



# Curb Ramps and ADA-compliance

by Bob D. Sexton

The *Americans with Disabilities Act (ADA)* was signed into law 15 years ago to ensure everyone, regardless of physical limitations, had equal access to public facilities and programs. Since then, features such as designated parking spaces, curb ramps, and universal restrooms have become standard in public and government buildings around the country, while older facilities continue to be retrofitted with these components.<sup>1</sup>

However, while most municipalities have implemented features required by the act, many of the actual designs still fall short of compliance. Simply put, it is not enough to slap a curb ramp on the end of a sidewalk and call it a day. *ADA* maintains very specific design guidelines, which are intended to address the myriad concerns that go along with making a particular path accessible for all. For instance, a ramp effectively navigable by wheelchair users may present a different problem for those who are visually impaired (or vice versa). In recent years, many municipalities have been surprised to learn their curb ramps simply do not comply with *ADA* standards. (See "Understanding *ADA*," page 80.)

## Conquering curb ramps

The *Americans with Disabilities Act* requires ramps on streets or roads wherever there are curbs or entry barriers from a pedestrian walkway. This includes:

- any new roadway construction or reconstruction involving sidewalks (or taking place in areas with existing sidewalks);
- any sidewalk improvements or alterations within—or adjacent to—an intersection or a public transportation stop (even when the sidewalk renovation is incidental to other work [e.g. utility installation])<sup>2</sup>; and
- new construction or reconstruction projects providing access to a public facility or program (e.g. parks, government buildings, post offices, bus stops).

To be considered compliant, features must include a ramp and a landing at the top, each with specified cross-slopes and running slopes. Smooth transitions onto the sidewalk and crosswalk must also be provided. Street-level landings are required when ramps are placed in a way that makes it necessary to change direction before crossing the street

## Dispelling Myths about Accessibility

Compliance with the *Americans with Disabilities Act (ADA)* is an important topic. While standard drawings make curb ramps seem like a simple fix, *ADA's* intricacies can leave city officials' best designed and most monitored projects completed, yet still non-compliant. While curb ramps are the example for this purpose, applying the same principles to any *ADA* project can help a team troubleshoot and plan accurately.

### *No standard corners*

If a city's standard drawing for curb ramps consists of one example, that particular design cannot possibly be correctly applied to each curb in the community. Trees, slope difference, signs, fire hydrants, inlets, utility poles, and other variables affect the design of a curb ramp for that particular location. Many cities around the United States have recognized the uniqueness of curbs and have created several standard drawings (there are 13 in Columbus, Ohio) to categorize different varieties of curb ramps for application on a case-by-case basis. When the time comes to create a curb ramp, the chosen standard drawing is modified in the field to fit the particular need. It is important to remember curb ramps consist of a ramp, landing, and flares, each having specified cross-slopes and running slopes. One without the other leads to non-compliance. By treating each project as unique, engineers and city officials can build upon past experiences and continually improve accessibility for all *ADA*-related projects.

(e.g. shared-use ramps for crossing either of the intersecting streets). When curb ramps are constructed into the walkway to allow pedestrian traffic, side-flares are required with specified slopes to prevent trip hazards. Curb ramps are also necessary where a sidewalk intersects with the road. These ramps are primarily designed to allow those with mobility impairments safe access to sidewalks and other pedestrian areas.

While all new construction projects are required to implement curb ramps, alteration work does not necessarily require their retrofitting into existing sidewalks. For instance, while resurfacing a street or sidewalk is considered an 'alteration' under *ADA* (and thus requires new curb ramps), simply filling potholes is deemed to be 'maintenance' and does not mandate additions. (Whether curb ramps not undergoing other alterations at the time are retrofitted to sidewalks is left up to the discretion of city governments.)<sup>3</sup>

### *Importance of education*

One reason for many unsuccessful *ADA* projects involves a disconnect among the involved parties. While the city engineer may be well-read on *ADA*, such knowledge does not always translate through to the design engineer, contractor, and/or inspectors. Before embarking on a compliance project, one would do well to consider investing in an *ADA*-compliance training course for the entire team, as this can help reduce questions and variances as the design and installation move forward. If everyone on the team has the same goal, mistakes are difficult to miss and a successful outcome is far more likely. For projects in question, using *ADA* advocacy groups as a partner in any project will help ensure a successful end result. (Bringing them into the project as early as possible also prevents potential pitfalls as the project is completed.)

