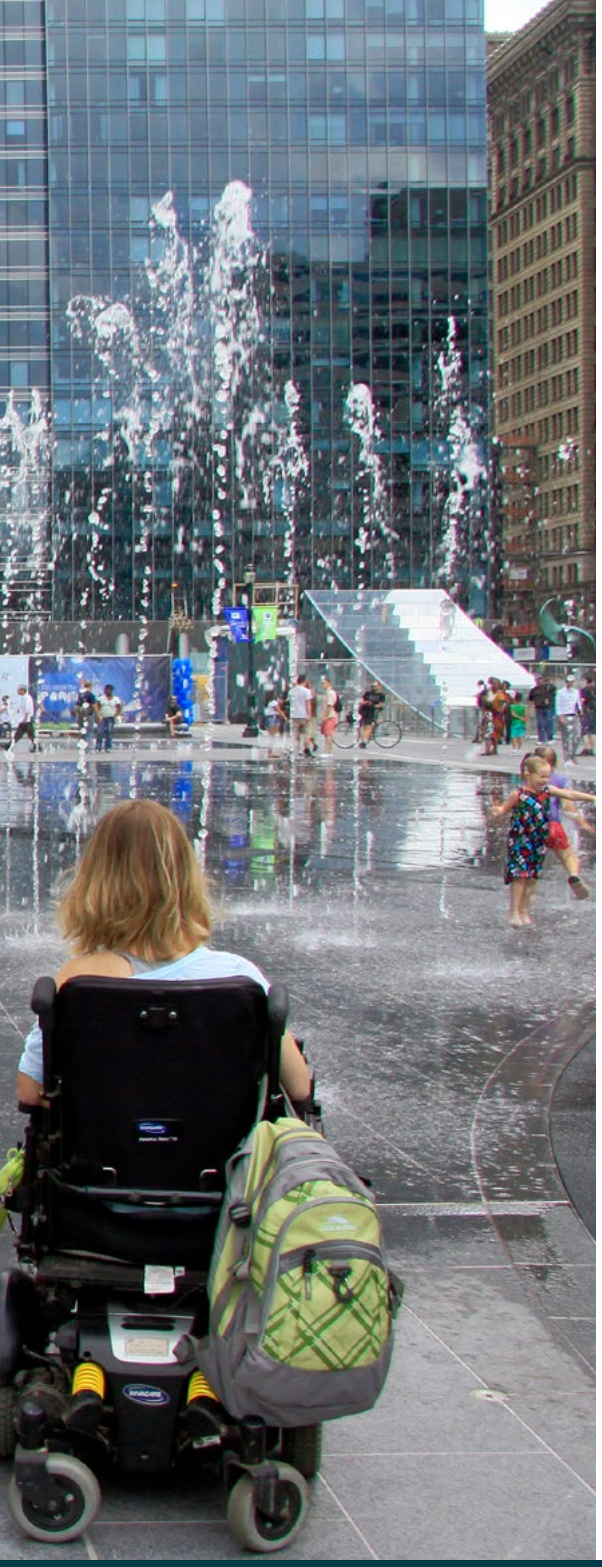

ASLA
Research Report Series

Principles of Accessibility Design for Landscape Architecture

ADA, ABA, and Other Accessibility Standards and Guidelines

American Society of Landscape Architects

ASLA Fund

About ASLA

Founded in 1899, the American Society of Landscape Architects (ASLA) is the professional association for landscape architects in the United States, representing more than 15,000 members. The Society's mission is to advance landscape architecture through advocacy, communication, education, and fellowship.

ASLA Professional Practice Committee

The Professional Practice Committee provides landscape architects with the most effective professional practice tools to enrich their knowledge and, in turn, enhance the impact and viability of the profession. Its mission is to explore, develop, promote, and encourage programs, products, and services that make the most current research data and learning opportunities available to practitioners; improve the personnel, systems, and resource management skills of all practitioners; and increase the range of opportunities open to landscape architects in all segments of practice, including the identification of specific practice needs.

636 Eye Street, NW
Washington, DC 20001-3736
202.898.2444
www.asla.org

Cover Photo:
ASLA 2020 Professional Urban Design Award of Excellence. Dilworth Park. OLIN.
(Image Credit: OLIN / Sahar Coston-Hardy)

Publisher's Note

The American Society of Landscape Architects publishes the ASLA Research Reports to encourage professionals to share specialized expertise relating to landscape architecture. ASLA considers these reports to be important contributions to a necessary and ongoing dialogue within a large and diverse community of landscape architecture researchers and practitioners. ASLA oversees a rigorous peer review process for all research reports to ensure accuracy of content. Each author offers a unique perspective on the practice area covered, reflecting his or her portfolio of professional experiences.

Abstract

This document is a tool to help landscape architects use inclusive design considerations. It provides a technical overview of the national accessibility standards and guidelines. The information is a quick reference for landscape architecture professionals, educators, and students. Emphasis has been placed upon the information required to design accessible sites and facilities including options for waivers. There are charts that illustrate the layered interrelationship of standards and guidelines governing accessible design. An index of ADA, ABA and DOT standards commonly associated with landscape architectural design is provided. A photo essay of "The Good, The Bad & The Ugly" in accessibility design contains many useful example images that emphasize correct and incorrect applications. The report is intended as a deskside resource. This publication should not be used as a final interpretation or determinant of the rules and regulations governing accessibility.

Preface

This report was developed by the Accessibility Subcommittee, a subgroup of the ASLA Professional Practice Committee. The charge of the Committee is to provide landscape architects with the most effective tools to enrich their knowledge and enhance the impact and viability of the profession. This information is intended for educational purposes and is not all-encompassing of every situation. It should not be considered a legal document. It is the sole responsibility of the reader/user of this document to determine the applicability of this information to their particular project, research, and jurisdiction.

This document is not intended to be a comprehensive list of regulations or guidelines for accessibility. The authors, editors, publishers, and distributors do not assume any liability for the completeness of this document, nor guarantee that if the following standards, guidelines, and recommendations are followed that the project will be considered accessible under federal, state, or local jurisdiction rules and regulations. It is intended primarily to familiarize the reader with applicable United States national codes, and to familiarize the reader/user with resources that may be relevant for compliance.

States and local governments, and other regulating agencies (e.g., Departments of Transportation), may have adopted additional and stricter regulations in addition to the federal guidelines or codes. It is up to the individual landscape architect to research and locate these additional codes in order to be in full compliance with all local accessibility regulations. All information was accurate at the time of publication, but may have changed since. Accuracy of any information provided should be confirmed prior to use or implementation given common periodic updates by various jurisdictions.

Contributing Authors

Drew Braley, ASLA
Browning Day

Carl Kelemen, FASLA
KMS Design Group, LLC

Nate Lowry, ASLA
Mackay Sposito

David Milligan, FASLA
IntersectDFM

Emily O'Mahoney, FASLA
2GHO | Gentile Holloway O'Mahoney & Associates, Inc.

Jason Radice, ASLA
University of Maryland

Jeffrey Tandul, ASLA
Environmentors

ASLA Accessibility Subcommittee Peer Reviewers

Shawn Balon, ASLA
Storefront for Community Design

Chris Dacus, FASLA

Sally Horsey, ASLA
Halff Associates, Inc.

Patricia Matamoros, Associate ASLA
Savino Miller Design Studio

Phil McDade, FASLA
PLMLA

Alexa Vaughn, ASLA
MIG

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Introduction

We are only temporarily able-bodied.

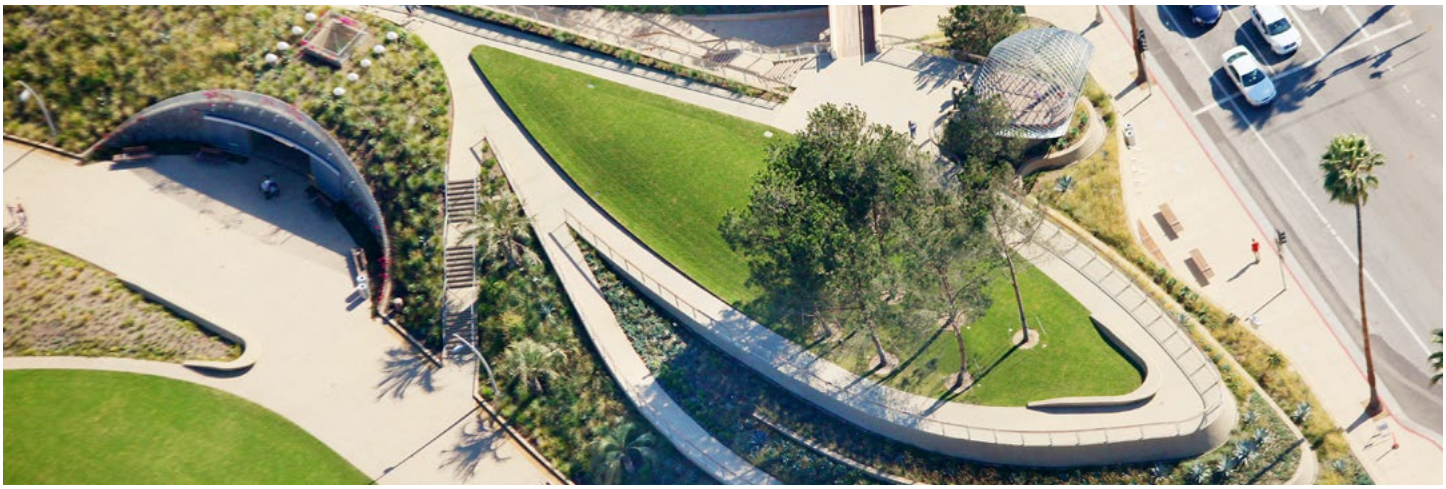
In the early 1990s, the U.S. Forest Service studied ways to make lands under its care more accessible to all. The Forest Service sought the expertise and input of both design professionals and members of the disabled community. A large committee of volunteers from ASLA joined the effort.

A kick-off meeting for this effort was held at the 1990 ASLA Annual Meeting in Washington, D.C. During that meeting, the Forest Service project lead, Joe Meade, presented the goals and opportunities for the project. He emphasized the need to consider routes to the facilities in addition to accessible facilities. He presented initial research that the disabled community was sensitive to the need to preserve the "experience" of forests. The research showed that "blind adherence" to accessibility standards could be detrimental to both the environment and the experience.

It should be noted that Joe was blind as a result of an automobile accident. He was an active hiker and climber. He pointed to research conducted by the American Medical Association noting that approximately one person in five has a condition, mental, sensory, or physical, that prevents them from fully participating in life activities due to inaccessible elements in the built environment. He noted that during the average lifetime of a person, nearly one-sixth of their life would include a condition that would preclude full participation in a desired activity. Joe completed his presentation with the following statement: "I don't consider MYSELF disabled; I consider YOU temporarily mobile."

The final product of the U.S. Forest Service study included a publication, Universal Access to Outdoor Recreation: A Design Guide. The final product was a publication that offered a coded range of difficulty levels for forest users, similar to those guidelines used at ski resorts to inform the user of the slope difficulty.

Physical activity and independence is important for young and old for mental and physical good health. What Joe Meade described as "temporary mobility" is a result of the inflexibility and inaccessibility of the built environment, and it's experienced by the disabled community every day. Consider someone with a broken ankle in need of crutches temporarily, or the parent of an infant needing to push a stroller—these people face similar, temporary barriers as the disabled community. General accessibility will help people stay active longer into their later years.



ASLA 2018 Professional General Design Honor Award.
Tongva Park and Ken Genser Square. James Corner Field Operations LLC.
(Image Credit: Tim Street Porter)

Accessibility Standards Overview

In order to lead the planning and design of inclusive, healthy, equitable, and safe environments, landscape architects have an obligation to be aware of and work in compliance with standards for accessibility.

