (2030 mm) minimum vertical clearance, a cane-detectable barrier no more than 27 inches (685 mm) off the ground should be installed to warn a person before they collide with the sign.

Accessible

Signage requirements in the ADA Guidelines and NYC Code applicable only to permanent signs and restricted to room numbers (not names), elevator controls and directional signs

Use of international symbols where possible

Mounting height of 60 inches (1525 mm) above finish floor to centerline of sign on latch side of door

High contrast signs

Letters raised 1/32 inch (1 mm) above sign surface

The height of letters and numbers appropriate to the viewing distance

reading them does not require flexing of the wrist.

- **Provide multi-sensory** sign systems.
- Deliver information in **several languages.**
- Use **non-textual** graphic information.
- **Provide alternative information** systems.

Universal

Signs in at least two languages based on the expected visitor mix

Augmenting standard signs with Talking Signs®, especially where audio tours are contemplated

The same technology used for both Talking Signs® and guided tours

System of pictograms and color-coding to identify different parts of the building and different exhibits

Signage systems that have slots or sleeves for replaceable inserts

Internationally known facilities to provide major signs in English, Spanish, French and Japanese

Where more than two languages are needed, alternate maps and brochures in other languages provided to simplify signage

Signs mounted where visitors with low vision can get close to read them

Signs not located where shadows from nearby objects make text difficult to read

Tips:

- Signs that allow the facility to produce their own inserts are desirable because they reduce the cost and logistical problems associated with updating signs as things change.
- Pictograms should reflect the content of the exhibit, e.g. birds to signify an exhibit of ornithology, coins for exhibit of the monetary system, etc.

Key Design Goals

The ADA Guidelines and the New York City Building Code have many requirements that govern the design of circulation in exhibits as well as those exhibits that require interaction by the visitor.

Universal design can go beyond these minimum requirements to **address differences in stature, perception and communication.**

Tips:

- Where two way traffic is needed, plan enough space for two people to pass each other without touching, including people who use wheelchairs and people who are pushing carriages and strollers.
- At dead ends, provide a wheelchair turning space.

Accessible

At least one door, gate or passageway with a minimum clear width and accessible floor or ground surfaces

At least one accessible path of travel to all areas of an exhibit

Accessible path of circulation a minimum width of 36 inches (915 mm) and places large enough to turn around and pass other visitors

Tactile signs to identify parts of permanent exhibits

Interactive exhibits

- Controls within reach range between 15 inches (380 mm) and 48 inches (1220 mm) above floor
- Counter tops at 34 inches (865 mm)
- Knee clearance where front approach is required
- Controls within required reach ranges
- Controls operable without tight grasping or twisting of the wrist

- Make the resources of the facility **available to the broadest population.**
- **Accommodate people of all statures** and those that utilize powered mobility devices.
- Accommodate people who **perceive information in different ways** and with different abilities.
- Accommodate **people who speak different languages.**

Universal

Resting places within exhibit areas

Alternate media for wayfinding information, exhibits, presentations and background material - Braille, audio and text needed

Alternate language descriptive material provided for all major exhibits and presentations

Signs indicating the availability of alternate media and language materials

Braille on item labels

Clear sight lines to exhibit materials from seated as well as standing positions and for people of all sizes

Multiple counter heights for people with a range of statures

Light exhibits to reduce deep shadows that obscure important features

Seating for adults accompanying children in places where children will spend a great deal of time

Tactile map of building or exhibit layout

Tips:

- If exhibitions are placed on platforms, use colors that contrast with the floor to make them detectable by people with low vision.

Additional Tips:

- **Audio visual presentations should have text captions both for people who have hearing impairments and to make it easier for everyone to follow the presentation.** Open captioning should be used (always available), unless there is a special captioning device that can be actuated by the exhibit visitor. The captions can be provided using an electronic message board or monitor. This is particularly useful if there is a multiple screen presentation.

- **Exhibits surrounded by barriers to protect the objects on display or ensure safety of the viewer should not restrict visual access.** The barrier can be kept low enough for people using wheeled mobility devices, people of small stature and children to see over. As alternatives, openings in the barrier can provide lower height access or viewing platforms can be provided at different heights.

- **Provide seating in strategic places,** to take a break or where intensive contemplation, reading or activity is part of the experience, e.g., at very important or popular works in an art gallery, at interactive exploratory areas in science museums, in circulation spaces between galleries or at windows that have notable views of the surrounding areas.

- **Tactile text is not needed for labels on exhibit items** if there is an audio tour. Though, if space permits, it can be included.

- **Braille used in exhibitions should be Level 2.** Level 1 Braille is too time consuming to read and Level 3 Braille may be too difficult for some. All the information on labels of objects in exhibits does not have to be in Braille. If an identifying code (e.g., ID number) is in Braille, then the user can refer to a Braille exhibit list or catalog to find out more about the item.


the musical heart of NYC

12

Public Assembly

In universal design, solutions reflect the diversity of human beings – throughout the range of life.

Robert Ivy, FAIA
Editor-in-Chief
Architectural Record

Public assembly and entertainment facilities are those in which people gather for educational, social or recreational activities. They include large venues that accommodate a significant number of people as well as smaller facilities that provide a more intimate environment. Regardless of capacity, facilities should be as usable as possible to ensure that resources of the city are available to everyone.
Some examples of this type of facility include: exhibition and convention centers, such as the Jacob K. Javits Convention Center and Parsons Exhibition Center; assembly halls and auditoriums such as Carnegie Hall and Wollman Auditorium; movie theaters such as Loews E-Walk Theater and Lincoln Plaza Cinemas; live performance venues such as Radio City Music Hall, Lincoln Center and the Ed Sullivan Theater; and professional sports stadiums and arenas, such as Madison Square Garden and Shea Stadium.

Key Design Goals

The ADA and other accessibility codes have requirements for features of site design (e.g., pathways, loading zones and parking), but they do not always address issues presented by the large crowds of people that congregate at these facilities. **Exceeding the minimum code requirements and incorporating universal design features into the overall design is good practice for improving access to everyone.**

Tips:

- The design of exterior spaces is equally as important as the design of the building itself. Before visitors find their seats, they must enter the site, locate appropriate parking (if provided), identify the nearest entrance, and access pedestrian pathways. Difficulty in accomplishing any of these tasks can significantly diminish the overall entertainment experience.

Accessible

At least one accessible route within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones, and public sidewalks to an accessible building entrance

Clear width of pathways at least 36 inches (915 mm) wide

Cross slope of accessible pathways not exceeding 1:50

Access aisles at passenger loading areas at least 60 inches (1525 mm) wide by 240 inches (6100 mm) long parallel to the vehicle pull up space, where passenger loading zones are provided

Minimum vertical clearance of 114 inches (2895 mm) at accessible passenger loading zones and 98 inches (2490 mm) at van accessible spaces

Minimum required number of accessible parking spaces

- **Design entrances and exits that are easy to locate** and use.
- **Provide parking along the shortest path of travel** to entrances.
- **Accommodate large amounts of vehicular and pedestrian traffic** arriving and departing concurrently.
- **Provide directional signage** to guide people towards their destination.

Universal

Distinct drop-off and pick-up areas to eliminate any obstruction of traffic at peak times

Exterior maps legible from a parked car and out of the way of moving traffic indicating reserved and general parking areas

In large parking facilities, color coded zones with easy to remember identifying names on prominently displayed signage in that area

Parking for buses adjacent to an accessible building entrance

All circulation pathways and walkways wide enough to accommodate the expected pedestrian volume arriving and departing simultaneously

Pedestrian pathways and roadways illuminated for safety

Shuttle service provided that is usable by everyone to eliminate the need to travel lengthy distances

Also Refer to:

- **Circulation**
- **Parking**

Tips:

- In large facilities like stadiums, parking may be far from any entrance. Provide a wayfinding system which includes colored lines on the pavement designating the safest and most direct pedestrian routes to the stadium.

Entrances and Exits

Key Design Goals

Generally, upon arrival to public assembly and entertainment facilities users are permitted to enter the facility freely, but then find themselves in the lobby or ticketing area. They are unable to gain access to seating and performance areas without passing through a security gate and presenting their tickets for entry. Typically patrons must pass through two sets of entry points before they can reach their destination, both of which should **permit equal passage for everyone without difficulty or inconvenience.**

Tips:

- Stadiums and arenas often provide direct building access from adjacent parking garages. If access is provided for pedestrians from an elevated walkway or parking garage, **at least one entrance to the building from each walkway** or garage must be accessible.

Accessible

Entrance located on an accessible path of travel and connected to accessible parking, passenger loading zones, public streets and sidewalks

At least one accessible public entrance or at least 50 percent where there are more than two public entrances

Signs at inaccesible entrances that direct the public to the nearest accessible entrance

Service entrances can only be used as an accessible entrance if they are the only entrances to the building or facility

Revolving doors and turnstiles not allowed as part of the accessible route unless there is an accessible door or gate adjacent that facilitates the same use pattern

Areas of rescue assistance (ARA) where people who need assistance in an emergency can safely wait until help arrives

Also Refer to:

- **Entering and Exiting**

- Make entrances **easy to locate and accessible** to all users.
- **Control access** without causing congestion at entries.
- Provide **unobstructed, safe exit access** in case of fire or other emergency.
- Provide **adequate space and support** for transitional activities such as purchasing tickets, getting information, checking coats, waiting, etc.

Universal

Distinct features that differentiate main entrances from other points of entry, like service entries

Automated sliding doors at every entrance

Doors designated as either "entry" or "exit" for traffic traveling in opposite directions; design that allows the designation to change as demand changes (e g , after a concert all doors become "exit" for quicker egress)

Lobby with seating area adjacent to the entry where visitors can wait comfortably without disrupting traffic

Eliminate turnstiles and use other entry control devices that are usable by everyone

Overhang or canopy for protection from the weather where it is likely people will be waiting

Coat check service located adjacent to the primary entrance with enough space to accommodate large numbers of people without obstructing the path of travel

Tips:

- Provide accessible exits along routes that **coincide with other exit routes** to avoid forcing a person using a wheelchair to travel against the general flow of traffic.
- Instead of stairways from upper levels, provide a **series of gentle circular ramps** that facilitate rapid egress for everyone.

Key Design Goals

Public assembly and entertainment facilities are often large buildings that can be overwhelming, especially for first time visitors. **A well organized plan and effective wayfinding system will alleviate confusion** by making it easier for people to identify where they are going, and the best route for doing so.

Tips:

- Wheelchair spaces should be located along an accessible route that also functions as a means of emergency egress, but should not overlap the path of travel.

Accessible

Changes in level greater than ½ inch (13 mm) equipped with a ramp or elevator

In multi-story buildings, at least one passenger elevator serving each level, including mezzanines

Wheelchair seating located on a level surface along an accessible path of travel connecting all public areas including entrances, concessions, public amenities and exits

Wheelchair seating locations provided in all areas, including sky boxes and specialty areas

Installation of emergency warning systems that include both audible and visual alarms

Also Refer to:

- Circulation

- Provide directional signage to **guide people to their destination.**
- Provide an information booth in large facilities to **provide directions and assistance.**
- Provide **flexible spaces** that can be adapted to changes in program.
- Make amenities **easy to locate and accessible** by everyone.