### *Keeping accessibility a high priority*

Curb ramps are only one example of how *ADA* affects the public domain. For any project, it pays to have complete understanding of the act's policy on that particular feature before design, planning, and execution. While every project should be treated as unique, through thoroughly researching of similar previous projects, one can learn from mistakes, take positive examples, and create a guide for moving forward. ♥

Certain projects do not require curb ramp construction. These include maintenance projects of any kind within the public right-of-way, including those for the replacement of an insignificant portion of the roadway surface or sidewalks within the immediate area of an intersection that includes existing sidewalks. Additionally, new roadway construction or alteration in areas without sidewalks or other pedestrian facilities does not require curb ramp construction. (This applies with or without the presence of curbs.)

### *Detectable warnings*

In recent years, one of the biggest issues in relation to curb ramps is the addition of detectable warnings, which help the visually impaired determine when they are entering a roadway. These standardized surface features were initially required by the *ADA Accessible Guidelines (ADAAG)* Section 3.5 for curb ramps, hazardous vehicular roadways, and transit platform edges. However, the requirement for curb



*To meet the requirements of the Americans with Disabilities Act (ADA), all new construction projects—and certain retrofits—are required to implement curb ramps. These devices are primarily designed to allow those with mobility impairments safe access to sidewalks and other pedestrian areas.*

ramps and vehicular roadways was suspended in 1994 to allow for research to determine the most effective type of warning and to deal with related safety concerns and maintenance issues, such as snow and ice removal. After years of research, truncated domes proved to be the most viable solution, beating out other options such as grooves, striations, and exposed aggregate. On July 26, 2001, the suspension on the requirement expired, with truncated domes now required on all new curb ramps.

Generally, retrofit detectable warning devices are not mandated for old ramps. However, if a project is implemented that requires installation of curb ramps (e.g. street resurfacing) and the existing ramps are otherwise compliant, retrofit detectable warning devices are necessary.

When it comes to installing truncated domes, each curb ramp is unique in its design needs, but certain specifications are universal. For example, all detectable warnings must extend 610 mm (24 in.) in the direction of travel and cover the curb ramp's full width. Research has shown this length is sufficient in signaling the beginning of a roadway most of the time.<sup>4</sup> Additionally, the warnings must be placed 152 to 203 mm (6 to 8 in.) from the curb line to give those who are visually impaired enough stopping distance between the curb and the street, as well as to offer wheelchair users a smoother transition. The warnings should also contrast visually with adjoining surfaces—either light on dark or dark on light—and be aligned on a square grid so they can easily be rolled over.

Each dome has very specific dimensions for maximum detectability:

- 23-mm (0.9-in.) diameter on bottom;
- 10.2-mm (0.4-in.) diameter on top;
- 5 mm (0.2 in.) high; and
- 59.7 mm (2.35 in.) from center to center.

Although the specifications are universal, the installation process itself provides a number of different options. Dimensional pavers—which can be used with a variety of materials including natural stone, stone composites, ceramic tile, cast iron tiles, molded polymer tiles, brick, and precast—must be recessed into the concrete.

Varying in cost and durability, some of these products are designed to be set into the wet concrete and others are installed later into a boxed-out area of the ramp. Nevertheless, all provide the required function as a detectable warning device. As such, the decision of what product to specify is essentially an aesthetic choice—but climate should also be considered. For example, cast iron is more resistant to snowplow damage than polymer tiles. Whether the project is new construction or a renovation is not an issue in product selection, with the exception of retrofitting a detectable warning device onto an otherwise compliant existing ramp. In this case, a surface-applied product is appropriate.

The alternative to pavers are truncated domes, which can be applied directly to the surface of existing concrete via thin tiles that are either rigid (i.e. polymer) or flexible

## Understanding ADA

The *Americans with Disabilities Act (ADA)* leaves often ambiguous decisions to local officials and design engineers—many of whom lack the knowledge necessary to understand the legal document's complexities. Attempting to make decisions without the help of qualified experts can result in a misguided direction of budget and resources.