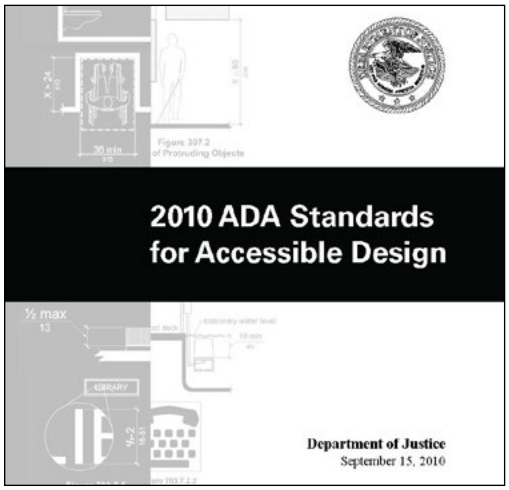
The primary focus of this document is the 2010 Americans with Disabilities Act Standards for Accessible Design (ADA Standards). This exists within a complex web of national, state, and local governmental and non-governmental organizations' related conventions, codes, and documents. While related, each agency focuses on its role in supporting and achieving greater accessibility in the environment and society in general.

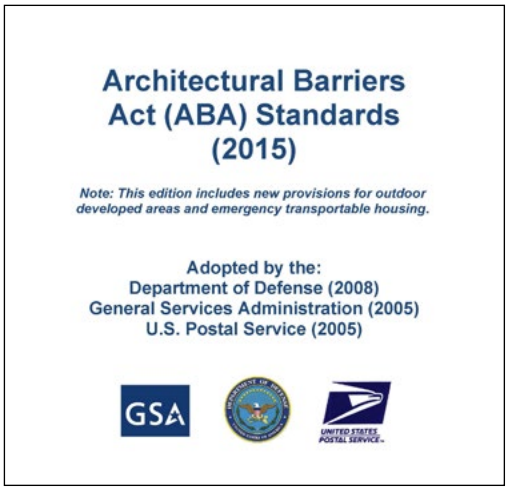
The United States Access Board (Access Board), also known as the Architectural and Transportation Barriers Compliance Board, is an independent federal agency and includes several disabled board members who bring expertise in accessible design and compliance. The Access Board makes available a wide variety of helpful research, training, manuals, guidelines, technical assistance, and reports that aid in application of the Standards. The Access Board's website is a good place to start researching the topic. Note that accessibility guidelines are referenced, but do not carry the same enforceability as standards. Guidelines should be viewed as best practices.

The Department of Justice (DOJ) provides enforcement and technical assistance. The American National Standards Institute (ANSI) and International Building Code (IBC) standards essentially correspond to the ADA Standards. The American Society for Testing Materials (ASTM) and American Association of State Highway Transportation Officials (AASHTO) also produce documents that contain accessibility guidelines for specific applications. Most states have adopted accessibility standards using the ADA Standards as a basis; however, in many cases, certain sections of the state and even local standards may be more restrictive.

One goal of the ADA Standards was to essentially consolidate, or harmonize, among ADA, ANSI, IBC, and Architectural Barriers Act (ABA) standards into this one universal document. The standards produced by each of these agencies share substantial consistency with the ADA Standards. However, users are forewarned there may be slight differences intended to respond to specific missions and audiences. Designers should use the current version of standards applicable to the specific project at hand, such as ADA Standards (Titles II and III and DOT) and ABA Standards (federal agencies) and agency-specific guidelines.

Specifics of various jurisdictional agencies will become evident as they are referenced throughout this publication. The primary intent of this overview is to encourage the designer to employ a wide view of accessible design. This will help the designer avoid missing significant, unique variations in accessibility requirements that may apply to a project.





Brief History of Accessibility Standards in the United States

In 1968, Congress passed the Architectural Barriers Act (ABA), the first significant measure to ensure access to the built environment for people with disabilities. It included enforceable standards for accessible design applicable to a wide range of facilities. However, the ABA only applied to facilities built with federal dollars and facilities receiving federal funding, such as certain schools. Those original building accessibility standards were technically based on ANSI A117.1-61. In 1984, based on ANSI standards, the Uniform Federal Accessibility Standards (UFAS) were adopted. In 2006, the ABA Architectural Standards (ABA) became effective, replacing the UFAS (in most cases).

"Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability in federal programs and by recipients of federal financial assistance." Section 504 took several years to become effective. Its implementation was pushed forward due, in large part, to the

efforts of the disabled community; in 1977, 150 people with disabilities (with the help of allied groups, such as the Black Panther Party) occupied a federal building in San Francisco for 28 days. Many community members also protested through hunger strikes in addition to this occupation. The passage of Section 504 guaranteed that institutions receiving federal funding could not discriminate against people with disabilities. "However, Section 504 did not protect people with disabilities from discrimination in many employment situations or public accommodations in the private sector. It took the ADA to address these areas not covered by Section 504." https://www.adainfo.org/content/history-ada

Signed into law on July 26, 1990, the Americans with Disabilities Act (ADA) is *"one of America's most comprehensive pieces of civil rights legislation that prohibits discrimination and guarantees that people with disabilities have the same opportunities as everyone else to participate in the mainstream of American life. Modeled after the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, religion, sex, or national origin — and Section 504 of the Rehabilitation Act of 1973 — the ADA is an 'equal opportunity' law for people with disabilities."* Many are unaware of the disabled community's history in the fight for equal access and the passage of the ADA. In 1990, just before the law's passage, people with disabilities marched on Washington, D.C. to spur congress to sign the ADA into federal law. To illustrate their struggles with inaccessibility to the built environment, physically disabled people took to the Capitol building steps and crawled their way up, leaving their wheelchairs and assistive devices at the bottom. This sent a clear message to legislators, and the ADA was passed shortly after. https://www.ada.gov/ada_intro.htm

"To be protected by the ADA, one must have a disability, which is defined by the ADA as a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment." https://www.ada.gov/ada_intro.htm

The first edition of ADA accessibility standards was adopted in 1994. Standards for accessibility in buildings and facilities design and renovation then applied to state and local governments as well as private sector projects for public accommodation, in addition to the Federal Government. In September 2010, the Department of Justice published revised standards under the ADA. *"These regulations adopted revised, enforceable accessibility standards called the '2010 ADA Standards for Accessible Design', [or] '2010 Standards.' On March 15, 2012, compliance with the 2010 Standards was required for new construction and alterations."* https://www.ada.gov/2010ADAstandards_index.htm

Application

State Rights

Many states have enacted accessibility statutes that include standards modeled after the ADA Standards. In cases where certain state standards are more strict or broad than the ADA Standards, the state standards would supersede the ADA Standards in circumstances where they apply. It should be observed that to the extent that a state standard conflicts with an ADA standard, that state standard is preempted by the federal law.

Local Rights

Generally, the building official of the jurisdiction where the project is located has the prerogative for interpretation/approval as to whether the project is ADA compliant. Special situations exist when a project is funded by state, federal, or non-profits which may supersede this. If the building official does not grant approval due to a specific item, the building official or applicant may request an interpretation from the U.S. Access Board or the Department of Justice. This may help resolve the issue. If the interpretation involves a state standard, rather than a federal standard, the applicant may determine if the state has a formal process for waiver from a stricter state standard, as long as it still complies with the federal standard. In rare cases, other agencies will become involved, such as the state's historic preservation office as any accessibility issues arise in preservation projects having historical significance. Such other agencies may advise and assist to determine appropriate accessibility measures. The building official should comply with the final interpretation once an interpretation is obtained. This will help remove liability from the local building official.

Case Study 1

A park was designed and deemed non-compliant as there were no ADA benches on the project. The landscape architect understood the ABA guidelines for a wheelchair space next to the bench and had designed for that. The town engineer was looking for an ADA bench, a bench accessible to those with limited mobility. The only place in the ADA Standards that referenced an ADA bench was for a shower room. At the time, the transportation facilities were developing and requiring ADA benches. In a ruling from the State Attorney, the project was required to follow the highest standard or guideline. A portion of the benches were replaced with dimensionally correct ADA accessible benches. While it should not be assumed that a standard in one section of the ADA Standards is applicable to another section (e.g., locker room bench standard equals an outdoor bench standard), other accepted guidelines and standards (e.g., PROWAG and ABA's Outdoor Developed Areas standards) may apply to the situation, and thus should be considered as a best management practice that set the standard for all other such projects.

ASLA 2021 Professional General Design Honor Award. Inspiring Journeys For All. Grand Teton National Park. HDLA. (Image Credit: Charlie Craighead)

Federally Funded Rights

Certain types of projects may follow other criteria that supersede the local or states' rights. This may apply to federal projects or projects that are federally funded. Examples include federal facilities, national parks, and highway/roadway projects.

Waivers

Under the ADA, waivers are not available at the federal level (DOJ). Under the ABA, modifications and waivers are available on a case-by-case basis for clearly demonstrated necessity. Some states will grant waivers only for state standards which are more restrictive than the federal standards. Many accessibility standards are prescriptive in nature, but others are performance related. Other than the waiver process, designers may be able to achieve the same end through alternative design solutions often called equivalent facilitation. The designer is required to meet the standards and intent of ADA.

Determination that the design meets the intent of ADA requirements begins with the local building official. If the building official does not agree that the solution meets the intent of the code, then the applicant has the ability to seek available remedies.

Case Study 2

The design of a fishing pier included the requisite accessible handrail sections. For continuity of design, construction, and aesthetics, the bottom edge of the lowest handrail was specified at 2 inches above the deck surface. Referring to the two barrier options of either a 12-inch deck extension beyond the handrail or a 2-inch high barrier (1005.3), the reviewer rejected the design. The designer prevailed under Section 103, Equivalent Facilitation, arguing that the railing placement had the same effect as a 2-inch high curb in preventing inadvertent slipping of mobility devices over the edge with no less proximity for the user to the edge of the pier for fishing access.

Case Study 3

A landscape architecture firm was selected to design a viewing tower over a state-of-the-art solar array. The tower would be used for educational and promotional purposes, but the site would be locked and only opened upon arrangement. At the conceptual level, the owner selected the preferred style, and noted that there would be no elevator to the 60-foot tower. The landscape architect hired the architect and the structural engineer and the concept was further developed. In an early meeting with the building official, it was made clear that the tower would not be approved without a waiver to vertical accessibility from the State. The design team argued that the tower would only be used by employees; never more than five people at one time (while spatially able to hold much more), in this locked facility. Once the waiver application was filed, it became apparent that a vertical accessibility waiver would not be granted as no new construction had ever been granted a vertical accessibility waiver. The end result was an ADA compliant platform 25 feet off the ground with 350 linear feet of ramps and landings. Late additions included toilet trailers for visitors and a water tank for fire fighting.

Barrier Removal in Existing Facilities

The ADA Standards apply to new construction and altered facilities. The question is often asked, "Are existing facilities exempt from the ADA Standards?" The answer is, "yes and no." There are many factors in determining barriers in existing facilities that must be removed, including historical or cultural significance. The ADA requires places of public accommodation to remove architectural barriers in existing facilities when it is "readily achievable" (28 CFR Part 36 Section 36.304), which must be evaluated based on individual site conditions. Further guidance in applying the ADA to existing barrier removal can be determined by understanding ADA concepts such as accessible route, safe harbor, primary function area, disproportionate cost, change in the essential nature of the business, and equivalent facilitation.

Case Study 4

A parking canopy was being added to an existing parking lot. Due to physical constraints the canopy columns had to be placed in parking spaces. Consequently, the entire striping plan had to be revised resulting in oversized accessible parking space access aisles containing column bases. Even though the required clear aisle width (5 feet) was available contiguous to the parking space, the column base fell within the excess width of the oversized striped aisle. The building official rejected the design on the basis that the aisle width standard is a minimum; having designed a wider aisle width, the column base constituted an impermissible obstruction in the access aisle. The building official stood firm, illustrating that sometimes a very strict, technical interpretation of the code is used. Ultimately, the entire parking lot was reconfigured to place the column bases outside of the striped 5-foot access aisles.