Universal

Directional signage throughout facility to identify most convenient routes to seating areas, restaurants, concessions, telephones, restrooms, etc.

Tactile map of building layout

Information booths located at principal entrances to provide directions, distribute maps, and answer general questions

Lighting provided on stairs and along pathways in places that require a darkened environment (e.g., theaters, concert halls, etc.) to help patrons leaving their seat to find their way back

Acoustics designed to reduce reverberation and increase intelligibility, e.g. adjustable wall surfaces to account for different kinds of performances of music, speech, opera, etc.

A supplemental method of communicating essential information should be provided (e.g., closed circuit TV with closed captioning) if large projection screens (such as a Jumbotron) are used

Amenities such as restrooms, drinking fountains, and telephones grouped together to provide consistency and predictability throughout building

Tips:

- In large facilities, like football or baseball stadiums, provide similar concessions in more than one location so users don't have to travel a long distance to purchase specific food items and merchandise.

Key Design Goals

Activities in public assembly and entertainment facilities are **not just about a performance or sporting event,** but also about consumers buying merchandise, food and beverages from concessions.

- Provide services and concessions that are identifiable and usable by everyone.
- Install counters at comfortable heights for use by both standing and seated users.

Tips:

- Auxiliary counters no higher than 36 inches (915 mm) are acceptable where the main counter is not compliant and compliance is technically infeasible.
- Vending machines are not covered by the ADA or accessibility codes

Accessible

Services and concessions located along an accessible path of travel

Where counters have a cash register, at least one accessible counter area no higher than 36 inches (915 mm) and at least 36 inches (915 mm) wide

Where ticket or checkout aisles are provided, at least one that is 36 inches (915 mm) wide

In new construction and alterations where selling space is less than 5000 square feet, only one accessible check-out aisle required

Service and concession items not higher than 48 inches (1220 mm) for a forward approach and 54 inches (1370 mm) for a parallel approach

- Provide essential information in alternative formats for people with hearing impairments.
- Make printed material available in alternative formats.
- Provide information booth staffed by trained customer service personnel.

Universal

Guest relations booths centrally located that offer services such as wheelchair assistance, lost & found, maps, programs and alternative format material

Adequate space around concession stands so that people standing in line do not impede the path of travel

Concession stands, souvenir carts, and service counters at a height comfortable to all people whether standing or sitting

Printed program materials for performances available in a variety of formats (e.g., Braille, large print) and languages

Braille menus at concession stands

Merchandise, condiments, and other self-serve items located within the comfortable reach zone from 24 inches (610 mm) to 48 inches (1220 mm) above the floor

Tickets prices and seating charts posted in the lobby where they can be examined prior to approaching the ticket window to reduce congestion

Tips:

- Events at public assembly and entertainment facilities often last for 3 hours or more. Provide a **designated relief area for service dogs** that is in close proximity to seating areas.
- Provide signs at entry and other highly visible locations that **indicate the availability of alternate format material.**

Key Design Goals

Public assembly and entertainment facilities typically are designed as multipurpose facilities capable of hosting a variety of events (e.g., sporting events, concerts, theatrical productions, commencement ceremonies, trade shows, job fairs, convocations, etc.). They also **accommodate varying levels of occupancy** depending on the event. Because of this flexibility and unpredictability, public amenities should be **designed in anticipation of the largest crowds and be usable by everyone.**

Tips:

- Drinking fountains should accommodate all users, including people who use wheelchairs and people who stand but have difficulty bending or stooping.
- Each public and common use (including employee) restroom must be accessible. This includes restrooms in work areas and restrooms located in sky boxes and suites.

Accessible

Public telephones, drinking fountains, restrooms and trash receptacles located on an accessible path of travel

Amenities located in areas where there is a clear floor space of 30 inches (760 mm) by 48 inches (1220 mm) to accommodate a person using wheelchair

Switches and controls located not higher than 48 inches (1220 mm) for a forward approach or 54 inches (1370 mm) for a parallel approach and operable with one hand without tight grasping, pinching or twisting of the wrist

50 percent of drinking fountains wheelchair accessible

At least one accessible telephone with volume amplification per bank of public telephones

Sign identifying telephones equipped with amplification

At least one public TTY with signs identifying the location and direction from other telephone banks

For each bank of public telephones with three or more units, at least one telephone equipped with a shelf and electrical outlet to permit a person to use a portable TTY

- Support a **variety of different activities at the same time.**
- Provide **adequate number** of amenities for anticipated crowds.
- **Design amenities to be within reach and usable by all participants** without compromising safety and convenience.
- Locate directional **signage indicating locations** of public amenities.

Universal

More toilets for women than men (as per the "Potty Parity" law)

Restrooms appropriately sized to support large numbers of users at the same time (e.g., intermission, halftime)

Drinking fountains at more than one height

Bathroom doors replaced with a maze-like entry system

Family restroom that allows adults with children or family members requiring special assistance more room and privacy; include a child-size toilet, nursing lounge, seat to secure babies and toddlers and diaper changing table

Public telephones placed where background/ambient noise would not be disruptive to someone making a call

Also Refer to:

- **Using Public Amenities**

Tips:

- A 1988 study of bathroom habits of men and women at public venues revealed that women take 55% to 65% longer in public bathrooms than men because of the wait for stalls. (Carla Hall, "Is Potty Parity Just a Pipe Dream?," The Los Angeles Times, January 14, 2001). This reinforces the need for more women's toilets.

13

Participant Sports and Recreation

Participant sports and recreation facilities support a variety of functions and events, often occurring simultaneously. They can be either indoor or outdoor and contain differing levels of participation. For example, in Central Park, a concert may be taking place on the Great Lawn while people elsewhere in the park are visiting the zoo, in-line skating, jogging, swimming, sunbathing, bicycling, playing chess, boating, strolling through the Conservatory Garden, enjoying a picnic, bird watching, etc. Therefore, recreation facilities must be flexible enough to accommodate all users, including visitors of different ages, sizes and abilities, small and large groups, participants and observers.

Typical facilities include public parks, tennis and basketball courts, recreation centers, amusement parks, bowling alleys, boating facilities, fishing piers and platforms, golf courses, gymnasiums, and aquatic centers.

Expanding the range of play opportunities, including the addition of accessible components, makes the play environment easier for all children to use, not just the physically disabled.

Kevin Owens
Director of "fun new stuff" for PlayDesigns/Playworld Systems

Key Design Goals

Often sports and recreation facilities are multi-purpose buildings or venues spread out over large areas. Since participant sports and recreation facilities can be either interior or exterior spaces or a combination of both, it is important to treat all features both individually and collectively. **Continuity in usability is an important design goal.** Regardless of whether the facilities are interior or exterior, the key attributes for usability include location, flexibility and safety.

Tips:

- Both the existing natural and built features of a site play a critical role in determining how easily users are able to locate and reach their destination, perform an activity, use amenities and successfully exit the facility.

Accessible

At least one accessible route within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones, and public sidewalks to an accessible building entrance

An accessible path of travel connecting all accessible spaces, venues, and elements within the facility or site (both indoor and outdoor)

Adequate number of accessible parking spaces

No abrupt changes in level greater than ½ inch (13 mm)

Firm, stable, and slip resistant ground surfaces

Clear width of pathways at least 36 inches (915 mm) wide

Passing spaces at least 60 inches (1525 mm) by 60 inches (1525 mm) located at reasonable intervals not to exceed 200 feet (61 m) for accessible pathways less than 60 inches (1525 mm) wide

Cross slope of accessible pathways not to exceed 1:50

Access aisles at passenger loading areas at least 60 inches (1525 mm) wide by 240 inches (6100 mm) long if provided

- **Establish a circulation system** that provides direct access to all facilities and is identifiable, understandable and convenient to everyone.
- **Incorporate pathways that support easy movement** without hazards or barriers.
- **Make facilities manageable and safe** for both pedestrian and vehicular traffic.
- **Provide comprehensive signage system** to assist in finding destinations.

Universal

Several accessible entrances to provide options for people arriving by differing means

In large settings, alternative locations for parking in close proximity to final destinations

Pick-up and drop-off area that does not impede pedestrian and vehicular traffic

Directories, maps, and signage to guide people towards their destination

Pathways, walkways and corridors that are wide enough for two people traveling in opposite directions to pass each other

Adequate illumination throughout the site for safety and security

In exterior applications, separation between pedestrian, vehicular and bicycle traffic

Gated entry and fence surrounding swimming pools and playgrounds to enhance the safety of the area, make supervision easier and protect the area from vehicles

Also Refer to:

- **Circulation**
- **Parking**

Tips:

- If locations for pathways do not accommodate desired routes, pedestrians and bicyclists have tendencies to create informal paths across lawns. Where significant walkways intersect, **directional signage is appropriate to aid pedestrian wayfinding.**

Entrances and Exits

Key Design Goals

Many facilities have controlled points of entry (e.g. George Cromwell Recreation Center, The Golf Club at Chelsea Piers, Staten Island War Memorial Ice Skating Rink, YMCA, etc.) where users pay an admission fee or show a membership card for entry. Other facilities do not have a defined point of entry, such as public parks and bicycle trails. In fact, Central Park has more than two dozen points of entry into the park. **Finding the entry closest to intended destinations can be difficult.**

Tips:

- If a person is required to go through a gate (e.g., the entrance to a playground, public pool, etc.) **it is treated similarly to maneuvering through a door.** The opening should be at least 32 inches wide (815 mm) for entering and provide hardware that is operable with one hand without requiring tight grasping, pinching or twisting of the wrist.

Accessible

At least one accessible public entrance

At least 50 percent of entrances accessible when there are more than two public entrances

Located on an accessible path of travel and connected to accessible parking, passenger loading zones, public streets and sidewalks

Signs near inaccessible entrances that direct the public to the nearest accessible entrance

Maneuvering clearances at doors according to ADA Guidelines

Door openings at least 32 inches (815 mm) wide

Thresholds between ¼ inch (6 mm) and ½ inch (13 mm) high beveled with a slope of 1:2 or less

At least 48 inches (1200 mm) plus the width of any door swinging into the space for the distance between two doors in series

Door hardware (e.g., handles, pulls, locks, etc.) operable with one hand that does not require tight grasping, pinching or twisting of the wrist

- **Make entrances easy to locate** and accessible to all users.
- Control **access without limiting amenities.**
- Provide an **introduction to the resources** within the facility.
- Provide **adequate space and support for transitional activities** such as purchasing tickets, getting information, waiting, etc.

Universal

Distinct features, landmarks or signage provided to differentiate entrances when there are multiple points of entry

Adequate lighting to make it easier for users to identify points of entry and to enhance safety

Overhang, recessed entry, awning or other means of protection from the weather where it is likely people will be waiting

Entrances that provide adjacent waiting areas out of the path of travel that are usable by everyone

Seating for those who may need to rest or wait for long periods of time

Automated doors that open with little or no effort and accommodate different styles of movement through the doorway

Information booths or kiosks available to and usable by all users at entrances where they can obtain maps, diagrams, information, directions and other types of assistance

Also Refer to:

- **Entering and Exiting**

Tips:

- Where there are multiple entrances, provide descriptive names for each entrance (e.g., West 86th Street entrance, Flatbush Avenue entrance and North entrance).