### *Clarifying coverage*

Title II regulation of the act deals with "public entities," which include any state or local government and any of its departments, agencies, or other instrumentalities. Unlike section 504 of the *Rehabilitation Act of 1973*, which only covered programs receiving federal financial assistance, Title II extends itself to all activities of state and local governments. While Title II's jurisdiction does not include private entities operating public accommodations (e.g. hotels, restaurants, theaters, retail stores, medical offices, amusement parks), these facilities are covered by Title III of *ADA* and the Department of Justice's (DoJ's) regulation implementing Title III. (In contrast, public transportation services operated by state and local governments are covered by regulations of the Department of Transportation [DoT].)

State and local governments cannot exclude a person from participating in a service, program, or activity simply because he or she has a disability. Further, state and local governments must eliminate unnecessary eligibility standards or rules denying individuals with disabilities an equal opportunity to enjoy their services, programs, or activities (unless 'necessary' for the provisions of the activity). Requirements that tend to screen out individuals with disabilities (e.g. the use of a driver's license as the only acceptable means of identification) are also prohibited.

### *Grandfathers and small entities*

One common misunderstanding on the part of the municipalities concerns the issue of 'grandfathering,' or small entity exemption. Some city governments believe a grandfather clause protects their existing programs and facilities from having to comply with the Title II requirements. Small municipalities may also believe they are exempt from complying with Title II because of their size. Since these city governments incorrectly interpret their immunity, they fail to take steps to provide program

access or to make modifications to policies, practices, and procedures required by law.

In reality, there is no grandfather clause, but the law is flexible. City governments must comply with Title II of *ADA*, and provide full service/program access for those with disabilities. In allowing this access, city governments are not required to take any action resulting in a fundamental alteration to the nature of the service, program, or activity in question or undue financial and administrative burdens.\* If either scenario is likely, a city must take any other action it can to ensure people with disabilities receive the program/activity's benefits. (See 28 Code of Federal Regulation [CFR] § 35.150[a][3].)

Similarly, there is no exemption from Title II requirements for small municipalities. However, public entities with less than 50 employees are not required to comply with limited sections of DoJ regulations—such as maintaining self-evaluations on file for three years and designating a grievance procedure for *ADA* complaints. Regardless of size, all public entities must comply with Title II's requirements (28 CFR § 35.104).

Perhaps the most ambiguous decision *ADA* leaves open to interpretation is the issue of 'reasonable accommodations.' Such was the case in a project on which this author provided consultation for an elaborate boulder garden on private property sitting in the right-of-way on a curb ramp renovation site. For this project, it was recommended the city widen the right-of-way, allowing the curb ramps to be installed around the boulder garden, saving the cost of acquiring the private property while still complying with *ADA* specifications.

Since the act orders reasonable accommodations must be made with regards to renovations for compliance, building a ramp outside the boulder garden—rather than through it—was determined to be sufficient by city officials and local *ADA* advocates. This successful project resulted in the installation of an act-compliant curb ramp, and enabled the city to avoid the costly acquisition of private property. Further, this program encountered several locations where property owners granted the city easements and/or access rights to work on their private property to avoid removing or destroying landscaping features extending onto the right-of-way. While situations such as this undoubtedly require a specialized approach as they arise, specifiers should be familiar with *ADA*'s basic tenets. ♥

\* This finding can only be made by the head of the public entity (or designee), and must be accompanied by a written explanation. This determination of undue burden must be based on all resources available for use in a program.

(i.e. polyurethane). These tiles are fastened to the substrate using a structural adhesive system. Other surface-applied products include rubber domes that are attached with a polyurethane coating. Detectable warnings can also be fabricated on-site, either by stamping the top layer of fresh concrete, transferring them from a carrier sheet, or forming them using a template as the concrete is flowed.

One common error committed by those seeking ADA-compliance occurs when the new curb ramp is located across a circulation path with steep unprotected side-flares, resulting in the possibility of pedestrians tripping. (There is also the danger of those using wheelchairs tipping when they accidentally roll over the non-flared sides.) According to the U.S. Department of Justice's (DoJ's) Civil Rights Division (Disability Rights Section 4.7.5), when a curb ramp is located where pedestrians walk across the ramp, or where it is not protected by handrails or guardrails, it must have flared sides—the maximum slope of the flare shall be 1:10. Curb ramps with returned curbs can be used where pedestrians would not normally walk across the ramp.