Federal Enforcement

Federal accessibility regulations are developed by the Access Board and formally issued by the Department of Justice. The regulations are subject to enforcement by DOJ as a civil rights law, not a building code. (Notwithstanding, state and local governments adopt the ADA Standards as enforceable building codes.) ADA Standards issued by DOJ are minimum requirements, not subject to waiver; however, to assist with interpretation, the DOJ has compiled explanatory guidance on the Standards. The DOJ website contains links to official versions of current accessibility standards, history of the regulations, and other enforcement information.

Accessible Design vs. Universal Design

The simplest way to look at the difference between accessible design and Universal Design is that the ADA is code (regulation) and Universal Design is a design philosophy at a more comprehensive scale. Universal Design contains ADA Standards within a

project-wide accessible scale. The ADA Standards apply to scope, number, and details of specific elements within a site design. It specifically addresses people in wheelchairs and generally addresses helping people with physical disabilities in movements (stairs, handrails) and some guidance for blind and low-vision disabilities. Universal Design is not legally binding and can supplement the ADA Standards; it is inclusive design aiming to make facilities more accessible and inclusive to people with disabilities (physical, sensory, neurocognitive, and mental) as well as nondisabled people. The principles were created under the guidance of a disabled architect, Ronald Mace, at North Carolina State University. Universal Design may also be applied to overall access concerns like strollers, elderly people, pets, mobility devices, etc. Universal Design assists users in determining how to access a facility as they approach the facility. The intent is to provide safety, security, accessibility, and clear wayfinding inclusive of all ages and abilities / disabilities. The Principles of Universal Design as established by NC State University can be explored at https://projects.ncsu.edu/ncsu/design/cud/pubs_p/docs/poster.pdf

ASLA 2020 Professional Urban Design Award of Excellence. Dilworth Park. OLIN. (Image Credit: OLIN / Sahar Coston-Hardy)

Architectural Barriers Act Accessibility Standards

The Architectural Barriers Act Accessibility Standards (ABA) which apply to most federal agencies are virtually identical to the ADA Standards. Four key federal agencies are tasked with overseeing the ABA, including the General Services Administration (GSA), Department of Defense (DOD), United States Postal Service (USPS), and the Department of Housing and Urban Development (HUD). Note that HUD may still technically fall under the Uniform Federal Accessibility Standards (UFAS) at the time of publication. Many other federal agencies such as the National Park Service and Bureau of Land Management are among those that use the ABA.

The ABA contains an additional section not included in the ADA Standards. This applies to federally owned "outdoor developed areas," and includes features such as boardwalks, picnic areas, and camping facilities. These standards also apply to concession and partnership agreements with entities operating on federal land. The standards do not

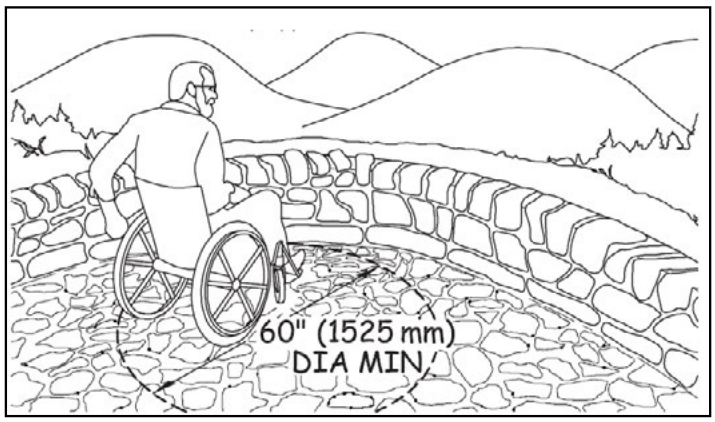
apply to outdoor areas developed with federal grants unless they are on federal property. Since these are adopted standards, it may be advisable to accept them as best practice guidelines on non-federal projects. Care should be exercised to use standards where applicable vs. less restrictive guidelines.

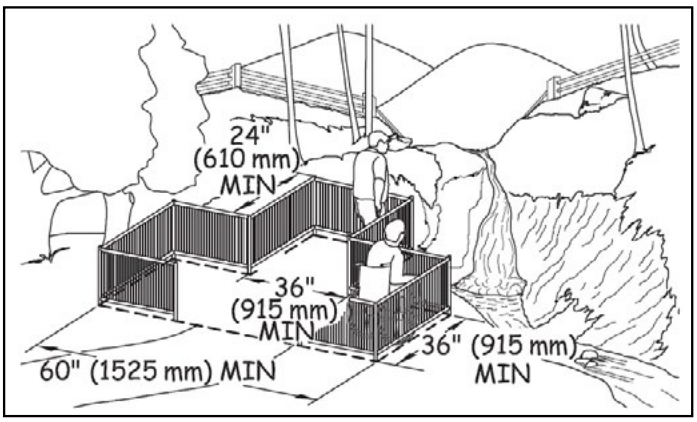
UTILIZING THE ABA

Project categories that may fall under the ABA Standards, together with common design aspects that have accessibility implications, include the following:

- historical and cultural sites (certain exemptions to addressing barrier free design while preserving features and heritage)
- park and recreation facilities (signage and wayfinding, primary use areas, support services, concessions, interpretive features, trails, beach accessways, picnicking and camping areas, and related constructed features)
- outdoor recreation, trails, and public-access land management sites (primary use area access routes, trails – slopes and surfacing, interpretive signage, gates and barriers, water access, camping and constructed features)
- greenways/transportation/recreation corridors (bus shelters, shared use, social/economic impacts, universal accessibility, stakeholder involvement)
- libraries, museums and performing arts venues (circulation, parking, assembly seating distribution, audio/visual factors)
- military hospitals and outpatient facilities (specialized parking, loading zone, circulation, seating, signage guidelines)
- accessibility transition plans (scope, legal, funding, phasing, and equity concerns)

Many governmental agencies (as well as non-governmental stakeholder organizations) may have supplemental accessibility and program-specific guidelines that impact project design. Several of these agencies and documents are referenced throughout this publication.





Illustrations depicting clear ground space and turning space guidelines. (Image credit: Forest Service Outdoor Recreation Accessibility Guidelines).

U.S. Department of Veterans Affairs

The U.S. Department of Veterans Affairs (VA) likely deals with more disabled people than any other agency, public or private. The proportion of people with disabilities in VA hospitals is higher than the proportion of people with disabilities in the general population. In general, the VA follows the guidelines of the Architectural Barriers Act (ABA). ABA replaced the Uniform Federal Accessibility Standards (UFAS), which was the VA's previous standard for accessibility. As a result, the VA has developed its own set of guidelines, VA Barrier Free Design Standard, expanding on ADA and ABA Standards to meet the needs of the VA in its health care facilities.

For example, ADA Standards require that two percent of all (501-1,000) parking spaces provided are accessible. For VA hospitals, that requirement is increased to three percent. For VA outpatient centers, the requirement for accessible spaces is 10 percent, and for rehabilitation and physical therapy facilities, it is 20 percent of the total number of parking spaces. Additionally, the VA requires one van accessible space for every six accessible parking spaces. Designers and professional consultants need to be aware of and work toward ensuring these guidelines are met.

U.S. Forest Service

It should be noted that many federal governmental agencies may utilize supplemental accessibility resources, standards or guidelines. For example, the U.S. Forest Service uses ABA for buildings but also applies several other guidelines, such as Forest Service Outdoor Recreation Accessibility Guidelines and Forest Service Trail Accessibility Guidelines, among others.

- Forest Service Outdoor Recreation Accessibility Guidelines
- The Forest Service Trail Accessibility Guidelines
- Additional UFS accessibility resources

Jackson Street Reconstruction, Saint Paul, Minnesota, Toole Design / Toole Design. (Image Credit: Bruce Buckley Photography for Toole Design)

Department of Transportation (DOT) & PROWAG

The Department of Justice (DOJ) is responsible for overall enforcement of Title II of the Americans with Disabilities Act. The DOJ has designated the Department of Transportation (DOT) as the federal agency responsible for investigating complaints and conducting compliance reviews "relating to programs, services, and regulatory activities relating to transportation, including highways." Including additions and modifications, the DOT's accessibility criteria includes the Access Board's current guidelines, the Public Rights-of-Way Accessibility Guidelines. Once approved, these will become enforceable standards.

PROWAG (Public Rights-of-Way Accessibility Guidelines) are only guidelines at this time, and their recommendations are considered best management practices. Consider PROWAG as the ADA of public rights-of-way and shared use trails. The guidelines can be found in full or in part within the design standards for each state DOT or the Access Board's website.

This program is a federal program intended for federal projects—if federal funding (LAP as an example) is used to build local or state roads, shared use trails or pedestrian facilities within a public right-of-way, then the PROWAG or the specific state DOT version applies.

PROWAG addresses the following within public rights-of-way and tends to put more emphasis on the visually impaired relative to the ADA:

- Curb ramps
- Tactile warning surfaces
- Pedestrian crossing signalization
- Running slopes for walks
- Urban pedestrian areas
- Pedestrian access routes
- Accessible parking criteria (within right-of-way)
- Intersections and mid-block crossings

TRANSITION PLAN

Every municipality and county is required to identify and rectify non-compliance accessibility issues on their roadways which are local- or county-owned and maintained within their jurisdiction. This is called a DOT Transition Plan. It is primarily about curb ramps and bringing them in conformance with standards or providing them where required. The Plan will also inventory sidewalks for accessibility including running and cross slopes and surface issues. Areas may be identified which have no sidewalks, but the pedestrian movement indicates the need for a pedestrian access route (PAR) which will be inventoried. The Plan is filed with the State DOT and is required to be updated periodically. As the name suggests, the municipalities must review and create/modify a plan to remedy the non-compliant accessibility issues in order of accessibility priorities. Municipalities often contract with private-sector firms to develop and review their required plans.

DESIGNING PEDESTRIAN FACILITIES FOR ACCESSIBILITY (DPFA)

Over the last two decades, DOT—at the federal level with PROWAG and at state DOT levels—has made an effort to address multimodal transportation networks. This is in regcognition that interconnected infrastructure is about more than just vehicles and the occasional bicycle. Pedestrians should be able to move along streets safely via accessible routes, contributing to the health, equity, and quality of life of our communities. Note that these accessible pedestrian areas are defined streetscapes as would be taught in any landscape architecture program:

- Curb zone
- Furniture zone (includes street trees and signage)
- Pedestrian zone (4-feet minimum width)
- Frontage zone (commercial)

Accessible streetscape (Credit: Carl Kelemen, FASLA)

Case Study 5

In a small neighborhood park, the project involved adding an accessible parking space and internal walkways, including access from the street, to connect with existing park elements. The design incorporated the parking space access aisle into the street access walkway, which in turn connected to the internal walkway. The plan reviewer declared that the parking space aisle must be independent from the walkway, in effect doubling the width of the walkway adjacent to the parking space. After pointing out numerous examples from built commercial and residential parking lots using the aisles as general accessways, the reviewer relented.

Department of Housing and Urban Development

HUD requires compliance with UFAS and Fair Housing Act Accessibility Guidelines (FHA). The Federal Housing Act needs to be referenced for most multifamily projects, some townhouse projects, projects built with any federal funds, and projects containing designated affordable dwelling units. For the exterior built environment, the FHA primarily supplements the ADA Standards by adding guidance for building entrances and for shared site amenities. It is important to know if a multifamily project is subject to the FHA regulations prior to undertaking it.

International Building Code

The International Building Code (IBC) is a group of building codes that are often adopted by states or municipalities in lieu of proprietary local codes. They should not be overlooked by landscape architects and civil engineers. Primarily pertaining to the architecture, the sections on egress and accessibility also reach into the exterior built environment. Codes such as accessible parking space numbers and van-accessible percentages are codified here, as are stair dimensions, door landings, and railings.

It is important to note that states and local jurisdictions often make amendments to portions of the IBC and publish them to supplement the bulk of the code, often implementing more stringent requirements. For instance, many jurisdictions require additional accessible parking for certain building classifications. Additionally, different versions of the IBC Codes are adopted by different jurisdictions. Versions are denoted by the year they are issued by IBC, not the year they are adopted by the jurisdictions. And jurisdictions may also not have adopted the most recent version, or may have just adopted a newer version. Be sure to reference the proper version for each jurisdiction, as well as local addenda to the IBC.