Key Design Goals

Many of the activities that take place in sports and recreation facilities dictate that buildings and venues (e.g. courts, pools and playing fields) be spread over large areas. This may produce several facilities within the site that are distant from each other and not visible from all points within the site. Therefore, the **layout should be as logical and convenient as possible for easier use.**

Tips:

- Well-designed walkways **not only improve pedestrian orientation, but have a social function as well.** They channel the flow of traffic, which encourages interaction. Benches and other amenities along walkways enhance this social role.

Accessible

At least one clear path of travel that connects all public and common use areas

Wheelchair seating located on a level surface along an accessible path of travel that connects all public areas including entrances, concessions, public amenities, and exits

Crowd control devices detectable by cane users

Also Refer to:

- **Circulation**
- **Seating**

- Make buildings and venues **easy to locate and accessible by everyone.**
- Provide areas for both **passive and active participation.**
- **Provide amenities adjacent to areas of activity.**
- Include design features that **improve safety for pedestrians.**

Universal

Amenities such as restrooms, drinking fountains, and telephones grouped together to provide predictability

Seating areas dispersed throughout venue for passive recreation

In outdoor facilities, a covered shelter provided near activity areas for those who seek refuge from intense sunshine or inclement weather

Locker rooms, first aid station and training room centrally located where they are accessible by all users of the facility

In outdoor facilities (like a public park) where pedestrians, bicyclists and vehicles use the same circulation path, pavement markings (e.g., bike lane) to keep pedestrians safe

Speed bumps located along vehicular pathways to prevent speeding and increase safety

Tips:

- In large complexes, **strategically locate restrooms to be within a short distance from all locations.** When this is not feasible, consider supplementing restrooms with portable units that are usable by everyone (not only in design but in placement also.)

Public Amenities

Key Design Goals

Public amenities are **resources available** to the general public **that enhance the enjoyment of sports and recreation facilities.** They are located in both indoor and outdoor environments and provide benefits to all users. Therefore, they should be usable by everyone, including all participants and observers.

- **Design public amenities to be usable by all** participants without compromising safety and convenience.
- Enable multiple **simultaneous activities.**

Tips:

- Drinking fountains accessible to people who use wheelchairs are often too low for people with a limited ability to bend or stoop. Since the ADA requires access for both user groups, **provide a dual height drinking fountain for use in either a standing or seated position.**

Accessible

Public telephones, drinking fountains, restrooms, trash receptacles and other public amenities located on an accessible path of travel

A clear floor space of 30 inches (760 mm) by 48 inches (1220 mm) for approach to accommodate a person using wheelchair

Controls and operable parts located not higher than 48 inches (1220 mm) for a forward approach or 54 inches (1370 mm) for a parallel approach and operable with one hand without requiring tight grasping, pinching or twisting of the wrist

Accessible amenities identified by the International Symbol of Accessibility

Also Refer to:

- **Circulation**
- **Wayfinding**

- Design amenities to be within reach of people with **different statures, both seated and standing use.**
- Provide **suitable number of amenities** for the anticipated number of users.
- Provide directional **signage that indicates locations** of public amenities.
- **Make amenities available at all times** and appropriate for all weather conditions.

Universal

Public amenities located close to venues, activity, and spectator areas that are usable by everyone without compromising safety and convenience

Trash receptacles distributed throughout the site so that garbage will not have to be carried over long distances

Optional seating with back support for those who may not be comfortable in bleacher-type seating

Emergency communication devices throughout the site that are easily identifiable (e.g. consistent color) and usable by everyone

Public telephones placed where background/ambient noise would not be disruptive to someone making a call

Adjacent parking near picnic shelters or gazebos so that heavy supplies do not have to be carried far

Adequate illumination at all amenities for safety

Tips:

- Portable toilet units are often used at public parks, playgrounds, playing fields and along hiking trails. Although some units are accessible in design, if they are placed in a location that does not provide a clear path of travel, they become unusable. Therefore, placement of these units is critical for usability by everyone.

Signage Systems

Key Design Goals

The more extensive a facility is, the more difficult it becomes for people, especially visitors or those unfamiliar with the layout, to locate and reach destinations. **A signage system** is the most understandable method to assist navigation. It **is intended to identify, direct, inform and regulate.** Signs and other graphic representations must be detectable and intelligible.

Tips:

- Although the ADA Guidelines require that letters and symbols contrast with their background, they should also contrast with existing conditions. For example, signs placed in parks should avoid using the color green, which may be difficult to detect and decipher.

Accessible

Letters and numbers on signs sized according to viewing distance with a width-to-height ratio between 3:5 and 1:1 and a stroke-width-height ratio between 1:5 and 1:10

Tactile signage requirements in the ADA Guidelines and New York City Code apply only to permanent signs and are restricted to room numbers (not names) and elevator controls

Visual signage requirements in the ADA Guidelines and New York City Code apply to all signs

Descriptive text provided directly below the pictogram for clarification of meaning

Also Refer to:

- **Wayfinding**

- Install signs that are **resistant to weather and graffiti.**
- **Maintain consistency** with location and graphic representation of signs.
- Provide information provided in both English and **alternate languages.**
- Include an obvious and intuitive **pictogram system.**

Universal

Uppercase and lowercase characters to increase legibility on directories

Pictogram system to associate with different activities (e.g. silhouette of a fishing rod and fish to indicate a safe fishing area)

Exterior signage placed in well lit areas or illuminated for legibility after dark

Exterior maps legible from a parked car and out of the way of moving traffic

Directional signage (such as maps and directories) located along an accessible path of travel

Signs placed within sight lines to increase recognition to everyone whether standing or seated

Signage in alternate languages, as well as in English

Flexible system to accommodate simple sign changes or upgrades

Public address system utilized as an alternative means to convey information when electronic information display systems and other messaging/display systems are used

Tips:

- Create a signage program for the facility that sets standards for the construction, installation, and maintenance of signs within the site. A consistent signage program makes them more usable to everyone, gets people where they are going and reduces the potential for confusion.


Marriott

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Temporary Lodging

Temporary lodging includes facilities that provide sleeping accommodations for business travel, vacations, relocation and other short term needs (e.g., hotels, motels, inns, shelters, boarding houses, dormitories, resorts, hospice and other temporary housing accommodations). These facilities must satisfy a wide variety of users with differing abilities, length of stay, income, lifestyle and preferences for traveling alone, in groups, or with their families. Not only is design an important factor for usability, but other features such as services, guest rooms, amenities and recreation must support these variables.

As international communication and travel increase, it will become increasingly difficult to justify national or regional differences in accessibility criteria ... the marketplace is demanding accessibility at a rate that is outstripping accessibility standards.

John P.S. Salmen
Universal Designers and Consultants

Building identification

Key Design Goals

It is likely that the majority of guests of temporary lodging facilities will be first time visitors who may be unfamiliar with the building, its location within a neighborhood and routes for getting there. Regardless of the direction from which visitors arrive, the **facility must be easily identifiable.**

Accessible

Signs that designate permanent rooms and spaces: the ADA Guidelines include provisions for character proportion, character height, mounting location and height, finish and contrast, and raised and Brailled characters

Signs which provide information and directions to spaces within a facility: the ADA Guidelines have requirements for character proportion, character height, finish and contrast

Tips:

- Signage mounted on the facade of buildings meant to be viewed from a distance do not have to follow ADA regulations, although designing within the specifications for character proportions and height, as well as finish and contract, increases recognition to everyone.

- **Make building identification easy to read** both within close proximity and from a distance.
- **Establish a distinctive identity** without clashing with the surrounding community.
- **Provide text** to reinforce unfamiliar graphics.
- **Illuminate signs** to provide detection and legibility.

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Large character size, overhead signs for detection from a distance and supplemental signs mounted at street level scaled for close viewing

Signs located where they can be easily seen from primary vehicular routes at the prevailing speed limit, (e.g. highway)

Text reinforcements of familiar or recognizable logos (e.g., hotel chains)

Focal points of the building (e.g., main public entrances, plazas, etc.) provided with a distinct landmark, either separated from or attached to the building.

Illuminated signs for detection and legibility after dark

Building distinguished from its surroundings through use of material and color

Tips:

- Certain facilities choose not to advertise their function for security purposes (e.g. battered women's shelter). The facade is devoid of any signs which can make building identification difficult. Typically, these buildings are identifiable only by an address, which should be clearly displayed.

Building Entrance

Key Design Goals

Entrances should not only be **easy to locate and accessible** to all guests but should also **provide controlled access when appropriate.** Although larger hotels occasionally have a security guard stationed at the main entrance, typically hotels allow guests and visitors to freely enter the facility without showing any identification. Depending on the size of the facility, some establishments secure their perimeter doors after normal business hours where only guests can enter using swipe card access. Other types of temporary lodging facilities, such as shelters and dormitories, require additional preventive measures to keep guests/residents safe and secure. For example, a shelter that houses young

Tips:

- Entrance identification signs mounted at street level for close viewing are required to conform to the same requirements as directional and informational signage.

Accessible

At least one accessible route within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones, and public sidewalks to an accessible building entrance

Registration and reception counters that have a portion of the main counter at least 36 inches (915mm) long and no higher than 36 inches (915mm) or an auxiliary counter no higher than 36 inches (915mm) in close proximity to the main counter or provision for a pull-out shelf attached to the main counter on which a seated individual can write

At least one accessible public entrance or not less than 50 percent where there are more than two public entrances

Compliance with other accessibility requirements for parking areas, paths of travel, ground and floor surfaces and passenger loading areas

Accessible route between entry and registration or reception counter and clear floor area of 48 inches (1220mm) by 30 inches (716mm) at counter

Also Refer to:

- **Circulation**
- **Parking**

victims of neglect needs to be locked at all times to prevent entry of unwanted visitors.

- **Make entrances easy to locate** and accessible to all users.
- **Provide adequate illumination** at all entrances.
- Provide a **secure yet user-friendly building.**
- Place drop-off and pick-up area **in close proximity to main entrance.**

Universal

Distinctive exterior features at entrance

Registration/check-in desk in a position to view critical access points (e.g., front, back, and side entrances, elevator banks, etc.) to dissuade unwelcome entry and provide a level of security

Glazed areas to provide surveillance of entry area from inside

Closed circuit TV at primary entrances to monitor access if a view out is not available

Elevators and stairs in close proximity to the entrance
Lobby with seating area adjacent to the entry where guests/visitors can wait comfortably

Areas around registration and service counters that provide enough space to accommodate expected uses

Automated sliding doors to accommodate people carrying heavy luggage

Tips:

- In facilities that require a locked entry and high security, use a video entry system that allows visitors to be seen through a monitor to keep out unwanted guests. For entry, visitors push a call button, which alerts a staff member. Call buttons should be mounted at a reachable height for someone either standing or seated and have features usable by everyone.

Staff Office

Key Design Goals

In certain types of facilities, **interaction between staff and guests is critical to the organization**. For instance, according to the hospice mission, the success of providing services lies in the relationship between the hospice "team" (physicians, nurses, social workers, counselors, therapists), the patient and their family members.

- Locate staff offices in **close proximity** to the main entrance, lobby and reception areas.
- Maximize layout options for **flexibility of space** usage.