Built-up curb ramps that project into the access aisle of parking lots are also common. When an access aisle has a sloped surface, the exiting driver's wheelchair could roll away from the car, preventing him or her from getting out of the vehicle. The sloped surface also prevents a van-mounted wheelchair lift from being fully lowered to the access aisle surface. Parking spaces and access aisles should be level with surface slopes not exceeding 1:50 (i.e. two percent) in all directions.

Another common problem is failure to provide adequate drainage in the gutter in front of the ramp. When

water is allowed to pond in this location, dirt and fluids leaked from automobiles are picked up by the wells of a wheelchair and transferred to the operator's clothing. In temperate climates, ponding water in front of the ramp can freeze, creating a hazard not only for the mobility-impaired, but also for able-bodied pedestrians. Adequate drainage is required for compliance.

#### A customized approach

Given the many intricacies of the *Americans with Disabilities Act*, it is clear one standard design cannot possibly function for every curb ramp. Factors such as slope difference and interfering objects (e.g. trees, signs, fire hydrants) require each curb ramp to be given a customized approach. However, this is not to suggest each one must be designed from scratch. For example, the city of Columbus, Ohio, maintains 13 standard curb ramp designs, each of which can be modified on a case-by-case basis. The Texas Department of Transportation (TxDOT), on the other hand, frequently incorporates continuous right turn lanes in their traffic designs and has expanded their drawings to include special curb ramps for traffic islands. It has also developed designs for switchback ramps to accommodate the high curbs frequently found in rural Texas towns.

Before beginning any new curb ramp project, it is important to study what has already worked (or failed) in similar initiatives. Furthermore, training for the entire team (including local design consultants and construction workers) is necessary to ensure a successful project. One recent example in Pennsylvania demonstrates the importance of training all personnel involved with a curb ramp project. A city was sued by a local advocacy group who claimed it had

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Compliance with ADA requires features not only for the physically challenged, but also the visually impaired. As such, detectable warnings—truncated domes—are now required on all new curb ramps.

failed to comply with the *Americans with Disabilities Act*. The city negotiated an interim settlement agreement that offered a curb ramp construction program as part of its ongoing resurfacing program while final settlement negotiations continued. Early in the program, the city had to suspend curb ramp construction because a high percentage of the newly constructed ramps were not ADA-compliant. The city asked a consulting firm to help them develop a training program (i.e. an eight-hour session) for their team including their engineering staff, inspection personnel, local consultants, and contractors. Ramp construction resumed and nearly 100-percent compliance in the new work was achieved almost immediately.

Ensuring the entire team is important. One person on the team may be more familiar with ADA issues than the others, so it is necessary to meet as a team well in advance of the project's commencement to ensure everyone can benefit from this knowledge before things are underway. Likewise, if no one on the team feels well-educated on the complexities of the act, an ADA-compliance training course might be extremely helpful for the team to undergo before starting the project. Advocacy groups, which are an excellent resource, should also be brought into the project during the planning stages to ensure any confusion about specifications is addressed in a timely manner. ♥

#### Notes

<sup>1</sup> When a public entity undertakes alterations to an existing building, it must also ensure the altered portions are accessible. While ADA does not require retrofitting of existing buildings to eliminate barriers, it establishes a high standard of accessibility for new facilities.

<sup>2</sup> The Department of Justice (DoJ) has established street resurfacing is an alteration—therefore, curb ramps must be installed at all intersections within a resurfacing area where sidewalks exist.

<sup>3</sup> One way to ensure the proper integration of curb ramps is to set a series of 'compliance milestones' for the municipality's transition plan. It may also be appropriate for a city government to establish an ongoing procedure for installing curb ramps upon request in both residential and non-residential areas frequented by individuals with disabilities.

<sup>4</sup> See the Access Board's *Detectable Warnings: Synthesis of U.S. and International Practice* (May 2000).

## Additional Information

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#### Abstract

Most municipalities have implemented features required by the *Americans with Disabilities Act* (ADA), but many of these features fall short of actually complying with the act.

With a little background knowledge, and a better understanding of options for detectable warnings, specifiers can alleviate some of the most common problems that occur when installing curb ramps.