International Practice

For practice abroad, many European Union nations and China have mandatory accessibility standards. In these countries and other regions such as Latin America and the Caribbean, regulations vary widely and are often non-existent, limited in scope, consistency, implementation, and enforcement. Each governing jurisdiction should be investigated for accessibility requirements prior to designing a project.

ASLA 2021 Professional Honor Award. Atlanta Diaries. Perkins&Will. (Image Credit: Sahar Coston-Hardy)

Accessibility Standards Design Process

ADA, ABA, and DOT accessible design standards apply nationwide and include virtually all new and altered sites and facilities. This includes federally owned (ABA), state and local governmental (ADA, Title II), privately owned commercial and other places of public accommodation (ADA, Title III), and public transportation (DOT). Religious entities, private clubs, and private residential housing are generally exempt from federal accessibility standards, subject to certain conditions. All these standards are very similar but contain unique provisions relative to respective program areas.

At first glance the ADA Standards may seem daunting. Understanding the basic organizational format will help make following the standards less cumbersome. Chapter 2, "Scoping Requirement," should be considered differently than all the other chapters. Questions such as "what, when, where, and how many" may be answered here. Check this section to first determine the required scope for various covered subjects and elements. In clearly defined categories, Chapters 3–10 describe design criteria in detail. This would answer how requirements outlined in Chapter 2 are to be accomplished.

Standards and guidelines for accessible design are minimum requirements. As minimum requirements, some standards are prescriptive, but many are performance-oriented. This allows opportunities for designers to employ creative solutions in achieving the requirements. Solutions within performance ranges below maximum or that exceed prescriptive minimums can present results that are more comfortable for users with disabilities.

Accessible scoping requirement minimums may sometimes be exceeded where accessibility enhancement can be achieved. For example, although detectable warning surfaces are required only at boarding platforms per the ADA Standards, best practice suggests that they should be incorporated into site design in like situations as required

by DOT standards in rights-of-way, particularly at pedestrian crossings. Similarly, the nature of a facility's use may suggest the number of accessible parking spaces exceed the minimum. This is not to imply that if in doubt, the use of accessibility features above and beyond the minimum requirements is always warranted or appropriate. The designer must employ professional judgement to ensure that expanding the application of an accessible standard beyond its scoping requirement does not misconstrue its originally intended purpose thereby miscommunicating to the disabled user. The DOJ's Guidance on the 2010 Standards for Accessible Design provides a helpful resource into the origin of many of the standards.

It is most useful to incorporate accessibility guidelines and standards as an integral part of the design process, not simply an overlay set of regulations. Application of accessibility standards should not be simply one of the last "plan checks" in the design process. By thoroughly understanding accessible design requirements, they will become second nature from conceptual planning to detailed design in both new and altered project types at all scales. Design professionals will soon become aware that standards are more than numbers associated with the height of signs and width of walkways, but that they impact fundamental design decisions such as location of accessible elements and connecting circulation routes, surfacing choices, and size and placement of wayfinding signage. Harmonious assimilation of accessibility standards with other design considerations will result. Accessibility considerations should not be considered a design restriction. Properly considered accessible design elements can contribute to accomplishing other overall design objectives in concert with design considerations, such as grading, drainage, hardscape, and circulation, which improve the overall site design.

Landscape architects skilled in the use of ADA Standards, while participating on multidisciplinary teams, can become a resource to others in design team reviews and plan checks. Since most jurisdictions have adopted ADA Standards into codes, it is advisable to meet before and during the design process with the local building, zoning, and development officials as a precautionary step to ensure that all relevant accessibility criteria are met.

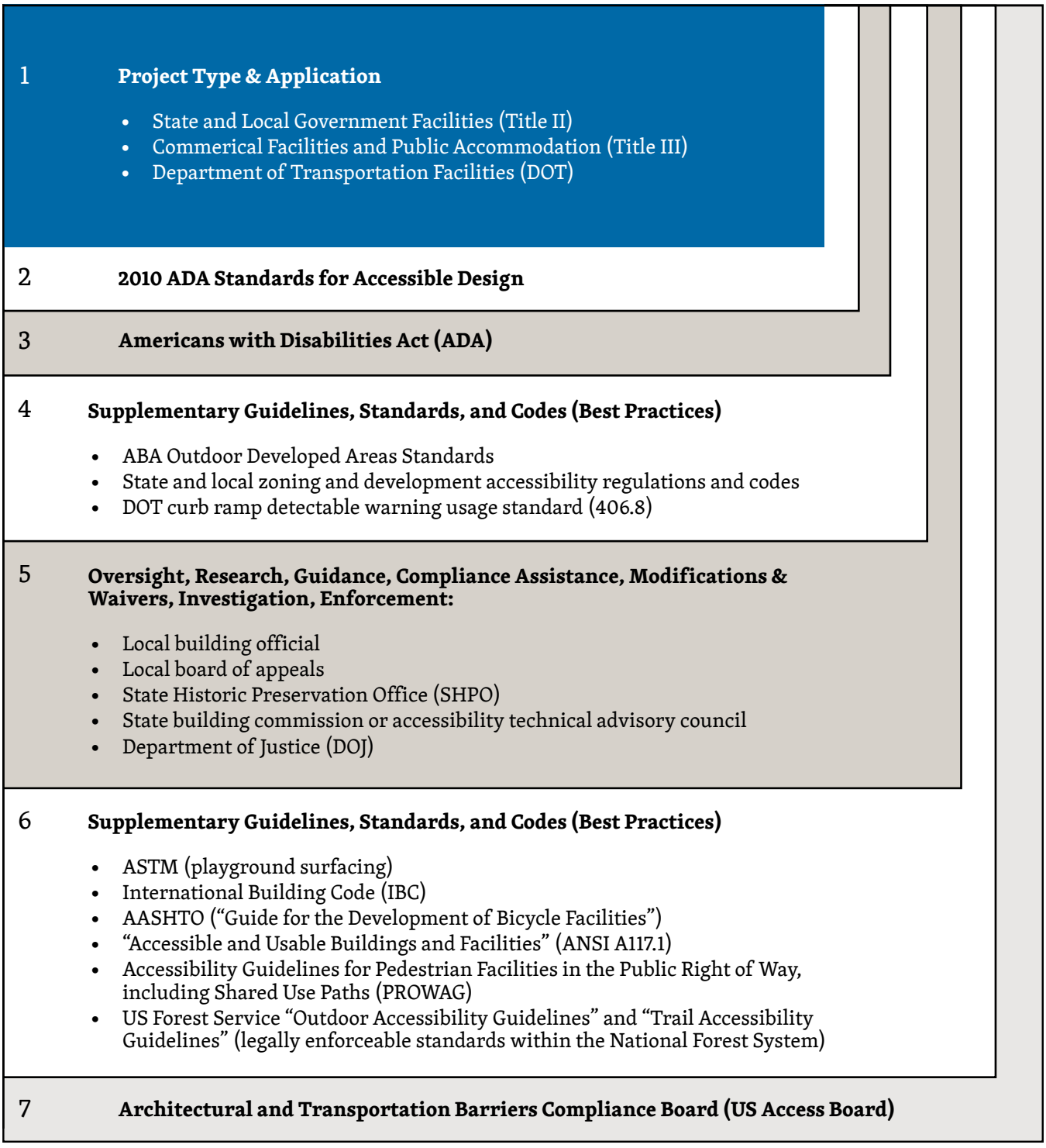


Diagram 1. Accessibility-related design is subject to a perplexing array of standards and guidelines. This illustration is intended to help clarify the hierarchical roles of the most pertinent laws, rules, standards, and guidelines of authorities having jurisdiction over the accessibility design field. To interpret the diagram, select a project type from the innermost box; moving outward in the diagram, successive boxes illustrate the expanding interrelationships that may be applicable to the accessibility design for that project.

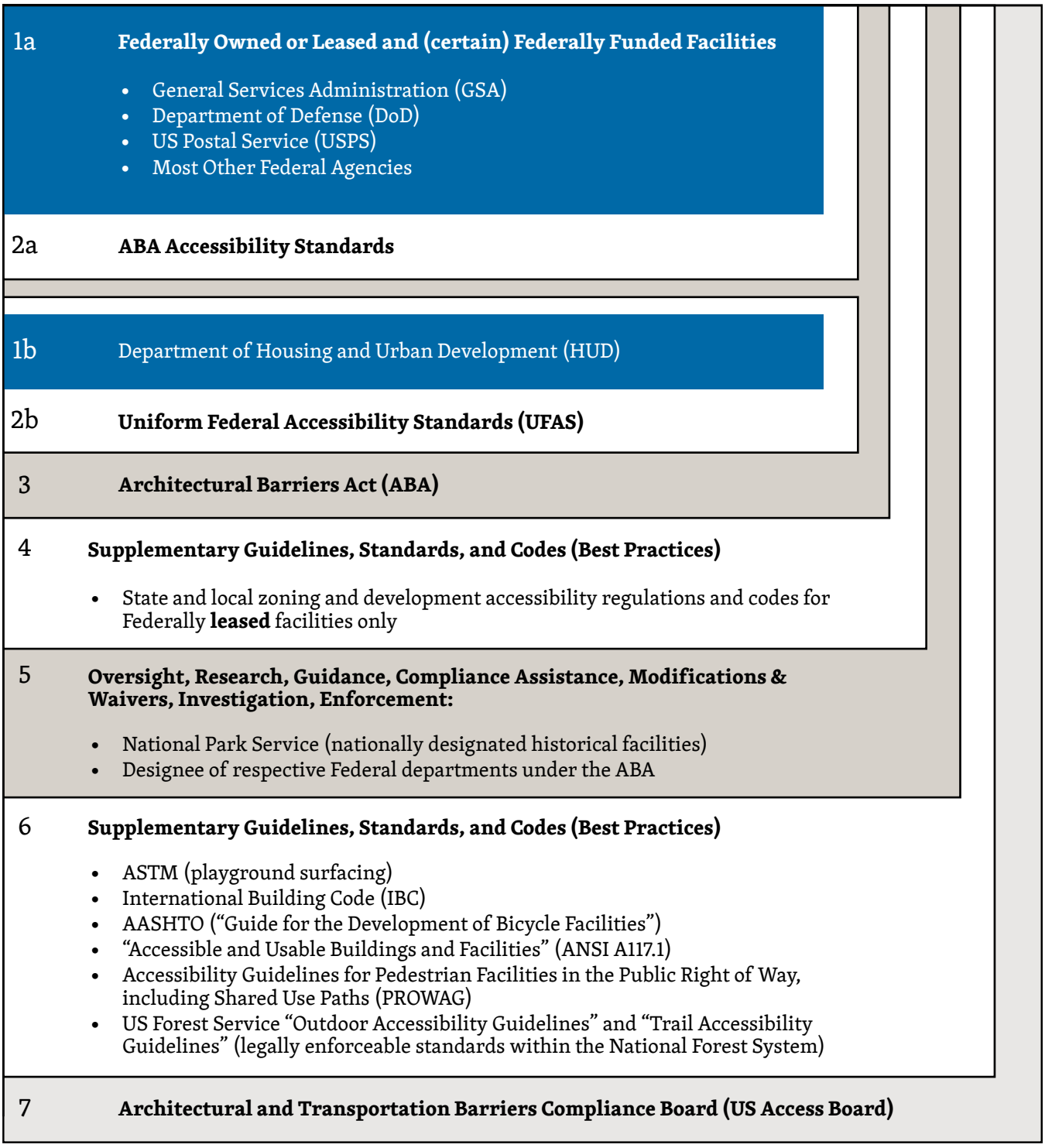


Diagram 2. This illustration is intended to help clarify the hierarchical roles of the most pertinent laws, rules, standards, and guidelines of authorities having jurisdiction over the accessibility design field. To interpret the diagram, select a project type from one of the two innermost boxes; moving outward in the diagram, successive boxes illustrate the expanding interrelationships that may be applicable to the accessibility design for that project.