Tips:

- Women and children's shelters not only provide a safe place to sleep, but other essential services including therapy, counseling, education and assessments by staff. Many times shelters are built with limited funding; as a result, case offices may have to function as meeting rooms.

Accessible

Located on an accessible path of travel connected to all public and common use areas

If seating at tables is provided, knee spaces at least 27 inches (685 mm) high, 30 inches (760 mm) wide and 19 inches (485 mm) deep

Table tops between 28 inches (710 mm) and 34 inches (865 mm) from the floor

Universal

Centrally located for easy access from the entrance, lobby, sleeping rooms and lounges

Private offices as opposed to open-air cubicles to maintain confidentiality

Signage to clearly identify restricted areas that are "staff only"

Also Refer to:

- **Entering and Exiting**
- **Wayfinding**

Auxiliary Counter at Registration Desk

The front desk at hotels, motels and other lodging facilities attracts many people and frequently becomes the center of activity. The counter illustrated to the left meets the ADA Guidelines at 36 inches (915mm) high, but prevents people in wheelchairs or of short stature to easily check-in, sign credit cards or temporarily place belongings. In order to accommodate all people, this hotel provides an auxiliary shelf that extends from the main desk when needed.

Braille on Exercise Equipment

Amenities are an important component of many temporary lodging facilities. Recreation areas, including pools, spas and work-out facilities help hotels and motels attract more customers. Although these areas follow ADA Guidelines for accessibility, this company is thinking beyond code compliance. Not specifically required by the ADA Guidelines, the hotel has added Braille and large, high contrast print to the controls of every piece of exercise equipment in the room. It helps people with visual impairments work out safely and more conveniently. Currently, equipment manufacturers do not build in tactile information.

Sleeping Rooms

Key Design Goals

Depending on the type of facility, sleeping rooms may accommodate a single person (e.g., boarding house, inn, etc.) or an entire family (e.g., resort, hotel, etc.). Individual rooms offer an amount of privacy and personal space that is clearly defined by walls, doors, locks, etc. Others, such as in homeless shelters, may accommodate 200 people. In these cases, beds are placed side by side where personal space is minimal and there is little if any privacy. Regardless of the number of people

Tips:

- The use of slide bolts, pull chain bolts and releases requiring both hands for actuation are not permitted.
- If rooms are being altered, accessibility regulations require a phasing in of accessible rooms until the number required in new construction is achieved. There are differences in the requirements for different types of facilities.

Accessible

At least one accessible route that connects all sleeping rooms to public and common use areas

Minimum number of fully accessible rooms and rooms for hearing impaired users based on the total number of rooms in the facility

Accessible rooms dispersed among the various classes of accommodations

Accessible route within the unit including sleeping area, a full bathroom, living spaces and all amenities

Required clear maneuvering width at sides of bed

Roll-in shower of required size with folding seat, grab bars, accessible controls

Adequate clearance through doorways

Accessibility to some fixed storage (e.g., cabinets, shelves, closets, and drawers)

Controls operable with closed fist or open hand

If reserved for the sleeping space or apartment, accessible carports, garages or parking spaces

Visual notification devices for telephone calls, emergency alarms and door knock/bell

Telephone with volume controls and connection for use of a TTY device

they accommodate, **sleeping rooms should provide enough space to provide a comfortable, accessible room for everyone.**

- **Provide adequate maneuvering space** within the room.
- **Provide storage within reach** for personal belongings.
- **Controls within reach** and easy to operate.

Universal

Accessible rooms in close proximity to elevators

Door peepholes at differing heights to accommodate both standing or seated users

A range of furniture to accommodate user needs and preferences, e.g. different seat heights, type of seating

Adjustable height for work surfaces like desks or tables used as desks

Flexible storage areas with easy-to adjust shelves to accommodate all users

Provide call buttons that alert a staff member in case of an emergency within the comfort range of 24 inches (610mm) and 48 inches (1220mm)

Shading for windows and cross ventilation to keep rooms cool in summer and reduce air conditioning costs

Tips:

- If a temporary lodging facility provides only multiple occupancy accessible rooms, then an individual with disabilities who requests a single-occupancy room must be allowed to rent that room at the cost of a single occupancy room. This is an example of "equivalent facilitation".

Key Design Goals

In temporary lodging facilities, social and activity spaces encourage interaction between individuals and groups in both indoor and outdoor settings. They should be **designed to facilitate an array of activities and programs** which may include small meetings, arts and crafts, playing games, doing exercise, dining, lounging, computer use, music, etc.

Accessible

Activity spaces located on an accessible path of travel

If seating at tables is provided, knee spaces at least 27 inches (685 mm) high, 30 inches (760 mm) wide and 19 inches (485 mm) deep

Table tops between 28 inches (710 mm) and 34 inches (865 mm) from the floor

A permanently installed assistive listening system or electrical outlets and supplementary wiring for a portable system for spaces without fixed seating where audible communication is integral to the use of a space

If a service counter or pass through is provided, wheelchair clearance of 30 inches (760 mm) by 48 inches (1220 mm) at the service counter and no higher than 36 inches (915 mm) high, or an adjacent counter no higher than 34 inches

Also Refer to:

Circulation

- Make social and activity spaces **easy to locate** and accessible to all users.
- Provide **sufficient space throughout** to enable usability by everyone.
- Provide **accessible restrooms** and drinking fountains located within close proximity and along an accessible path..
- Provide **flexible arrangement** to accommodate all types and sizes of social events.

Universal

Activity spaces located adjacent to other spaces that may be used in conjunction, e.g. kitchens

Flexible arrangement of furniture to accommodate various abilities, groups and activities

Circulation paths throughout space enables unobstructed movement by all users

Infrared headsets with volume control for television

Televisions with captioning features for people with hearing impairments

Accessible restrooms, drinking water and other amenities located within close proximity

Separation between areas with different functions (e.g., using doors or movable partitions) when noise transmission, visual access or cross traffic is not preferred

Provide adequate illumination that can be adjusted appropriate to the activity

If the facility serves a large number of children, provide child-sized activity tables and chairs

Storage space for furniture and other materials that are not being used

Tips:

- While social and activity spaces promote interaction, there should also be areas that provide opportunities for privacy and intimacy when needed.

Key Design Goals

There are **obvious physical benefits of recreational and fitness activities,** but there also are wellness and mental health benefits (e.g., anxiety and stress reduction, self-esteem and confidence building, overall quality of life improvements). This is particularly relevant to residents of shelters, e.g., who have experienced some sort of trauma. Regardless of a person's age, ability or size, they should be able to find their own level of participation in a particular sports or recreation activity.

Tips:

- For additional requirements (e.g., pool lifts, sloped entry, transfer walls, pool stairs) reference the ADA Accessibility Guidelines for Recreation Facilities.

Accessible

All accessible spaces and elements within the facility or site connected by an accessible path of travel

Changes in level greater than ½ inch (13 mm) eliminated or ramped

Firm, stable, and slip resistant ground surfaces

When court sports are provided, an accessible route directly connecting both sides of the court

The requirements for protruding objects not applicable within the area of sport activity

Where lockers are provided in accessible spaces, at least 5 percent, but not less than one having at least 30 inches (760 mm) by 48 inches (1220 mm) of clear floor space that allows either a forward or parallel approach

Controls for lockers operable with one hand without requiring tight grasping, pinching or twisting

If saunas or steam rooms are provided, wheelchair turning space of 60 inches (1525 mm) by 60 inches (1525 mm) to make a 180 degree turn (removable seats may obstruct wheelchair turning space but doors not permitted to swing into any part of the clear floor space required at benches)

- Establish a circulation system that **provides direct access to all facilities** and is usable by everyone.
- Provide areas of activity that **ensure participation by all users** regardless of age or physical ability.
- **Provide options** for both active and passive recreation.
- **Provide amenities** adjacent to areas of activity.

Universal

Avoid chemicals, such as chlorine, used in swimming pools and spas, or pesticides and synthetic fertilizers used in outdoor areas that may impair the neurological and respiratory functions of people with multiple chemical sensitivities

Adequate illumination at activity areas for safety and security

Gated entry and fence surrounding swimming pools and playgrounds to prevent unauthorized entry and enhance the safety of the area

Locker rooms strategically located to be within a short distance from all recreation areas

For outdoor recreation, a covered area for those who seek refuge from intense sunshine or inclement weather

Tips:

- For exterior lighting, huge floodlights are not recommended because they tend to create glare and heavy shadows, which can create dangerous conditions.

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Workplace Facilities

Design should adapt to people, not the other way around.

AD AS
furniture purveyors

Good design of the workplace helps employers to attract and keep the best individuals from a broad and diverse workforce. Achieving the highest level of usability in the environment increases overall task efficiency, productivity, employee morale and general safety. In short, smart workplace design improves the overall quality of life at work. The ADA Guidelines have minimal requirements for the design of workplaces. Many important elements of the work environment such as office equipment and furniture are covered only as part of reasonable accommodations for a worker with a disability. Universal design not only ensures that fewer accommodations will be needed if a worker has a disability, it also contributes to the reduction of work-related injuries (e.g. repetitive motion injuries) and increases general worker productivity. Design of the universal workplace includes providing basic accessibility to work settings, building flexibility into the general environment and selection of office furniture and equipment that can be adjusted to suit a variety of needs and tasks.

Elements of the general environment include partitions and doors, lighting and electrical controls, the thermal environment and acoustics. These elements usually cannot be moved or adjusted after the building is constructed unless they were designed for flexibility from the start. A specific concern in workplace design today is accommodating wheeled mobility devices of all kinds. Many individuals require the use of a scooter to reduce energy expenditure during the workday. Although they may be able to stand and walk short distances, the scooter allows them to be fully mobile. As the workforce ages, scooter use will increase significantly.

Fixed Partitions and Doors

Key Design Goals

These elements **define the floor area of the workplace** and the paths of travel within it. A balance has to be achieved between space and efficiency.

Tips:

- Scooters require more space than wheelchairs. Although the codes do not require it at present, accommodations would have to address the needs of the individual using a scooter.

Accessible

All accessible spaces and elements connected to the building from the accessible entrance

Fixed partitions and doors located on an accessible route

Clear width of doors at least 32 inches (815 mm) and no more than 24 inches (610 mm) deep

Accessible common facilities and public amenities like restrooms, drinking fountains and public telephones

No clearances required for room interiors unless needed by the individual worker

Also Refer to:

- **Circulation**
- **Exiting and Entering**
- **Using Public Amenities**

- **Reduce the need to make future renovations** for employees with disabilities, including those who have limitations of stamina.

- **Provide flexibility** to accommodate trends in wheeled mobility devices evolving and other predictable advances in technology

Universal

Extra space planned within each office workspace to allow accommodations for people who may need to use wheeled mobility devices, including scooters

At least one automated door to the building, preferably one closest to employee parking or public transportation

Adjustable work surface heights, increased depth, space underneath work surfaces, and larger floor space to maneuver in cubicles or offices

Wall systems that allow for adjustable shelf heights, electrical outlets, and display heights

Tips:

- If automated doors are not provided initially, the ease of installation can be enhanced by providing an electrical supply and junction box above or adjacent to the door jamb for future installation of controls.

Lighting

Key Design Goals

Appropriate lighting is critical for safety in the workplace and effective task performance. The amount of light necessary for good work performance will depend on the requirements of the task, general ambient conditions and the visual abilities of the employee. Lighting is also used to warn people who cannot hear audible alarms of emergency events.

- Provide sufficient illumination levels to support high levels of productivity and reduce errors and accidents.

Tips:

- Adopting good daylighting strategies can save money in energy costs as well as reduce effort and provide a better quality lighting environment.
- If motion sensors are used, make certain that controls ensure that lights stay on while space is being used.

Accessible

No requirements in ADA Guidelines for overall illumination or task specific illumination in the workplace environment

Level of illumination at elevators at least 5 foot candles

Xenon strobe-type lighting, clear in color and at least 75 candelas in all visual alarms

30 inches (760 mm) by 48 inches (1220 mm) of clear floor space at all lighting controls

All controls operable with a closed fist or open hand and without requiring tight grasping, pinching or twisting of the wrist

Height for controls and other operable equipment mounted between 9 inches (230 mm) and 54 inches (1370 mm) from the floor for a parallel approach and between 15 inches (380 mm) and 48 inches (1220 mm) for a front approach

- **Reduce eye fatigue** due to frequent and major shifts in overall light level.
- **Provide sufficient exposure to natural light** to maintain health and morale.
- **Improve legibility** of the task surface by controlling glare.
- **Provide flexible lighting** conditions to support different types of tasks.
- **Ensure that lighting controls are simple** and easy to understand.

Universal

Lighting options appropriate for all the tasks provided by following the recommendations of the Illuminating Engineering Society of North America (refer to the IESNA Lighting Handbook)

Optimal use of natural light to provide an antidote to seasonal affective disorder

Light shelves, clerestories and other devices to bring natural light into the building to produce an even distribution of natural light throughout

Overhangs, reflective baffles, tinted glass, adjustable blinds and shades, and indirect lighting used to control excessive glare from natural illumination

Automated control systems with sensors to adjust the amount of artificial light in relationship to the amount of natural light, thereby reducing wide variation over the course of the day

Systems for employees to adjust light levels at their workspaces to best fit the requirements for their specific tasks, individual abilities and preferences

Switches organized to follow the spatial layout of the lighting fixtures that the switches control

Tips:

- Ensure that bulbs can be replaced easily and that replacements are available without long delays.
- Provide presence sensors to turn lights on and off automatically.

Key Design Goals

Thermal comfort is one of the **most important contributors to satisfaction with workplace environments.** Environments that are too cold, hot, dry, humid or have excessive air movement are uncomfortable. Since thermal comfort is subjective, and needs change significantly over time and across seasons, employees should be able to **adjust the microclimate conditions** including ventilation, temperature, and humidity. Older workers will be more sensitive to thermal comfort than younger workers and some chronic conditions result in increased sensitivity to temperatures that deviate from the comfort zone.

Tips:

- Locate switches prominently and centrally in easy-to-find locations, not in cabinets or behind large furniture where a person in a wheelchair would be unable to make an approach.

Accessible

No requirements in ADA Guidelines for thermal comfort

30 inches (760 mm) by 48 inches (1220 mm) of clear floor space for access to controls

All controls operable with a closed fist or open hand and without requiring tight grasping, pinching or twisting of the wrist

Mounting height for controls and other operable equipment between 9 inches (230 mm) and 54 inches (1370 mm) from the floor for a parallel approach and between 15 inches (380 mm) and 48 inches (1220 mm) for a front approach

- **Maintain thermal comfort** at all work areas following guidelines in the Fundamentals chapter on Thermal Comfort in the ASHRAE Handbook.

- Provide **individual control over temperature and ventilation** to suit specific preferences.

Universal

All controls within the comfortable reach zone of between 24 inches (610 mm) and 48 inches (1220 mm) above the floor

Air conditioned supply registers located where they do not discharge directly above or next to work stations

Multi-speed ceiling fans where air conditioning is not provided, so that air velocities can be adjusted

Remote controls for HVAC systems, including ceiling fans

Individualized HVAC systems that allow fine tuning at the workstation including personal HVAC units, zoned thermostats, fans, operable windows, drapes, blinds, adjustable radiators, through-the-wall air conditioners

Extra outlets near the base of workstations for humidifiers or other individual equipment

Office furniture with built in ventilation systems

Adequate hanging storage at workstations for employees to store clothing such as sweaters and light jackets

Tips:

- Some employees may prefer "natural" means for regulating the thermal environment, such as windows and fans. These are often less expensive and require less maintenance than large, energy-consuming, HVAC units.

Acoustics

Key Design Goals

Workplace noise can negatively affect morale, task performance, and personal safety. Uncontrolled noise is a particularly serious problem in open office work environments. Special attention to acoustics is needed in the design of conference rooms to ensure effective communication and meetings. Acoustic privacy is critical where confidential communications take place.

Notifying all employees of emergencies is also a critical safety and security issue. Alarm systems must be designed to exceed prevailing background noise

Tips:

- Most computer equipment have cooling fans that produce ambient noise. Although not very loud, the fan noise can be disturbing to neighboring workers or amplified by poor room acoustics. Locate this equipment near sound-absorbing materials, such as carpet or dividing walls.

Accessible

Alarm systems that exceed 15 dbA of prevailing background noise level

Universal

Elimination or isolation of sources of loud and distracting noise

Sound absorbent materials on walls and floors to keep ambient noise levels as low as possible where background noise cannot be eliminated

Background music or "white noise" generators to mask background noise that cannot be controlled

No large open areas with many desks

levels in busy open environments and reach isolated private spaces. They also have to communicate a sense of urgency to ensure that workers will respond to the warnings.

- Reduce uncontrolled background noise to a minimum and isolate loud areas and quiet spaces from the rest of the workplace.

- Ensure adequate communication of emergency events and optimize communications by supporting clarity and legibility of sound quality.

Cubicles and other devices to give individual workers some control over noise

Dedicated, sound-controlled, spaces for meetings and teleconferencing

Incorporation of the recommendations from the Acoustical Society of America (ASA) for noise criteria (NC curves) and reverberation rates

Auditory alarms supplemented with visual signals (e.g., flashing lights)

Office policies implemeted to keep controllable noise pollution to a minimum including music and mobile phone ringers

Plan a variety of conditions in the workspace so that there are enough options to accommodate all differences between individuals in the types and intensity levels of noise that they can tolerate without distraction

Tips:

- Alarms or communications having auditory frequencies above 4000 Hz are difficult for many individuals to detect and should be avoided.

- Workers using voice recognition systems need to have sound controlled offices to avoid disturbing other workers and to insure that the systems will operate effectively.

Storage and Materials Handling

Key Design Goals

Adequate provisions for storage of supplies, products and personal belongings reduce effort, improve safety and increase privacy. Environments that promote the efficient flow of materials **minimize the effort needed to handle materials and increases safety from lifting injuries.** Every workplace has employees with different statures and abilities to reach, lift and carry materials.

Tips:

- Consider paperless options. Electronic documents can be transported, edited, and transmitted with a minimum of effort and stored in a fraction of the space.

Accessible

All storage spaces, if part of the general workspace, on an accessible route

No accessibility codes for storage or materials handling equipment in workplaces; ADA Guidelines require accommodations be made for individual needs

Universal

Work environment organized to minimize the frequency that materials have to be moved from storage to workstations

Need for redundant handling of materials, including paperwork, minimized

Stocks of frequently accessed supplies decentralized throughout the office environment

Complimentary materials stored near the point of use, (e.g. toner and copy paper near the copy machine)

- Design the work environment to **reduce lifting and carrying to a minimum.**
- Locate materials needed during work nearby to **minimize trips between work stations and storage areas.**
- Design storage and materials flow to **support job performance** by people of varying statures and abilities.

Storage containers that provide the option of carrying, pushing, pulling, or rolling

Materials that everyone needs located in the comfort range of 24 inches (610 mm) and 48 inches (1220 mm) above the floor

Where feasible, automated materials retrieval systems to bring materials close to the employee

Rolling carts to distribute or move commonly used office materials

Options for handling heavy, fragile or awkward objects and materials (e.g. large boxes of paper and computer monitors) or an office policy that requires more than one employees to move such items

Ample and secure storage for employee's personal possessions within the comfort range of between 24 inches (610 mm) and 48 inches (1220 mm) above the floor

Decentralization of supplies balanced with the need to control access to them

Tips:

- Options for materials flow in workstations can be evaluated using simple material flow diagrams in consultation with workers and their supervisors.
- Give priority to frequently used items and only store rarely used items outside of comfort range, if necessary.

Social Interaction

Key Design Goals

Work is not only about making an income; **it has an important social component as well.** The opportunity for social interaction between all employees contributes to positive morale and overall employee satisfaction. Healthy social interaction is necessary to ensure mutual respect, understanding, harmony, cooperation, positive morale and a common sense of purpose. In turn, social interaction at work **contributes to self esteem and a sense of belonging and provides stimulation.** Thus, workplaces should be designed to facilitate healthy social interaction within

Tips:

- Although instant messaging can be abused, it can allow employees to stay at their work station while still having social interaction.

Accessible

Cafeterias, break rooms and lounges on an accessible route

Clear width along paths of travel of at least 36 inches (915 mm) except at doors, where opening must be at least 32 inches (815 mm) wide and no more than 24 inches (610 mm) in depth

ADA Guidelines require that social spaces be fully accessible (including interior clearances and equipment), if a person with a disability works at the site

the context of accomplishing the goals of the organization.

- Plan areas to **encourage social interaction and hold impromptu meetings.**
- Create environments that **include the needs of everyone** rather than cloister and segregate one group from another.
- Provide areas that **afford privacy away from the general office environment.**

Universal

Designated break areas to give workers a place to recover from work demands and socialize with others

Break areas provided that are quiet, comfortable and have a pleasant environment so that they are more likely to be used by employees

Furniture arranged in social spaces in clusters to facilitate interaction between employees

Both tables and counter areas in employee cafeterias, lounges and break spaces that can be used by people with wheeled mobility devices

Appliances that are usable by people with disabilities including sufficient access space for wheeled mobility devices, controls and reach

Support for wireless communication devices in social spaces to allow employees to "stay connected" while not at their usual workstations

Workstations situated so employees can communicate effectively with visual and/or verbal modes of communication

Support instant messaging services that allow real-time communications

Tips:

- Seating clusters should be accessible so that no worker is excluded.

Standing Workstations

Key Design Goals

Many employees such as cashiers, retail workers, factory workers, security workers and transportation workers, can do their job more effectively by standing. However, **standing for long periods of time can strain the back and legs.** On the other hand, workers who sit for long periods of time can benefit from shifting to a standing position periodically. For long work periods of standing work, there is no one "compromise" height for a work surface that serves all people equally well.

Tips:

- Many standing tasks require close inspection. Such tasks are more easily completed accurately by raising the work surface closer to the face. Each individual may need slightly different heights due to differences in either stature, visual ability or both.

Accessible

No requirements in the ADA Guidelines for workstations, but they do require that accommodations be made for workers with disabilities

Sit-stand workstation that can be adjusted to allow the worker to avoid muscle fatigue by changing work posture

Universal

Counter heights for standing work should be adjustable to fit a work force with a wide range of statures and visual abilities

Standing workstations instead of sitting workstations when heavy physical effort is required or the employee must supervise a larger work area

Adjustable stool or "perch" for leaning to temporarily reduce pressure on the lower back

- Provide surfaces that can be **adjusted to suit the needs of different heights and different uses.**
- Provide opportunities for workers to periodically get **relief from the stress of standing or sitting** for long periods of time.