Landscape Architectural Quick Reference to the ABA and ADA Accessibility Standards

Introduction

This outline is intended to be a quick reference to the 2010 ADA Standards for Accessible Design and other accessibility standards applicable to the ABA and the DOT where there are differences with the ADA. Under the ADA, Title II applies to state and local governments (28 CFR 35). Title III applies to places of public accommodation and commercial facilities (28 CFR 36). ABA standards applicable to most federal facilities are generally harmonized with the ADA Standards. Those Standards exclusive to ABA and DOT are noted where applicable.

This outline is not all-inclusive, comprising only those standards commonly applicable to the field of landscape architecture. Most sections contain subsections that provide greater detail. Many sections have important exceptions and advisory notes. In addition, refer to state accessibility standards, which may be more restrictive.

NOTE: Other local or state agencies, or federal agencies such as Veterans Affairs, may have more restrictive accessibility standards. Additionally, local code administrators may interpret the requirements differently. In the event of a conflict between requirements, the local code administrator's interpretation will often prevail. Therefore, prior to finalizing designs, it is advisable to discuss local code requirements and interpretations with the administrator.

ADA, ABA, and DOT Standards

The numbering system for scoping and technical apply to all ADA, ABA, and DOT Standards. ABA adds Outdoor Developed Areas and DOT adds two standards noted below.

ADA, ABA, AND DOT STANDARDS		
	Scoping	**Technical**
Dimensions for Adults and Children	102	
Application	201	
Existing Buildings and Facilities	202	
General Exceptions	203	
Accessible Routes	206	403
Parking Spaces	208	502
Passenger Loading Zones and Bus Stops	209	503
Stairways	210	504
Drinking Fountains	211	602
Toilet Facilities	213	
Signs	216	703
Assembly Areas	221	802
Recreational Boating Facilities	235	1003
Golf Facilities	238	1006
Miniature Golf Facilities	239	1007
Play Areas	240	1008
Floor and Ground Surfaces		302
Changes in Level		303
Turning Space		304
Clear Floor and Ground Space		305
Protruding Objects		307
Reach Ranges		308
Operable Parts		309
Walking Surfaces		403
Doors, Doorways, and Gates		404
Ramps		405
Curb Ramps		406
Handrails		505
Detectable Warnings		705
Wheelchair Spaces and Companion Seats		802
Transportation Facilities		810
Fishing Piers and Platforms		1005

OUTDOOR DEVELOPED AREAS (ABA STANDARDS ONLY)		
	Scoping	**Technical**
Trailhead Signs	F216.13	
Camping Facilities	F244	
Picnic Facilities	F245	
Viewing Areas	F246	1015
Trails	F247	1017
Beach Access Routes	F248	1018
Outdoor Constructed Features		1011
Parking Spaces Within Camping and Picnic Units		1012
Tent Pads and Platforms		1013
Camp Shelters		1014
Outdoor Recreation Access Routes		1016
Conditions for Exceptions for Outdoor Recreation Facilities		1019

DOT ADA STANDARDS		
	Scoping	**Technical**
Accessible Routes	206.3	
Curb Ramps		406.8

ADA, ABA, and DOT Standards

CHAPTER 1: APPLICATION AND ADMINISTRATION

102 Dimensions for Adults and Children

Technical requirements are based on adult considerations. In addition, the Standards include children's dimensions and anthropometrics for reach ranges, drinking fountains, water closets, toilet compartments, lavatories and sinks, dining surfaces, and work surfaces; however, children's information is generally not included in this outline.

CHAPTER 2: SCOPING REQUIREMENTS

201 Application

201.1 New and altered buildings and facilities

201.2 Temporary and permanent buildings and facilities

202 Existing Buildings and Facilities

202.3 Exception #2, In alterations if full compliance is technically infeasible the alteration shall comply to the maximum extent feasible

202.4 Path-of-travel accessibility obligation if alterations affect primary function areas (Cost of path-of-travel accessibility improvements is limited if disproportionate [exceeds 20%] to the cost of the alteration to the primary function area)

202.5 Exceptions exist under strict circumstances for alterations to accessibility requirements for qualified historic buildings and facilities

203 General Exceptions (to compliance with the Standards)

203.3 Raised areas for security or life/fire safety

203.6 Single-occupant structures

203.9 Employee work areas

203.10 Raised refereeing, judging and scoring areas

206 Accessible Routes

206.2.1 Minimum 1 accessible route to/from public streets (site arrival points), sidewalks and transportation stops, accessible parking spaces, and passenger loading zones to accessible entrance or facility they serve

206.2.2 At least one accessible route shall connect accessible buildings, facilities, elements, and spaces on same site

206.2.3 Accessible route shall connect each story or mezzanine in multi-story buildings and facilities.

206.2.6 Where a circulation path connects performance area and assembly seating area, an accessible route shall connect the performance and seating area

206.2.7 Press boxes in assembly areas shall be on an accessible route

206.2.10 Recreational boating facilities required to be accessible shall be on an accessible route

206.2.12 In court sports, at least one accessible route shall connect both sides of the court

206.2.14 Fishing piers and platforms shall be on an accessible route

206.2.15 At least one accessible route shall connect accessible elements and spaces within golf facilities

206.2.17 An accessible route shall serve play areas and be provided within the play area

206.3 Accessible routes shall coincide with or be located in same area as general circulation paths

206.4.1 Minimum 60% of public entrances must be accessible

206.7 Platform lifts as accessible route

208 Parking Spaces

208.2 Minimum number of accessible spaces:

Total Spaces	Required Accessible Spaces
1-25 cars	1
26-50 cars	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1000	2% of the total
1001 and over	20, plus 1 for each 100, or fraction thereof, over 1000
Van parking @ 1/6 (or fraction thereof) number of accessible spaces	

208.3 Location of accessible parking dispersed and on shortest accessible route from parking to an accessible entrance

209 Passenger Loading Zones and Bus Stops

209.2.1 One accessible passenger loading zone per 100' of loading zone space

210 Stairways

210.1 Stairways that are part of a means of egress must comply with 504

211 Drinking Fountains

211.2 Minimum of 2 spout heights required; when more than 2 provided 50% must be for each height

213 Toilet Facilities

213.1 General. Where toilet facilities and bathing facilities are provided, they shall comply with 213.

216 Signs

216.4.3 Directional Signs. Signs required to provide directions to accessible means of egress shall comply with 703.5.

216.5 Parking. Sign not required for accessible space in parking areas of 4 or fewer spaces

216.6 Entrances. If not all entrances are accessible, accessible entrance(s) identified with International Accessibility Symbol and entrances which are not accessible shall have directional signage to the location of the nearest accessible entrance

221 Assembly Areas

Total Seats	Required Wheelchair Space(s)
4-25	1
26-50	2
51-150	4
151-300	5
301-500	6
501-5000	6, plus 1 for each 150, or fraction thereof, between 501 through 5000
5001 and over	36, plus 1 for each 200, or fraction thereof, over 5000

221.2 Minimum number of wheelchair spaces required:

221.2.1.4 Minimum one wheelchair space provided for team or player seating

221.2.2 Wheelchair spaces shall be an integral part of seating plan

221.2.3 Lines of sight, horizontal and vertical dispersion criteria required for wheelchair spaces

221.3 One companion seat required for each wheelchair space

221.5 Lawn and exterior overflow seating must connect to accessible route

235 Recreational Boating Facilities

235.2 Required number of slips and dispersion
(Average 1 slip per 40' dock edge if slips not defined)

Total Slips	Required Accessible Slips
1-25	1
26-50	2
51-100	3
101-150	4
151-300	5
301-1000	5, plus one for each 100, or fraction thereof, between 301 through 1,000
1001 and over	12, plus 1 for every 100, or fraction thereof, over 1000

235.2.1 Dispersed among different types of slips provided

235.3 At least 5% of boarding piers—but no less than one—at boat launch ramps must be accessible

238 Golf Facilities

238.2.1 Golf cart entry required to teeing ground

238.2.2 Golf cart entry required to putting greens

238.2.3 Golf cart entry and exit required to weather shelters

238.3 Golf cart entry required to practice areas

239 Miniature Golf Facilities

239.2 Minimum 50% of holes shall be accessible

239.3 Accessible holes shall be consecutive; accessible route required from last accessible hole to course entrance or exit

240 Play Areas

240.1.1 Each phase must enable play area to comply in its entirety

240.2.1 Ground level accessible components are required by number and type; if two or more are required they must be dispersed throughout the play area and integrated with other components

Total Play Components	Min. Ground Level	Min. Types Ground Level
1	0	0
2-4	1	1
5-7	2	2
8-10	3	3
11-13	4	3
14-16	5	3
17-19	6	3
20-22	7	4
23-25	8	4
26 and over	8, plus one for each additional 3, or fraction thereof, over 25	5

240.2.2 50% of elevated components shall be on an accessible route (If the component can be approached from a platform or deck it is considered an elevated component.)

242 Swimming Pools, Wading Pools, and Spas

242.2 Swimming pools. At least two accessible means of entry shall be provided for swimming pools.

242.3 Wading pools. At least one accessible means of entry shall be provided for wading pools.

242.4 Spas. At least one accessible means of entry shall be provided for spas.

CHAPTER 3: BUILDING BLOCKS

302 Floor or Ground Surfaces

302.1 Must be stable, firm, and slip resistant

302.3 Openings shall not allow passage of ½" diameter sphere; elongated openings shall be placed perpendicular to direction of travel

303 Changes in Level

303.2 Maximum ¼" high change in level

303.3 ½" change in level permitted if change between ¼" and ½" is beveled

303.4 Change greater than ½" is considered a ramp

304 Turning Space

304.2 No changes in level permitted within turning space; slope not to exceed 1:48

304.3 Size

304.3.1 60" diameter, or

304.3.2 T-shaped within a 60" square

304.4 Doors shall not swing into turning spaces

305 Clear Floor or Ground Space

305.2 No changes in level permitted within turning space; slope not to exceed 1:48

304.3 Size – minimum 30" x 48"

307 Protruding Objects

307.2 4" maximum protrusion into circulation path between 27" and 80" in height, (except handrails may protrude 4-1/2")

307.3 12" maximum protrusion if free-standing post-mounted object between 27" and 80" height

307.4 80" minimum vertical clearance (except doorways)

308 Reach Ranges

308.2 Forward Reach

308.2.1 Unobstructed reach range: 48" high, 15" low

308.2.2 Obstructed reach range: 48" high if <20" obstruction depth

44" high if >20" obstruction depth

308.3 Side Reach

303.3.1 Unobstructed reach range: 48" high, 15" low

303.3.2 Obstructed reach range: 48" high with max. 10" obstruction depth
46" high with max. 24" obstruction depth

309 Operable Parts

309.4 Operable with one hand and shall not require tight grasping, pinching or twisting

CHAPTER 4: ACCESSIBLE ROUTES

403 Walking Surfaces

403.3 Walking surface running slope not to exceed 1:20; cross slope not to exceed 1:48. (If the running slope exceeds 1:20, the walking surface becomes a ramp.)