Objects or tasks at hand within normal view to minimize stooped postures that cause neck and back injuries

Adequate knee and toe clearance beneath workstations and counters so that employees can be as close to the workstation as possible

Options for controlling all or some work related operations with feet as well as hands

Avoidance of elevated platforms

Durable rubber floor matting to reduce muscle fatigue of the legs and backs for those who stand

Special design considerations for workstations that contain computers and their accessories

Tips:

- Employees should not be required to stand in place for long periods without a break or a means of relief.

Sitting Workstations

Key Design Goals

Generally, sitting is less strenuous than standing and allows easier control over hand and body movements. The sitting workstation is the most common and is the standard for most office environments. Yet, there are many serious risks to injury even in seated work which is related to bad posture and computer use.

Tips:

- Controlling glare on computer screens requires personal adjustments because the angle of reflection is determined in part by the stature and posture of the worker. See section on Lighting for more information.

Accessible

No requirements in ADA Guidelines for accessible workstations, but accommodations to the work stations of people with disabilities must be made if needed

Universal

Height adjustable work surface between 28 inches (715 mm) and 32 inches (815 mm), with frequently used items stored within 24 inches (610 mm) and 48 inches (1220 mm) and within 24 inch (610 mm) maximum of reach arc from the elbow

Adequate knee and toe clearance for wheelchair users under the work surface

Adjustable monitor arm and/or stand to bring monitor up to a position level with the eyes and within the visual range of the user

- **Support good posture** to reduce back and neck injuries
- Provide **support to reduce repetitive motion injuries**
- Provide work and seating surfaces that can be **adjusted to suit the needs of people who have different statures**

Wheeled chair with adjustable height seat, reclining tilt function, lumbar support, adjustable arm rests and a high back to support neck and head

Footrests to relieve stress on lower back and thighs

Integrated data and electrical outlets, cable management systems and CPU support shelves to reduce the confusion and complexity of the work environment

Adjustable tilt on keyboard tray

"Direct glue-down" adhesive installation for carpeting to avoid potentially dangerous "zippering" or "creep", which is caused by repeated chair movement in seated workstation areas

Workstations that accommodate both standing and seated positions, also referred to as "sit-stand" workstations used wherever possible

While the physical characteristics of a workstation will depend largely on the tasks that are to be performed, sit-stand workstations provide a common baseline for workstation design

Tips:

- Multi-level desktops can be adjusted to a finer degree and reduce the need for other positioning devices. The upper section can be adjusted to place a monitor level with the eyes and the lower section can be independently adjusted to put the keyboard and desk area at the best location for hand work.


POLICE
STRICT

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Human Service Facilities

Human service facilities provide the community with central gathering places in which individuals, families, groups or organizations can meet their social, cultural, educational, fitness and recreational needs. Some facilities offer services to a specific type of user (e.g., child care centers, senior centers, etc.) and others support the general public in civic activities (e.g., government buildings, fire and police stations, etc.). Often they are multipurpose (e.g., YMCA, community centers, etc.). Because of the broad range of services available, facilities should be designed to ensure that people of all ages, sizes and abilities have access to quality services that protect and enhance physical, mental and social well-being.

Universal Design is an approach to design that honors human diversity. It addresses the right for everyone – from childhood into their oldest years – to use all spaces, products and information in an independent, inclusive, and equal way. It is a process that invites designers to go beyond compliance with access codes -- to create excellent, people centered design.

Elaine Ostroff
Founding Director
Adaptive Environments

Location

Key Design Goals

The principal function of human service agencies is to **promote the well-being of the people they serve** and the community as a whole. The buildings that house these agencies must **reflect the goals and activities appropriate to the organization.** They must also be perceived as a community asset that is usable by everyone. Individuals, groups, and families are best served when facilities are located within their own neighborhoods.

Tips:

- Human service facilities should be located in areas serviced by public transportation to ensure the availability to everyone.

Accessible

At least one accessible route within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones, and public sidewalks to an accessible building entrance

- **Place facilities where users can easily reach them.**
- **Locate within the community** to create relationships among users.
- **Locate in close proximity** to other affiliated organizations sharing facilities.
- Locate **close to public transit.**

Universal

Located centrally within the community to increase convenience and utilization

Located near other communities to help forge effective partnerships between community agencies

Human service buildings clustered on a site to provide a sense of community where generations of neighbors can meet and share their cultures

Public transportation stops in close proximity to the facilities that are accessible and usable by all types of users regardless of their abilities

Located where building is visible from nearby roadways

Opportunity to have adjacent space for outdoor programs

Availability of parking without interfering with neighborhood traffic patterns

Tips:

- Human service facilities should be located close to other services that people might use. For example, locating a senior center near shopping would be convenient for those who are unable to drive.

Key Design Goals

The design of the site should **reflect the surrounding community without being isolated from the neighborhood.** For example, buildings monumental in size and situated in a concrete landscape may not fit into the neighborhood context and may be perceived as obtrusive and intimidating. Conversely, facilities designed on a more human scale that provide landscape amenities accessible to the public will **foster a welcoming, approachable environment.**

Tips:

- The ADA Guidelines and other codes are minimums and do not always satisfy the needs of every facility. For example, if there are 20 parking spaces in a lot, the ADA Guidelines require only one accessible parking spot. One accessible parking spot is inadequate for a senior center, a health services organization or facility that houses a department of disability services.

Accessible

All accessible facilities on the site connected to the accessible route

Changes in level greater than ½ inch (13 mm) equipped with a ramp

Ground surfaces that are firm, stable, and slip resistant

Clear width of pathways at least 36 inches (915 mm) wide

Minimum number of required accessible parking spaces

If passenger loading zones are provided, access aisles at passenger loading areas at least 60 inches (1525 mm) wide by 240 inches (6100 mm) long parallel to the vehicle pull up space

Also Refer to:

- **Parking**
- **Circulation**

- Provide **direct connection** from parking lots, sidewalks and public transportation systems to building entrances.
- Ensure entrances and exits are **easy to locate and use.**
- Locate pick-up and drop-off area so it **does not impede the flow of traffic.**
- **Provide outdoor recreational settings** that the public can use.

Universal

Paved pathways that connect to main neighborhood pedestrian network

Passenger loading zones sized to fit the expected visitor volume and allow users to assemble without interfering with pedestrian and vehicular traffic

Lighting along pathways for safety and security

Emergency communications equipment provided wherever potential security or safety threats exist

Information system that includes directories, maps, and signs to guide people towards their destinations

Tips:

- If outdoor recreation areas for children are provided, use a perimeter fence or wall to improve safety, make supervision easier and protect the area from vehicles. Gates in the fence can be open or locked to the public, depending on the need for security.

Key Design Goals

Human service facilities support a multitude of activities and people of all sizes and ages. Therefore, exterior and interior environments should be designed to **accommodate a wide range of activities and people.**

- Provide a layout that can **accommodate many use patterns.**
- Provide **flexible spaces** that can be customized per activity.
- Make amenities **easy to locate and accessible** by everyone.

Tips:

- When access to parts of facilities will be restricted during evening, weekend or holiday hours, ensure that there will still be an accessible path of travel to all programmed spaces and amenities that are available for use during these times.

Accessible

At least one clear path of travel that connects all public and common use areas

Public telephones, drinking fountains, restrooms and other amenities located on an accessible path of travel

Where facilities house daycare centers and other activities attended by children ages 12 and younger, bathroom facilities to be readily accessible to and usable by all children; instead of following the standard requirements for toilet rooms, follow the Accessibility

Recommendations for Children's Environments

ADA Guidelines for Children's Facilities: mounting height of 18 inches (455 mm) to 27 inches (685 mm) above the floor measured to the grab bar centerline instead of the 33 inches (840 mm) to 36 inches (915 mm) required for adults

Also Refer to:

- **Using Public Amenities**

Universal

Clearly distinguishable features (e.g., unique building features, color, signage, etc.) that make them identifiable from the others when facilities include several buildings

Restrooms and other amenities located in close proximity to activity areas

Appropriate open space provided for related outdoor recreation during warm weather

Signs to clearly identify restricted areas (e.g., mechanical, electrical, utility, etc.)

Accessible services and amenities (e.g. restrooms) for different age groups using separate parts of a building or site

Tips:

- Social spaces are avenues for communication. The facility should provide many spaces that encourage interaction as well as allow for isolation when it is needed.

Entrances

Key Design Goals

Although human service facilities are open to the general public, **many buildings require users to pass through a checkpoint for entry**. Often, social and recreational facilities (e.g., YMCA, Jewish Community Center, senior centers) have reception desks inside the entry to check for membership or visitor cards. With recent concerns about security, government buildings have implemented special screening measures to ensure the safety of all building occupants. Visitors, as well as employees, are required to pass through metal detectors, X-ray machines and are subject to manual

Tips:

- Service Entrance: An entrance intended primarily for delivery of services. Examples include entrances used to bring food supplies and garbage in and out of a community center, a loading dock entry, or a garage door.

Accessible

Entrances located on an accessible path of travel connected to accessible parking, passenger loading zones, public streets and sidewalks

At least one accessible public entrance or at least 50 percent where there are more than two public entrances

Signs at inaccessible entrances indication the nearest accessible entrance

Service entrances used as an accessible entrance only if they are the only entrance to a building or facility

Also Refer to:

- **Entering and Exiting**

baggage searches. These areas must not only ensure passage for all users, but because these procedures might cause slight delays during peak hours, **there should be ample space to accommodate those waiting** in line in an environment that makes their wait pleasant.

- **Make entrances easy to locate** and accessible to all users.
- **Provide a lobby** at entry for transitional activities.

Universal

All public entrances reachable and usable by all types of users regardless of their ages, sizes or abilities

Overhangs, recessed entries or other means of providing a covered area at loading zones

Automated doors at entry that provide ease of access for people with mobility impairments and accommodate high flows of pedestrian traffic

Turnstiles and gates replaced by other entry control devices that are usable by everyone where security is required

Appropriately sized queuing for security screening areas where people may congregate

A reception desk where visitors can get information, guest passes, directions, etc.

Lobby with seating area adjacent to the entry where visitors can wait comfortably without disrupting the flow of traffic

Direct access to public amenities from the lobby

Tips:

- Many buildings have installed an intercom system at the entrance. To gain access, visitors have to push a call button to have the door unlocked. The intercom system should be mounted at a reachable height for someone either standing or seated and all features should be usable by everyone.

Meeting Rooms

Key Design Goals

Human service facilities are often used for informational, educational, social or recreational activities that **strengthen and serve the community.** Since programs are open to everyone, they must be **highly flexible, multi-purpose meeting spaces** that can accommodate almost any event, whatever the size. Layouts should ensure privacy, provide efficient traffic flows and furnishings should offer flexibility in room design. Location should offer convenient access to amenities and other public areas.

Tips:

- The number of required audible communication receivers is at least 4 percent of the total number of seats, but never less than two.
- Seating and tables can be made accessible on an as-needed basis by removing chairs

Accessible

Located on an accessible path of travel and connected to accessible parking, passenger loading zones, public streets, sidewalks and at least one entrance

Clear path of travel of at least 36 inches (915 mm) wide throughout except at doors, where opening must be at least 32 inches (815 mm) wide and no more than 24 inches (610 mm) in depth

Knee spaces at least 27 inches (685mm) high, 30 inches (760 mm) wide and 19 inches (485 mm) deep for seating at tables

Tops of tables between 28 inches (710 mm) and 34 inches (865 mm) from the floor

For meeting rooms without fixed seating where audible communication is integral to the use of a space, provision of a permanently installed assistive listening system or electrical outlets and supplementary wiring for a portable system

If a service counter or pass through is provided, wheelchair clearance of 30 inches (760 mm) by 48 inches (1220 mm) at the service counter and no higher than 36 inches (915 mm) high, or an adjacent counter no higher than 34 inches

- Make **easy to locate and reach** from accessible entrances.
- Provide appropriate **maneuvering clearances** to enable circulation by all users.
- Ensure **limited noise transmission** to and from surrounding spaces.
- Provide **flexible arrangement** conducive to all types and sizes of events.

Universal

Adjacent lobby wide enough to allow users to assemble while not obstructing the path of travel

Layout, window and door placement to maximize options for flexibility of space usage (e.g., conference, social gathering, seminar, dining area, etc.)

Restrooms, drinking fountains and other amenities located within close proximity

Adjoining storage area to stow furniture and equipment that is not always needed

Connected to outdoor spaces to expand the meeting area and increase options in good weather

Partition walls provided to enable the space to be split into smaller rooms to increase flexibility and control noise

Audio-visual equipment including data projection, slide projection, overhead projector and lectern for workshops, seminars and other programs

Contrast of lighting and colors to enhance perception abilities of people with reduced vision

Also Refer to:

- **Seating**
- **Circulation**

Tips:

- Choose furniture, colors, materials as well as the design of the floor and wall coverings to reflect the expected users' cultural background and aesthetic preferences. This may require some research and community involvement during design.


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Renovations and Additions

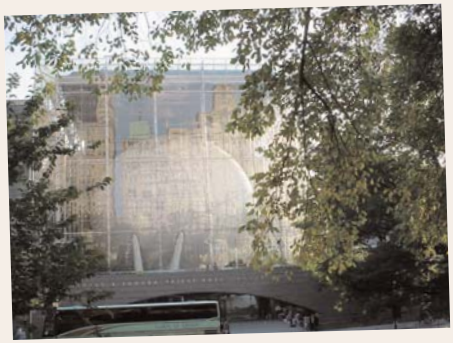
Existing buildings can present a challenge to architects seeking to comply with accessibility codes but universal design can turn that challenge into an opportunity for creative intervention. In historic preservation and adaptive re-use, programmatic and aesthetic concerns are the primary determinants of design decisions. Code compliance is usually viewed as a constraint toward reaching the primary design goals. Less money is therefore devoted to access requirements than to other parts of the project. In universal design, however, the primary goal is to increase usability and use that as a point of departure for creative architecture. The "constraints" of existing buildings can be viewed as a context that informs the design concept. For example, the need to add an elevator to an older building can be addressed by inserting a new vertical circulation core that can be the central focus of the new project. Instead of simply adding an elevator to meet codes the concept could include a multi-story space to connect several floors, a light well, a new decorative stairway and other architectural features. This inserted core also can be given an aesthetic treatment to contrast or harmonize with the rest of the building.

Renovation projects often include additions. Such projects offer considerable opportunity for universal design. Additions not only add space, but also can change circulation patterns in older buildings. Additions, in conjunction with renovations to the older parts of buildings, can radically change the way buildings work and their relationship with surrounding contexts. For example, older buildings with monumental

stairways at the exterior present a barrier to many individuals. Although secondary entrances can provide accessibility according to code, a new accessible primary entrance in an addition can provide an opportunity to use the site differently and enrich the entire building in the process. The case study of the Rose Planetarium on the facing page shows an example of such an entrance condition.

Access to historic buildings is a means of providing access to cultural resources embodied in buildings. Achieving universal access to the city, then, should not ignore the need to make historic buildings accessible to all. In historic preservation, radical changes to the existing fabric of the building, either inside, outside, or both, may be impossible because they would destroy its historic character. In fact, the ADA and other accessibility codes allow historic preservation goals to supersede accessibility and refer to local historic preservation officials to offer guidance. In universal design, the conflicts between access and historic character should not be used as a "reprieve" from improving access but a challenge to find other solutions that may involve innovations in design and technology. For example, it may be possible to provide access to some important parts of a building but not others. When all else fails, the use of alternative means to experience the building is an acceptable alternative, but it should be available to everyone and improve access to information about the building for the entire public.

Case Study: Rose Planetarium



Building Overview

Originally built in 1887, New York City's American Museum of Natural History (AMNH) added the Hayden Planetarium to its complex in 1936. It was built to house and carry the overflow of exhibits and visitors the popular museum was unable to support. However, after over 50 years in existence, the addition desperately needed some renovations and improvements. In 1993, a new Planetarium facility was added to the building.

Addition

Initially intended to improve the condition of the facility and increase attendance, the architects successfully managed to incorporate many universal design features into the Rose Center's design. Rather than serve as a constraint, accessibility provided an inspiration. The new entrance on West 81st Street, between Central Park West and Columbus Avenue, is not only visually appealing but also universally designed. It provides a generous sheltered accessible entry with a loading zone for cars and buses.

Ramped Exhibit

Besides the exterior's accessibility improvements, the Center's exhibits also reflect many key goals of universal design. Holding both the new Planetarium and the Big Bang Display, the addition enhances the Museum's overall usability. For instance, while the Planetarium has accessible routes and seating areas, the Big Bang display is built along a spiraling ramp, referred to as the Heilbrunn Cosmic Pathway, which permits visitors to view the exhibit from a stroller, wheelchair or from a standing position. It also provides an overview of the other exhibits.

As illustrated, a conscious effort was made to use the addition project as an opportunity to improve the Rose Center's overall accessibility.

Top to bottom:

Overview
West 81st Street entrance
Heilbrunn Cosmis Pathway

Renovations and Additions

Key Design Goals

- Establish **direct access** from additions to all buildings and facilities.
- Use renovations to i**mprove usability** of existing buildings.

Tips:

- Changes in use, even without renovations, require bringing the building up to the city code, including the access code.
- Local historic preservation authorities are entrusted with reviewing projects and determining the extent of access allowable.

Accessible

All alterations to parts of buildings in compliance with the ADA Guidelines and the City Access Code

If alterations are being made to a program area, at least 20% of the funds in any project devoted to creating an accessible path of travel to the altered areas

Fully accessible additions with at least one accessible path of travel connecting all buildings and facilities

Entire building must comply with ADA Guidelines in substantial rehabilitation if work is estimated to cost 50% or more of the market value of the building

New York City code requires that:

if work is estimated to cost 60% or more of the market value of the building in any twelve-month period, entire building must comply with accessibility codes

if work is estimated to cost between 30% and 60% of the market value of the building in any twelve-month period, entire building must comply with accessibility codes

if work is estimated below 30% of the market value of the building in any twelve-month period, those portions of the building altered may be altered, at the option of the owner, in accordance with the requirements of the code, or altered in compliance with the applicable laws in existence prior to December 6, 1968.

Universal

Alterations and additions used to make radical improvements in the usability of existing buildings by strategic insertions of vertical circulation and improvements in horizontal circulation

Additions used to improve the relationships of elements on the site and between the site and the surrounding context, (e.g. new primary entrances)

Alternative technologies used to improve access to historic buildings for everyone, e.g. slide shows, videotaped programs, virtual reality

Technologies used to provide information in alternative media that improve access to information for everyone

Material differences between historic and new structures that act as visual wayfinding cues, especially when the addition contains a point of entry

Historic hardware preserved in historic buildings to comply with ADA Guidelines without retrofitting by installing an automatic door opener

Tips:

- At the supermarket shown above, the need to create an accessible entry became the focal point for developing a covered outdoor market in front of the entry. The curved pathway was used to avoid the need for a ramp. The new courtyard was roofed over and the space along the walkway is now used for special promotions, effectively adding selling space to this small market.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Conclusion

This book identifies many practical strategies for applying the Principles of Universal Design to the design of the built environment. The strategies can be used as a guide to help identify, reduce or eliminate problems during the design process. They can assist in making cost effective decisions and in addressing performance concerns before they become problems. Incorporating universal design strategies into projects during their initial design stages will ensure that buildings and the urban environment in general are more navigable, efficient, and welcoming to a wide range of individuals.

There are many specific benefits of practicing universal design. Clearly the most important is the impact it will have on the citizens of the community and its visitors. The practice of universal design will support more people in reaching their full potential as both individuals and participants in community life. Citizens and visitors will find the City more of a friend and less of an adversary both in daily life and on important special events when it means even more to them. Specifically, there will be fewer hazards and hassles and more effortless movement and access to information. The City will be a better place to live, work, study, have fun and enjoy social life.

Beyond the benefits to the City's inhabitants, there are also many for design professionals. By adopting the philosophy of universal design, the design professions will be viewed in a more positive light. Universal design means striving for constant improvement. Rather than perpetuating the same conditions over and over, it means identifying and creating a more supportive environment for living in every way possible. The message this conveys is that designers care for others and that in itself brings respect from everyone affected.

Universal Design Audit Checklist

Design should adapt to people, not the other way around.

AD AS
furniture purveyors

This Checklist is designed to complete an audit of a design in process or a facility that is already in use. It covers key features of universal design. The Checklist is not designed for use as an audit for accessibility code compliance because it does not cover the level of detail necessary. However, it is useful if an access audit is completed prior to using this Checklist. There are many existing access audit forms that can be used. For compliance with the Americans with Disabilities Act, we recommend using the official ADAAG checklist available from the U.S. Access Board.

This Checklist is a new idea. It is not yet perfected but we think that many people will find it useful. We welcome suggestions and criticisms for developing it further.

For each site or building element in this Checklist, there are three levels of usability defined by the availability of specific features. The first level is defined by basic access code compliance – worth one point. The next level is a higher standard provided by basic access code compliance plus one or more additional features – worth two points. The third level is the highest level of usability. It includes the features in the first two levels plus still additional features – worth 3 points. In other words, all the features must be present to rate 3 points. In some cases, the elements do not have any code requirements so that the first level is not at the code compliance level.

How to Use this Checklist

To use the Checklist:

Step 1 Check all the sections to be included in your evaluation.

Step 2 Rate the level of usability for each element by checking the appropriate box in each section included. (either 1point, 2 points, or 3 points.)

Step 3 Calculate the project score as described below. Remember, to rate 3 points, the element listed must have all the features listed.

How to Score this Checklist

Scores are computed as the percentage of the maximum score possible.