403.5.1 Clear width shall be 36" minimum

403.5.3 Minimum 60" square passing space required at minimum every 200' if clear width <60"

403.6 Where handrails are provided along walking surfaces with running slopes not steeper than 1:20, they shall comply with Standards

404 Doors, Doorways and Gates

404.2 Manual doors

404.2.1 Revolving doors and turnstiles not permitted on an accessible route

404.2.2 Double-leaf doors and gates

404.2.3 Minimum clear width 32”

404.2.4 Consult Standards for illustrated maneuvering clearances for numerous door approach and swing scenarios

405 Ramps

405.2 Running slope not steeper than 1:12 (8.33%)

405.3 Cross slope not steeper than 1:48*

*verify with permitting agencies

405.5 Minimum clear width 36”

405.6 30” maximum rise for single ramp run

405.7 Landings required at top and bottom of each ramp run

405.7.2 Landing width as wide as widest ramp run leading to the landing

405.7.3 Clear length 60” minimum

405.7.4 Minimum 60” x 60” if change of direction

405.8 Ramp runs with rise >6” require handrails

405.9 Edge protection required on each side of ramp runs and landings

405.9.1 Extended ground or floor surface 12” beyond inside face of handrail

405.9.2 Curb or barrier preventing passage of 4” diameter sphere where any portion of the sphere is within 4” of the ground or floor

406 Curb Ramps

406.3 Curb ramp side flares maximum 1:10 slope

406.4 Landings at top of curb ramp required to be minimum 36” length and as wide as curb ramp; if no 36” landing at top of ramp side flares shall be maximum 1:12

406.7 At raised traffic islands accessible route may cut through level with street, or minimum 48" required on raised island between curb ramps

CHAPTER 5: GENERAL SITE AND BUILDING ELEMENTS

502 Parking Spaces

502.1 Measure lines from centerline of markings except if not adjacent to another space or access aisle, to the far edge of the line

502.2 Car parking spaces minimum 96" wide; van spaces minimum 132" wide unless adjacent access aisle that is minimum 96" wide

502.3 Access aisle minimum 60" wide, full length of parking space and marked; two parking spaces may share an access aisle; aisle must adjoin an accessible route and preferably not require passing behind another parked vehicle.

502.4 Access aisles and parking spaces should be level, with a maximum slope of 1:48

502.6 Identification sign required including International Symbol of Accessibility and mounted minimum 60" above ground to the bottom of sign

503 Passenger Loading Zones

503.2 Shall provide vehicle pull-up space minimum 96"wide x 20' long

502.3 Marked access aisle minimum 60" wide x full length of space (20' long minimum) with slopes not steeper than 1:48

504 Stairways

504.2 Uniform rise heights (4" minimum, 7" maximum) and tread depth (11" minimum)

504.3 Open risers not permitted

504.5 Tread nosing projection 1½" maximum from riser and not abrupt with maximum ½" curvature at leading edge of tread

504.6 Handrails required

505 Handrails

505.2 Required on both sides of stairs and ramps (Not required on walking surfaces less than 1:20 slope; however, if used, must comply with Section 505.)

505.3 Continuous each stair flight or ramp run; inside handrails on stair and ramp landings shall also be continuous

505.4 Top gripping surface shall be at a consistent height 34" minimum to 38" maximum above walking surface

505.5 Minimum 1½" clearance between gripping surface and adjacent surfaces

505.6 Continuous, unobstructed gripping surface

505.7 Circular cross section outside diameter of 1¼" minimum to 2" maximum or if non-circular, a perimeter dimension of 4" minimum to 6¼" maximum and a cross section dimension of 2¼" maximum

505.10 Handrail extensions required

505.10.1 Extend horizontally above top and bottom ramp landings for minimum 12" and return to a wall, guard or landing surface, or be continuous

505.10.2 Extend horizontally above stair landing for minimum 12" beginning directly above the first stair riser nosing and return to a wall, guard or landing surface, or be continuous

505.10.3 Extend at the slope of the stair flight for a horizontal distance at least equal to one tread depth beyond the last riser nosing and return to a wall, guard or landing surface, or be continuous

CHAPTER 6: PLUMBING ELEMENTS AND FACILITIES

602 Drinking Fountains

602.4 Spout outlet 36' maximum above floor

602.7 Additional drinking fountain or separate spout required 38" minimum to 43" maximum height

CHAPTER 7: COMMUNICATION ELEMENTS AND FEATURES

703 Signs

703.1 Signs should include visual and tactile characters (Braille) with specific dimensions as required

703.4.1 Tactile elements on signage to be located 48" min (bottom of character) and 60" max. (top of character) from finished grade

703.7 Symbols of Accessibility (such as the International Symbol of Access) to be used as needed

705 Detectable Warnings

705.1 Specific size, spacing, and contrasting color of truncated domes required

705.1.3 Visual contrast between domes and walking surface to be dark on light or light on dark

705.2 Required at transit boarding platform edges 24" wide and full length of platform public use area

CHAPTER 8: SPECIAL ROOMS, SPACES AND ELEMENTS

802 Wheelchair Spaces and Companion Seats

802.1 Wheelchair spaces required in assembly areas

802.1.2 Single wheelchair space shall be minimum 36" wide or 33" wide where two adjacent wheelchair spaces are provided

802.1.3 Wheelchair space shall be minimum 48" deep when entered from front or rear, or minimum 60" deep if entered only from side

802.2 Detailed line of sight requirements in assembly areas – See Standards

802.3 Companion Seats required

802.3.1 In row seating, companion seats shall be located to provide shoulder alignment with the adjacent wheelchair space

810 Transportation Facilities

810.2 Bus Boarding/Alighting Area and Shelter (If a shelter is provided, boarding area may be either inside or outside the shelter.)

810.2.2 Boarding and alighting area shall provide for clear length of minimum 96" perpendicular to the curb or edge of roadway and 60" minimum width

810.2.3 Be connected to streets, sidewalks and pedestrian paths on an accessible route

810.2.4 Parallel to the roadway, slope of boarding and alighting area shall be the same as the roadway to the maximum extent possible; perpendicular to roadway the slope shall be maximum 1:48

810.3 Provide 30" x 48" minimum clear floor space entirely within the shelter with an accessible route to the boarding/alighting area

810.5 Rail platform compliance. Rail platforms shall not exceed a slope of 1:48 in all directions.

810.5.2 Detectable Warnings. Platform boarding edges not protected by platform screens or guards shall have detectable warnings complying with 705 along the full length of the public use area of the platform.

CHAPTER 10: RECREATION FACILITIES

1003 Recreational Boating Facilities

1003.2 Accessible routes (including gangways) to boat slips and boarding piers at boat launch ramps are permitted to use several exceptions (see Standards)

1003.3 Required clear pier space of minimum 60" wide by boat slip length; if linear pier, each 10' maximum of linear pier edge shall contain at least one clear opening of 60"; boat slip piers are permitted to use several exceptions (see Standards)

1005 Fishing Piers and Platforms

1005.2 Railings (though not required by ADA Standards, may be required, and subject to, building codes)

1005.2.1 At least 25% of railings, if used, shall be 34" maximum height and shall be dispersed throughout the fishing pier or platform

1005.3 Edge Protection

1005.3.1 Provide minimum 2" high curb or barrier, or

1005.3.2 Ground or deck surface shall extend minimum 12" beyond the inside face of the railing with minimum 30" wide by 9" high space in the railing for toe clearance

1006 Golf Facilities

1006.2 Accessible route required to connect to teeing grounds, practice tees, putting greens, practice greens, teeing stations at driving ranges, course weather shelters, golf cart rental areas, bag drop areas and golf course toilet rooms

1007 Miniature Golf Facilities

1007.2 Accessible routes are permitted to use several exceptions (see Standards)

1007.3 Miniature golf holes

1007.3.2 All areas within accessible holes where the ball rests shall be within 36" maximum of a clear floor or ground space having a running slope no steeper than 1:20

1008 Play Areas

(Many play area requirements reflect child dimensions and anthropometric considerations. See Standards for complete details)

1008.2 Accessible routes

1008.2.3 Water Play Components. Accessible routes serving water play components shall be permitted to use the exceptions in 1008.2.3.

1008.2.4 Clear width of accessible routes connecting ground level play components shall be minimum 60" and minimum 36" for accessible routes connecting elevated play components

1008.2.5 Ramps when used for access to elevated components

1008.2.5.1 Ramps connecting ground level play components shall have a running slope not steeper than 1:16

1008.2.5.2 Rise for any ramp run connecting elevated components shall be 12" maximum

1008.2.6 Ground surfaces for accessibility shall comply with ASTM F 1951 and ASTM F1292 within use zones

1008.3 Transfer Systems

1008.3.1 Transfer platforms provided where transfer is intended from wheelchairs and other mobility aids shall be 14" deep x 24" wide minimum at a height of 11" minimum by 18" maximum, having at least one means of support for transfer

1008.3.2 Transfer steps provided where movement is intended from transfer platforms to levels with accessible elevated play components shall be 14" by 24" minimum and 8" high maximum with at least one means of support for transferring

1008.4 Ground level on accessible routes and elevated play components connected by ramps

1008.4.1 Provide at least one turning space shall be provided on the same level as play components

1008.4.2 Clear floor or ground space and reach ranges for children who use wheelchairs

Outdoor Developed Areas (ABA Standards only)

CHAPTER 2: SCOPING REQUIREMENTS

F216 Signs

F216.13 Trailhead signs are not required, but when provided for newly constructed or altered trails, trailhead signs shall comply with 1017.10 whether the trail is accessible or not; neither tactile characters nor the International Symbol of Accessibility are required on exterior trailhead signs.

F244 Camping Facilities

F244.2 Camping units with mobility features shall be provided in the following quantities:
(Mobility camping units not required to be identified by signs.)

Total Units	Minimum Required Units with Mobility Features
1	1
2-25	2
26-50	3
51-75	4
76-100	5
101-150	7
151-200	8
201 and over	8, plus 2% of the number over 200

F244.2.2 Mobility camping units shall provide choices comparable to and integrated with those available to others

F244.2.3 Elements within mobility camping units must be compliant with technical Standards.

F244.2.3.1 Where provided, at least one of each type of outdoor constructed feature shall be compliant with Standards and if more than one of the same type are provided, at least two of the same type shall comply

F244.2.3.2 Parking spaces shall be compliant; where parking spaces are provided, at least one parking space shall comply with Standards and if more than one is provided, at least two shall comply

F244.2.3.3 Tent pads and platforms shall be compliant; where tent pads and platforms are provided, at least one pad and tent platform shall comply with Standards and if more than one is provided, at least two shall comply

F244.2.3.4 Camp shelters shall be compliant; where camp shelters are provided, at least one camp shelter shall comply with Standards and if more than one is provided, at least two shall comply

F244.3 Outdoor constructed features in common use and public use areas that serve camping units with mobility features shall provide at least 20%, but not less than one, of each type of outdoor constructed feature provided at each location in compliance with technical Standards

F244.5 Outdoor recreation access routes shall connect:

F244.5.1 ...accessible elements, spaces, and facilities within camping units with mobility features

F244.5.2 ...to and within common use and public use areas serving camping units with mobility features

F244.5.3 ...adjacent recreation facilities where a connection is provided from camping units with mobility features

F244.5.4 Outdoor recreation access routes shall coincide with or be located in the same area as general circulation paths

F245 Picnic Facilities

F245.2 Picnic units with mobility features (not required to be identified by signs)

F245.2.1 Where picnic facilities contain two or fewer units, each unit shall provide mobility features

F245.2.2 Where picnic facilities contain more that two units, at least 20%, but not less than two units shall provide mobility features

F245.2.4 Provide choices of picnic units with mobility features comparable to, and integrated with, those available to others

F245.2.5 Elements within picnic units with mobility features shall comply with Standards

F245.2.5.1 Where provided, at least one of each type of outdoor constructed feature shall be compliant with Standards and if more than one of the same type are provided, at least two of the same type shall comply

F245.2.5.2 Where parking spaces are provided, at least one parking space shall comply with Standards and if more than one is provided, at least two shall comply

F245.3 Outdoor constructed features in common use and public use areas that serve picnic units with mobility features shall provide at least 20%, but not less than one, of each type of outdoor constructed feature provided at each location in compliance with technical Standards

F245.4 Outdoor recreation access routes shall connect:

F245.4.1 ...accessible elements, spaces, and facilities within picnic units with mobility features

F245.4.2 ...to and within common use and public use areas serving picnic units with mobility features

F245.4.3 ...adjacent recreation facilities where a connection is provided from picnic units with mobility features

F245.4.4 Outdoor recreation access routes shall coincide with or be located in the same area as general circulation paths

F246 Viewing Areas

F246.2 Each distinct viewing location within a viewing area shall comply with Standards

F246.3 Outdoor constructed features where provided in viewing areas shall provide at least 20%, but not less than one, of each type of outdoor constructed feature in compliance with technical Standards