Calculation Steps:

Step 1	Count the number of sections you have rated, enter that number here:	_____
Step 2	Total the scores of all the sections rated.	_____
Step 3	The maximum possible score is the total in Step 1 multiplied by 3	_____
Step 4	UD Audit Score for the Project simply divide total in Step 2 by total for Step 3.	_____

Additional copies of this checklist are available online at www.ap.buffalo.edu/idea

Site Issues

❑ **Access Points (omit this section if there is only one site access point)**

Score	Level of usability / Notes
❑ 1	**Only one accessible pedestrian access point to the site** As per code
❑ 2	**More than one pedestrian access point is accessible** To serve different directions of access
❑ 3	**All primary access points are accessible**

❑ **Parking**

Score	Level of usability / Notes
❑ 1	**Required number of accessible spaces** As per code, including van accessible spaces, in each lot, Signs, access aisles and curb ramps where needed.
❑ 2	**The route(s) from accessible parking spaces do not pass behind parked vehicles.** In addition to above
❑ 3	**Priority parking for different user groups close to entry** For example, pregnant women, senior citizens

❑ **Passenger Loading Zones**

Score	Level of usability / Notes
❑ 1	**An accessible loading zone** As per code
❑ 2	**Loading zone adjacent to a principal entry**
❑ 3	**Weather protection for passengers waiting at loading zones** For example, people waiting for a bus

❑ **Pathways**

Score	Level of usability / Notes
❑ 1	**Each site facility and accessible entrance can be reached along an accessible path of travel** As per code
❑ 2	**All facilities can be reached from a single continuous accessible path system without stairs** Rather than separate paths from different access points
❑ 3	**Options for access to different facilities and entrances provide benefits for different user groups** For example, a short path with stairs as well as a longer path without stairs

❑ **Vertical Circulation** (omit if the site is all on one level and has no ramps)

Score	Level of usability / Notes
❑ 1	**All levels connected by ramp, lift or elevator** As per code
❑ 2	**Accessible circulation elements are integrated with the principal route(s) of travel** For example, entry and exit for elevator are at the same relative locations as stairs. Ramps run in the same direction as the pedestrian paths
❑ 3	**All paths of travel, including elevators are well lit and open to visual access** Paths of travel are safe and secure

Site Issues (continued)

❑ **Amenities (drinking fountains, telephones, garbage receptacles, etc.)**

Score	Level of usability / Notes
❑ 1	**Amenities are accessible** As per code
❑ 2	**Adjustable or alternative heights provided for amenities**
❑ 3	**Amenities are grouped together and conveniently located**

❑ **Walking Surfaces**

Score	Level of usability / Notes
❑ 1	**Walking surfaces are all stable, firm, non-slip, and free of dangerous overhanging hazards and unprotected falling hazards** As per code
❑ 2	**Walking surfaces are well drained**
❑ 3	**Walking surface textures aid in direction finding activities** Tactile domes, guide strips or a distinctive track

❑ **Public Restrooms**

Score	Level of usability / Notes
❑ 1	**Accessible doors, circulation clearances, accessories, plumbing fixtures and grab bars** Designed per code and maintenance practices keep accessible
❑ 2	**Fixtures and/or grab bars accommodate a wide range of different needs** Adjustable heights for fixtures, options for grab bars and/or space for assisted transfers
❑ 3	**Potty parity achieved for women's restrooms**

❑ Entry

Score — **Level of usability**

Notes

❑ 1 — **Accessible circulation to doorways, sufficient door width and maneuvering clearances, opening force below limits**

As per code

❑ 2 — **All entries are accessible**

Rather than separate paths from different access points

❑ 3 — **Principal entries have automated doors and on grade access**

If there is a ramp, it is used by all visitors

❑ Lobby

Score — **Level of usability**

Notes

❑ 1 — **There is enough space for people who need to wait outside the flow of traffic**

No code requirements (This includes queuing areas at ticket booths)

❑ 2 — **Seating for people who have to wait**

❑ 3 — **Convenient access to amenities, including restrooms**

If there is a security barrier, amenities available on both sides

❑ Reception Area

Score — **Level of usability**

Notes

❑ 1 — **A directory and wayfinding information are provided in visual as well as tactile or audible form**

No code requirements (someone available to assist visitors is a viable alternative)

❑ 2 — **There is seating for people who need to wait**

❑ 3 — **Amenities and restrooms are located close by**

❑ **Doorways**

Score	Level of usability / Notes
❑ 1	**Doorways on accessible routes have sufficient door width and maneuvering clearances, opening force below limits** As per code
❑ 2	**All doors in building or facility are accessible**
❑ 3	**Automated doors provided at principal entrances** Sliding automated doors are preferable

❑ **Vertical Circulation (stairs, ramps, elevators, lifts)**

Score	Level of usability / Notes
❑ 1	**All levels connected by accessible ramp, lift or elevator** As per code
❑ 2	**Accessible vertical circulation is as safe, secure and convenient as stairs**
❑ 3	**Building or facility has only one level or all ramps, lifts and elevators are integrated fully into the path that everyone follows** Entry and exit for elevator is at the same relative locations as for stairs

❑ **Walking Surfaces**

Score	Level of usability / Notes
❑ 1	**Walking surfaces are all stable, firm, non-slip, and free of dangerous overhanging hazards and unprotected falling hazards** As per code
❑ 2	**Edges of walking surfaces well defined**
❑ 3	**Walking surface textures aid in direction finding activities** Tactile domes, guide strips or a distinctive track

❑ **Amenities (drinking fountains, telephones, garbage receptacles, etc.)**

Score	Level of usability Notes
❑ 1	**Amenities are along accessible path, have wheelchair clearance space for access and operable parts are within accessible reach limits** As per code
❑ 2	**Amenities are located to the side of the direct path of travel**
❑ 3	**Amenities are grouped together and conveniently located**

❑ **Restrooms**

Score	Level of usability Notes
❑ 1	**Accessible doors, circulation clearances, accessories, plumbing fixtures and grab bars** Designed per code and maintenance practices keep accessible
❑ 2	**Fixtures and/or grab bars accommodate a wide range of different needs** Adjustable heights for fixtures, options for grab bars and/or space for assisted transfers
❑ 3	**Potty parity achieved for women's restrooms**

❑ **Service Counters**

Score	Level of usability Notes
❑ 1	**All service counters have accessible sections or auxiliary counters** As per code
❑ 2	**Counter heights are comfortable for a range of statures and for the uses intended** For example grid, linear spine, hollow square, hub and spoke
❑ 3	**Privacy conditions are similar for all users**

❑ **Natural Illumination**

Score **Level of usability**
Notes

❑ 1 **Adequate natural illumination is provided**
No code requirements

❑ 2 **Direct and reflected glare is minimized**
External shading devices, light shelves, baffles, tinted glass, etc.

❑ 3 **Occupant control over sunlight provided**
Blinds, shades, etc.

❑ **Artificial Illumination**

Score **Level of usability**
Notes

❑ 1 **Lighting controls within reach and operable with a closed fist or open hand, wheelchair clearance for approach**
As per code

❑ 2 **Illumination supports task performance, safety and security**

❑ 3 **Key features emphasized by higher illumination levels**
For example, landmarks, signs, stair treads

❑ **Acoustics**

Score **Level of usability**
Notes

❑ 1 **Audible alarms are detectable over background noise levels**
As per code

❑ 2 **Reverberation (echo) controlled to insure best sound for the activity**
Optimal reverberation times vary based on function

❑ 3 **Background noise controlled to allow conversation and support concentration**

❑ **Heating Ventilation and Air Conditions**

Score **Level of usability**
Notes

❑ 1 **All controls controls within reach and operable with a closed fist or open hand, wheelchair clearance for approach**

❑ 2 **All spaces heated and cooled effectively year round**

❑ 3 **Controls available to occupants for individualized adjustment**

Communication Systems

❑ **Information and Direction Signs**

Score **Level of usability**
Notes

❑ 1 **Signs for information and directions have large well proportioned characters, good contrast, easy to read fonts**
As per code

❑ 2 **Signs in prominent locations, well illuminated and worded effectively**

❑ 3 **Pictograms and/or alternative languages included**

❑ **Room Identification Information**

Score **Level of usability**
Notes

❑ 1 **Room identification signs have tactile characters, well proportioned fonts, good contrast, easy to read fonts, Braille, mounted at required height**
As per code

❑ 2 **Room numbering system is logical and helpful in finding locations**

❑ 3 **Talking Sign® or similar technology for key destinations**

❑ **Security Systems**

Score **Level of usability**

Notes

❑ 1 **Security system**

As per code

❑ 2 **Emergency communication devices in critical locations**

❑ 3 **Building access is monitored directly or through video**

❑ **Emergency Alarms**

Score **Level of usability**

Notes

❑ 1 **Controls within reach and operable with a closed fist or open hand, wheelchair clearance for approach to controls, warning devices have both visual and audible modes**

As per code

❑ 2 **Two way emergency communications in all remote areas**

Without requiring the ability to speak

❑ 3 **Systems direct users toward safe routes during building evacuation**

❑ **Public Address Systems**

Score **Level of usability**

Notes

❑ 1 **Assisted listening systems (ALS) are provided**

As per code

❑ 2 **Equivalent public information announcements through audible and visual modes**

For example, public address systems and electronic message boards or monitors

❑ 3 **Wireless web access to current information**

❑ **Telecommunications**

Score	Level of usability Notes
❑ 1	**Public telephones are hearing aid compatible, mounted within reach, wheelchair clearance for approach, volume control and TTY access if required** As per code
❑ 2	**TTYs or electrical outlet and shelf are provided at all public telephone locations**
❑ 3	**Telephone system is hearing aid and TTY compatible**

❑ **Public Information Technology**

Score	Level of usability Notes
❑ 1	**ATMs, ITMs and public Internet access points are within required reach, have wheelchair clearance, operable controls, alternate input/output methods** As per code
❑ 2	**Multiple payment methods are possible**
❑ 3	**Systems are adaptable to different statures, sensory abilities and languages** For example, display angle can be adjusted

Program Spaces

❑ Work Stations

Score	Level of usability Notes
❑ 1	**Accessible circulation to all work spaces** As per code
❑ 2	**Extra space for future accommodations**
❑ 3	**Options for sitting and standing** For example, a sit-stand workstation or a seat for a security guard

❑ Public Assembly

Score	Level of usability Notes
❑ 1	**Accessible seating area and stages, assistive listening system (ALS), line of sight to activities** As per code
❑ 2	**Circulation designed to accommodate large volume of traffic**
❑ 3	**Amenities and restrooms in predictable and obvious locations**

❑ Outdoor Recreation

Score	Level of usability Notes
❑ 1	**Accessible path of travel to all facilities** As per code
❑ 2	**Seating for onlookers at all long term attractions** For example, playgrounds, tennis courts and playing fields
❑ 3	**Protection from excessive sun and sudden rain**

❑ **Exhibit Spaces**

Score	Level of usability Notes
❑ 1	**Accessible path of travel, alternative media for all descriptive information and audio-visual presentations, accessible sight lines for all displays, interactive devices within accessible reach ranges and have operable controls**
❑ 2	**Seating dispersed throughout exhibit**
❑ 3	**Information in alternative languages for major exhibits**

❑ **Sleeping Rooms**

Score	Level of usability Notes
❑ 1	**Accessibility to a minimum number of rooms** As per code
❑ 2	**Additional rooms are accessible or adaptable for a wide range of needs**
❑ 3	**All rooms are accessible or adaptable for a wide range of needs**

❑ **Additional Notes:**


MoMA
The Museum

Credits

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