F246.4 At least one outdoor recreation access route shall connect accessible parking or other arrival points serving the viewing area with accessible elements, spaces and facilities within the viewing area

F247 Trails

F247.1 Where a trail designed for use by hikers or pedestrians and directly connects to a trailhead or another trail that substantially meets accessible requirements, the trail shall comply as well

F247.3 Trailheads

F247.3.1 Outdoor constructed features where provided in trailheads shall provide at least 20%, but not less than one, of each type of outdoor constructed feature in compliance with technical Standards

F247.3.2 At least one outdoor recreation access route shall connect accessible parking or other arrival points serving the trailhead, starting point of the trail, and accessible elements, spaces and facilities within the trailhead

F247.5 Outdoor constructed features where provided on trails shall provide at least 20%, but not less than one, of each type of outdoor constructed feature at each location in compliance with technical Standards

F248 Beach Access Routes

F248.1 Beach access routes shall be permanent or removable

F248.1.1 Beach access routes shall be provided where construction or alteration of any of the following occurs: circulation paths, parking facilities, toilet facilities or bathing facilities up to a cost no more than 20% of the cost of the constructed or altered facilities

F248.1.2 Beach access routes shall be provided where a beach nourishment project is undertaken up to a cost no more than 20% of the cost of the nourishment project

F248.2 At least one beach access route shall be provided for each ½ mile of beach shoreline administered or managed by the entity, not to exceed the number of beach access points provided

CHAPTER 10: RECREATION FACILITIES

1011 Outdoor Constructed Features

1011.2 Clear Ground Space must be provided at outdoor constructed features

1011.2.1 One full unobstructed side of clear ground space shall adjoin or overlap an outdoor recreation access route, trail or another clear ground space (see Table 1011.2.1 in Standards for location and size of clear ground spaces for various outdoor constructed features.)

1011.4 Picnic Tables

1011.4.2 Provide at least one wheelchair space for each 24 linear feet of table surface perimeter

1011.5 Fire Rings, Grills, Fireplaces and Wood Stoves

1011.5.1 Fire building surfaces shall be 9" minimum above the ground

1011.5.2 Cooking surfaces shall be 15" minimum and 34" maximum above the ground

1011.6 Water spouts shall be 28" minimum and 36" maximum above the ground

1011.7 Outdoor rinsing showers shall provide at least one hand-held shower spray unit with at least one locked position 15" minimum to 48" maximum above the ground

1011.8 Viewing scope eyepieces shall be 43" minimum to 51" maximum above the ground

1012 Parking Spaces Within Camping and Picnic Units and Pull-up Spaces at Dump Stations

1012.1 Applies to parking spaces within units with mobility features

1012.2 Parking and pull-up spaces for RV's shall be minimum 20' wide

1012.3 Parking spaces for vehicles other than RV's shall be minimum 16' wide

1012.4 Surface shall be firm and stable

1013 Tent Pads and Platforms

1013.2 Clear ground space minimum 48" wide shall be provided around all usable sides

1013.2.2 Surface of clear ground space shall be firm and stable

1013.4 Height of tent platforms shall be 19" maximum

1014 Camp Shelters

1014.2.1.2 Camp shelter floor height at entrance shall be maximum 19”

1014.2.2.2 Accessible turning space shall be provided within the camp shelter

1015 Viewing Areas

1015.2 Clear ground space minimum 36” x 48” shall be provided at each viewing location

1015.3 Each distinct viewing location shall provide a viewing space (“window”) that is 32” maximum and 51” minimum high above the ground and extends the full width of the clear ground space

1016 Outdoor Recreation Access Routes

1016.2 The surface of outdoor recreation routes, passing spaces and resting intervals shall be firm and stable

1016.3 Clear width shall be 36” minimum

1016.4 For outdoor recreation routes <60” wide, passing spaces at least 60” wide shall be provided at intervals of 200’ maximum

1016.5 Obstacles shall not exceed ½” vertical to the highest point except where the surface is other than asphalt, concrete or boards, obstacles shall be permitted to not exceed 1” height

1016.7 Slopes on outdoor recreation access routes

1016.7.1 Running slope shall not exceed 1:10; if running slope is steeper than 1:20 but not steeper than 1:12 the maximum length of the route segment is 50’; if the running slope is steeper than 1:12 but not steeper than 1:10 the maximum length of the route segment is 30’; a resting interval shall be provided at the top and bottom of each trail segment

1016.7.2 Cross slope shall not exceed 1:48 except where the surface is other than asphalt, concrete or boards, the cross slope shall not exceed 1:20 when necessary for drainage

1017 Trails

1017.2 Surface of trails, passing spaces and resting intervals shall be firm and stable

1017.3 Clear tread width shall be 36" minimum

1017.4 Trails with clear tread width <60" shall provide passing spaces at intervals of 1,000' maximum

1017.4.1 For trails <60" wide, passing spaces at least 60" wide shall be provided at intervals of 1,000' maximum

1017.5 Obstacles shall not exceed ½" vertical to the highest point except where the surface is other than asphalt, concrete or boards, obstacles shall be permitted to not exceed 2" height

1017.7 Trail slopes

1017.7.1 Not more than 30% of the total length of a trail shall have a running slope steeper than 1:12; the running slope of any segment of a trails shall not exceed 1:8; if running slope is steeper than 1:20 but not steeper than 1:12 the maximum length of the route segment is 200'; if the running slope is steeper than 1:12 but not steeper than 1:10 the maximum length of the route segment is 30'; if the running slope is steeper than 1:10 but not steeper than 1:8 the maximum length of the segment is 10'; a resting interval shall be provided at the top and bottom of each trail segment

1017.7.2 Cross slope shall not exceed 1:48 except where the surface is other than asphalt, concrete or boards, the cross slope shall not exceed 1:20 when necessary for drainage

1017.10 Trailhead signs shall contain the following information: length of trail or trail segment, surface type, typical and minimum tread width, typical and minimum running slope, and typical and minimum cross slope

1018 Beach Access Routes

1018.2 Beach access routes shall connect an entry point to the beach to high tide level at tidal beaches, mean high water level at river beaches, or normal recreation water level at lake, pond and reservoir beaches

1018.3 Surface of beach access routes shall be firm and stable

1018.4 Clear width shall be 60" minimum except at dune crossings the clear width for beach access routes that are not removable shall be permitted to be 48" minimum

1018.5 Obstacles shall not exceed ½" vertical to the highest point except where the surface is other than asphalt, concrete or boards, obstacles shall be permitted to not exceed 1" height

1018.7 Beach access route slopes

1018.7.1 Running slope shall not exceed 1:10; if running slope is steeper than 1:20 but not steeper than 1:12 the maximum length of the route segment is 50'; if the running slope is steeper than 1:12 but not steeper than 1:10 the maximum length of the route segment is 30'; a resting interval shall be provided at the top and bottom of each trail segment

1016.7.2 Cross slope shall not exceed 1:48 except where the surface is other than asphalt, concrete or boards, the cross slope shall not exceed 1:20 when necessary for drainage

1019 Conditions for Exceptions for Outdoor Recreation Facilities

1019.1 (This section contains significant exceptions that could pertain to the above features in outdoor developed areas. See Standards for applications and conditions.)

Transportation Facilities (DOT ADA Standards only)

CHAPTER 2: SCOPING REQUIREMENTS

206 Accessible Routes

206.3 Accessible routes shall coincide with or be located in the same area as general circulation paths. Elements such as ramps, elevators, or other circulation devices, fare vending or other ticketing areas, and fare collection areas shall be placed to minimize the distance which wheelchair users and other persons who cannot negotiate steps may have to travel compared to the general public.

CHAPTER 4: ACCESSIBLE ROUTES

406.8 A curb ramp shall have a detectable warning extending the full width of the curb ramp (exclusive of flared sides) and shall extend either the full depth of the curb ramp or 24” deep minimum from the back of the curb on the ramp surface.

A Visual Accessibility Story: The Good, The Bad & The Ugly

The Good

Figure 1. Accessible access to grass festival seating

Figure 2. Accessible campsite (ABA)

Figure 3. Inclusive play equipment access ramp

Figure 4. Accessible beach route and cyclist lane

Figure 5. Accessible route to boat ramp loading/unloading dock

Figure 6. ADA Trailer-based parking space (extra length including ADA aisle)

Figure 7. Accessible pool entry chair combined with travel way (although not capable of unassisted operation)

Figure 8. Innovative yet conforming dual ADA curb ramps

Figure 9. Accessible viewing scope (ABA)

Figure 10. Accessible paddle craft launch ramp and boarding transfer device

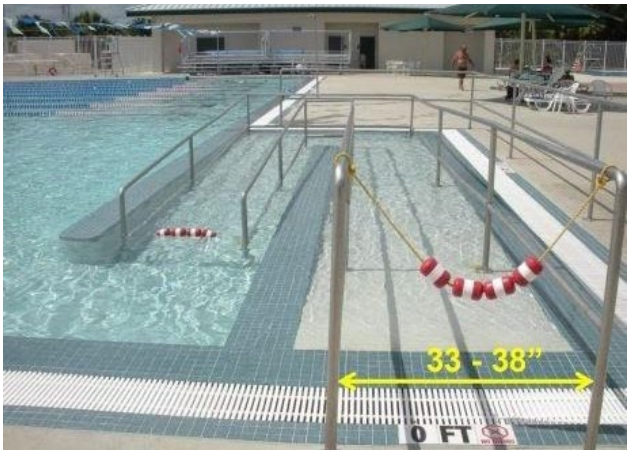


Figure 11. Accessible pool internal ramp system

Figure 12. Decorative ADA conforming drainage grate in accessible route

Figure 13. Accessible dual height drinking fountain

Figure 14. ADA accessible garden plot (accessible route surfacing and raised garden bed)

Figure 15. Even a long ramp can meet requirements for run lengths and landings

Figure 16. Properly designed passenger loading zone

Figure 17. Clear space adjacent to bench and accessible route (ABA)

Figure 18. Interactive accessibility for different reaches.

The Bad

Figure 19. ADA signage incorrect height; lack of aisles. *Applicable ADA 2010 Code Standards: 208.3, 502 (whole section)*

Figure 20. Inappropriate ADA parking signage; no access designated access aisles. *Applicable ADA 2010 Code Standards: 502 (whole section)*

Figure 21. ADA parking access aisle does not connect to an accessible route. *Applicable ADA 2010 Code Standards: 502.3*

Figure 22. No accessible route into playground. *Applicable ADA 2010 Code Standards: 1008.2*

Figure 23. No handrail extension beyond ramp; no ramp edge protection. *Applicable ADA 2010 Code Standards: 405.9, 505.10*

Figure 24. No access aisles; accessible route behind cars required. *Applicable ADA 2010 Code Standards: 402 (whole section), 502 (whole section)*

Figure 25. Ramp handrails not provided on both sides of ramp. *Applicable ADA 2010 Code Standards: 505 (whole section)*

Figure 26. Sign creates protrusion into pedestrian travel way and no tactile elements. *Applicable ADA 2010 Code Standards: 307.0, 403.5*

Figure 27. Bike rack at accessible aisle creates obstruction in accessible route. *Applicable ADA 2010 Code Standards: 403.5*

Figure 28. Ramp handrails don't extend far enough past the top of slope, no edge protection on ramp. *Applicable ADA 2010 Code Standards: 405.9, 505.10*

Figure 29. Nonconforming signage; lack of access aisles; ADA spaces not dispersed among shops or closest parking to building entrances. *Applicable ADA 2010 Code Standards: 208.3, 502 (whole section)*

Figure 30. Nonconforming threshold height and configuration (deck elevation set too low). *Applicable ADA 2010 Code Standards: 404.2.5*

Figure 31. Lack of accessible route to sport courts although ramp would be readily achievable. *Applicable ADA 2010 Code Standards: 402 (whole section), 206.2.12*

Figure 32. Curb ramp located in required ADA access aisle; hazardous side slopes. *Applicable ADA 2010 Code Standards: 406 (whole section), 502 (whole section)*

Figure 33. Handrails do not extend far enough; slopes and landings out of compliance; curved ramps not recommended due to complexity of compound slopes. *Applicable ADA 2010 Code Standards: 405 (whole section), 505 (whole section)*

Figure 34. ADA parking not located on shortest cross route to destination (pavilion). *Applicable ADA 2010 Code Standards: 208.3*

Figure 35. No marking of loading/unloading zone or access aisle. *Applicable ADA 2010 Code Standards: 503 (whole section)*

Figure 36. Lack of accessible route to sports fields, support facilities, player and spectator seating. *Applicable ADA 2010 Code Standards: 206.2.2, 402 (whole section)*

Figure 37. Non-conforming ADA ramp; no handrails (vertical rise exceeds 6"); no door landing to accommodate wheelchair and door swing; ramp protrudes into aisle. *Applicable ADA 2010 Code Standards: 405 (whole section), 502.4, 404 (whole section), 505 (whole section), 603.2*

Figure 38. Access aisle not on same side as curb ramp (not on accessible route); parking clear zone; space and aisle exceed allowable slope. *Applicable ADA 2010 Code Standards: 402.1-403.4, 502 (whole section)*

Figure 39. No ramp edge protection. *Applicable ADA 2010 Code Standards: 405.9*

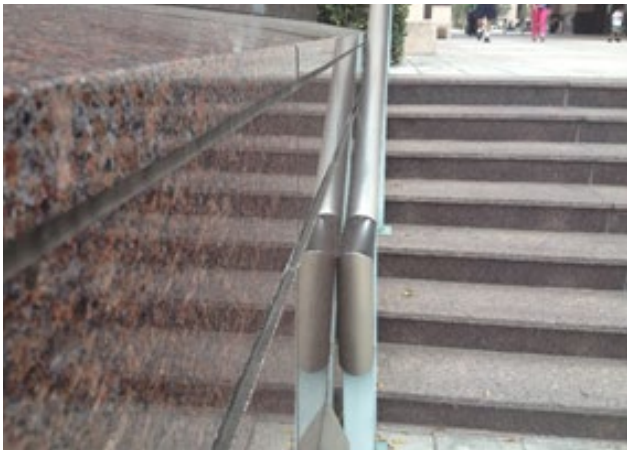


Figure 40. No handrail clearance from wall. *Applicable ADA 2010 Code Standards: 505.5*

Figure 41. No clear ground space for wheelchair on accessible route and adjacent to bench (ABA). *Applicable ABA Standards: 1011*

Figure 42. Many exceptions exist for gangways, but must have handrails both sides and edge protection. *Applicable ADA 2010 Code Standards: 1003.2*

The Ugly

Figure 43. Excessive ramp slope; no accessible handrails. *Applicable ADA 2010 Code Standards: 405 (whole section), 505 (whole section)*

Figure 44. Lack of access aisles and signage. *Applicable ADA 2010 Code Standards: 402 (whole section) 502 (whole section)*

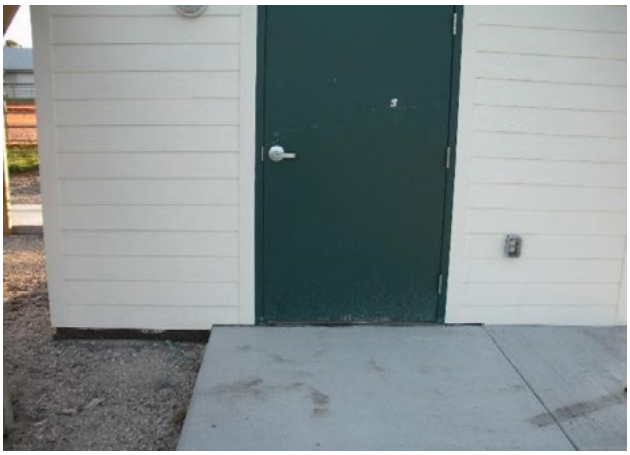


Figure 45. Lack of door swing clearance (18" on pull side); swings into accessible route. *Applicable ADA 2010 Code Standards: 404.1-404.2.7*

Figure 46. No accessible parking space; no accessible route; no handrail extensions. *Applicable ADA 2010 Code Standards: 206.1-206.2.2, 405 (whole section), 502, 505.10*

Figure 47. ADA accessible parking and route in service area, not main entry area. *Applicable ADA 2010 Code Standards: 206.3*

Figure 48. Nonconforming sign; inadequate area, striping; accessible route blocked. *Applicable ADA 2010 Code Standards: 402 (whole section), 502 (whole section)*

Figure 49. Nonconforming threshold height creating significant barrier and trip hazard. *Applicable ADA 2010 Code Standards: 404.2.5, 404.3.3*

Figure 50. Open risers; lack of accessible handrails. *Applicable ADA 2010 Code Standards: 504.3, 505 (whole section)*

Figure 51. Catch basin grate in accessible route; gaps too wide on grate. *Applicable ADA 2010 Code Standards: 302.3*

Figure 52. No ADA parking space or aisle striping; no accessible route to entrance. *Applicable ADA 2010 Code Standards: 402 (whole section), 502 (whole section)*

Figure 53. No accessible aisle striping; excessive ramp slope; no handrail extensions on steps or ramp, sign within overhang. *Applicable ADA 2010 Code Standards: 405 (whole section), 502 (whole section), 505 (whole section)*

Figure 54. Water fountain lack of accessible excessive surfaced clear ground area. *Applicable ADA 2010 Code Standards: 602.2 (whole section)*

Glossary of Abbreviations and Terms

Abbreviations

AASHTO: American Association of State Highway Transportation Officials

ABA: Architectural Barriers Act

ADA Standards: 2010 Americans with Disabilities Act Standards for Accessible Design

ANSI: The American National Standards Institute

ASTM: The American Society for Testing and Materials

DOJ: Department of Justice

DOT: Department of Transportation (applies to USDOT & each State's DOT)

DPFA: Designing Pedestrian Facilities for Accessibility

FHA: Fair Housing Act Accessibility Guidelines

FHWA: Federal Highway Administration, Division of USDOT, oversees the PROWAG

HUD: Department of Housing and Urban Development

IBC: International Building Code

LAP: Local Agency Program (federal monies accessed by counties and municipalities for local projects)

PAR: Pedestrian Access Route

PROWAG: Public Rights Of Way Accessibility Guidelines

ROW: right-of-way

SHPO: State Historic Preservation Office

UFAS: Uniform Federal Accessibility Standards

USFS: United State Forest Service

VA: United States Department of Veterans Affairs

Terms

Refer to ADA Standards for definitions -
https://www.ada.gov/2010ADAstandards_index.htm

Guidelines / Standards

2010 Americans with Disabilities Act Standards for Accessible Design

Architectural Barriers Act Accessibility Standards

The American National Standards Institute

International Building Code

The American Society for Testing and Materials

American Association of State Highway Transportation Officials

Uniform Federal Accessibility Standards

VA Barrier Free Design Standard

Forest Service Outdoor Recreation Accessibility Guidelines

Forest Service Trail Accessibility Guidelines

Fair Housing Act Accessibility Guidelines

ADA Standards (Title II)

ADA Standards (Title III)

ADA Standards (DOT)

References

Note: Use the most up to date, adopted version, of these references.

2010 ADA Standards for Accessible Design (adopted September 15, 2010; effective March 15, 2011; mandatory March 15, 2012)

U.S. Department of Justice. Civil Rights Division. 2010 ADA Standards for Accessible Design. https://www.ada.gov/2010ADAstandards_index.htm.

U.S. Department of Justice. Civil Rights Division. Code of Federal Regulations 28. Americans with Disabilities Act Title II Regulations. Part 35. Nondiscrimination on the Basis of Disability in State and Local Government Services. Section 151. New Construction and Alterations. October 11, 2016. https://www.ada.gov/regs2010/titleII_2010/titleII_2010_regulations.htm.

U.S. Department of Justice. Civil Rights Division. Code of Federal Regulations 28. Americans with Disabilities Act Title III Regulations. Part 36. Nondiscrimination on the Basis of Disability in Public Accommodations and Commercial Facilities. Subpart D. New Construction and Alterations. January 17, 2017. https://www.ada.gov/regs2010/titleIII_2010/titleIII_2010_regulations.htm.

U.S. Access Board. Americans with Disabilities Act Accessibility Standards. https://www.access-board.gov/ada/

U.S. Access Board. Guide to the ADA Standards. https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/guide-to-the-ada-standards.

United States Department of Transportation. Federal Transit Administration. Final Rule Adopting New Accessibility Standards -- Effective November 29, 2006. https://www.transit.dot.gov/regulations-and-guidance/civil-rights-ada/final-rule-adopting-new-accessibility-standards-effective

Architectural Barriers Act (ABA) is the basis for accessibility standards that apply to federal sector and federally funded facilities

U.S. Access Board. About the ABA Standards. https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-aba-standards.

Veterans Affairs

U.S. Department of Veterans Affairs. Office of Construction & Facilities Management. Facilities Standards Service. VA Barrier Free Design Standard: A Supplement to the Architectural Barriers Act Accessibility Standards (ABAAS). PG-18-13. November 1, 2018. https://www.cfm.va.gov/til/etc/dsBarrFree.pdf.

U.S. Department of Veterans Affairs. Office of Construction & Facilities Management. Standard Details. PG-18-4. Division 32: Exterior Improvements. https://www.cfm.va.gov/til/sDetail.asp.

U.S. Department of Veterans Affairs. Office of Construction & Facilities Management. Design Manuals. PG-18-10. http://www.cfm.va.gov/til/dManual.asp

U.S. Department of Veterans Affairs. Office of Construction & Facilities Management. Architectural Accessibility. http://www.cfm.va.gov/til/accessibility.asp

U.S. Department of Veterans Affairs. Office of Construction & Facilities Management. Special Topic Criteria. Signage and Wayfinding. https://www.cfm.va.gov/til/dManual.asp

U.S. Department of Veterans Affairs. Office of Construction & Facilities Management. Sustainable Design. http://www.cfm.va.gov/til/sustain.asp

Other Accessibility Standards

U.S. Access Board. Uniform Federal Accessibility Standards (UFAS). August 7, 1984. https://www.access-board.gov/aba/ufas.html

Guidelines

U.S. Access Board. About the Rulemaking on Shared Use Paths. February 13, 2013. http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/shared-use-paths

U.S. Access Board. Accessibility Standards for Federal Outdoor Developed Areas. May 2014. https://www.access-board.gov/files/aba/guides/outdoor-guide.pdf

U.S. Access Board. Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way July 26, 2011. https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines

U.S. Department of Agriculture. Forest Service. Accessibility Guidebook for Outdoor Recreation and Trails. 2012. https://www.fs.usda.gov/sites/default/files/Accessibility-Guide-Book.pdf

US Forest Service. Forest Service Outdoor Recreation Accessibility Guidelines. 2013. https://www.fs.usda.gov/sites/default/files/FSORAG-2013-Update.1.pdf

US Forest Service. Forest Service Trail Accessibility Guidelines (FSTAG). 2013 https://www.fs.usda.gov/sites/default/files/FSTAG-2013-Update.pdf

Additional Links

U.S. Access Board. http://www.access-board.gov/

U.S. Department of Justice. Information and Technical Assistance on the Americans with Disabilities Act. http://www.ada.gov/

U.S. Access Board. Research. https://www.access-board.gov/research/

The Center for Universal Design. https://projects.ncsu.edu/ncsu/design/cud/about_ud/udprinciples.htm

ASLA Universal Design Guide. https://www.asla.org/universaldesign.aspx

U.S. Department of Transportation Federal Highway Administration. Accessible Shared Streets: Notable Practices and Considerations for Accommodating Pedestrians with Vision Disabilities. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/accessible_shared_streets/index.cfm

National Park Service. Accessibility in the National Park Service. https://www.nps.gov/aboutus/upload/All_In_Accessibility_in_the_NPS_2015-2020_FINAL.pdf