

## ARTICLE

### A Six-Inch Mountain to Climb: Curb Ramp Problems, Concerns and Solutions

Kimberly Paarlberg, RA, ICC Senior Staff Architect



Key to making the route between an accessible parking lot and an accessible entrance accessible is design of the rise between the parking lot and the sidewalk.

An important part of making the route between an accessible parking lot and an accessible entrance accessible is managing the rise between the parking lot and the sidewalk. While an ambulatory person might not even notice this step up, it's like a mountain to a person using a mobility device such as a wheelchair, walker or crutches.

#### Common Mistakes

##### *A curb cut that is the same*

##### *width as the sidewalk (Figure 1).*

While the 1998 ICC A117.1 permitted this, and the 2003 ICC A117.1 permits it on existing sites being altered, it is not permitted in new construction (ICC A117.1 406.7). In new construction, a 36-inch-deep-minimum landing at the top of a curb ramp is required. Without it, a problem occurs when a pedestrian route is perpendicular and across the curb cut. The cut-in does not have a level route past the top of the ramp, and persons moving across the ramp have to deal with multiple slopes in changing directions. This is a tripping hazard for persons with mobility impairments. This type of curb cut is also difficult for a person using a wheelchair when they have to deal with the alternating slopes of the ramp surface and flared sides as they move up the curb cut at an angle.

##### *A built-up curb cut located in the parking access aisle (Figure 2).*

The access aisle for an accessible parking space is required to be level for the entire length of the parking space (ICC A117.1 502.5). A built-up curb ramp extending

Certified Professionals can take **Online Certification Renewal Update (ORU)** tests to quickly earn .5 CEUs for each ORU taken!

**SIGN ME UP!**



**2009 PLAN REVIEW RECORDS ARE HERE!**



Your key to consistent, detailed plan reviews. **SEE THEM NOW!**

## THIS ISSUE

### Features

- ▶ Big Sky Country Goes Digital with Plan Review
- ▶ Code Officials, Local and State Governments Embrace IGCC Public Version
- ▶ Video Feature: In Our Own Words
- ▶ Understanding Proper Application for Head-of-Wall Joints in Metal Building

into the access aisle creates a sloped surface that can make transfers from the vehicle to a mobility device difficult if not impossible. In addition, some transfer vans have deployment ramps that sense for level surfaces when they touch the ground. If the surface is not level, they will return to the closed position. If a built-up curb ramp is necessary to be able to get a landing at the top and bottom, it must be located on a route outside of the parking access aisles.



Figure 2: A built-up curb cut ramp overlapping access aisles.



Figure 1: Example of a curb cut that has no top landing and is in a bad location for access to the entrance.

### ***Curb ramps in bad locations*** (Figure 1).

Don't locate a curb cut or curb ramp, including any flared sides, so that it can be blocked by parked cars (ICC A117.1 406.6). Even if constructed correctly, if you cannot get to it, it doesn't work. Also, locate the curb ramp along the logical and common route between the accessible parking spaces and the accessible entrances (2009 IBC 1104.5 and 1106.6). A person using a mobility device must be able to move along with the general population

to the accessible entrance. This may not be the most direct line. One example is a route that leads to a marked crosswalk rather than cutting diagonally across a vehicular route. Also, remember that when curb ramps are at marked crossings, the crossing should include the ramp and the flared sides (ICC A117.1 406.6).

### **Code compliant examples that are not so user friendly**

#### ***Possible tripping hazards*** (Figure 3).

When there is space for a route past the top of a curb cut, flared sides are not required. However, this can be a tripping hazard in situations where the sidewalk is so crowded that the entire width is occupied or where the curb cut location might not be obvious to persons with vision impairments. A site designer could choose to provide flared sides, but they must have a maximum slope of 1:10.



Figure 3: Curb cuts with side curbs and painted surface pose a possible tripping hazard.

#### ***Not accounting for drainage***

### Systems

- ▶ [Common Firestop Violations](#)
- ▶ [Cleveland Firefighters and Building Department Partner to Identify Dangerous Vacant Structures](#)
- ▶ [A Six-Inch Mountain to Climb: Curb Ramp Problems, Concerns and Solutions](#)
- ▶ [New Column: Tools of the Trade](#)

### PMG

- ▶ [Methods to Venting Plumbing Fixtures and Traps-2009 IPC-Part 3](#)
- ▶ [Indiana Plans to Adopt ICC Plumbing Code Statewide](#)
- ▶ [ICC Assists Colombian Stakeholders to Upgrade Plumbing Code](#)

### ICC-ES

- ▶ [Building Codes and Innovation](#)

### IAS

- ▶ [Steel Fabricator Builds on Quality Reputation with Accreditation](#)

### ICCF

- ▶ [Successful Building Safety Month Sets Pace for Future Awareness Campaigns](#)

### ICC News

- ▶ [We Want Your Input: Blueprint to 2015](#)
- ▶ [Code Development Process Review](#)
- ▶ [ICCF Announces Code of Honor Scholarship Group A Winners](#)
- ▶ [Green Builder College Offers Discounts to ICC Members](#)
- ▶ [Dallas Hearings Building Tour](#)
- ▶ [Deadline Open July 12 for ICCF Code of Honor Scholarship Group B](#)
- ▶ [IGCC Public Comments Available July 2; Hearings Slated for Chicago in August](#)
- ▶ [Look to ICC-ES Reports for Code Compliance, Innovation, Sustainability](#)
- ▶ [Profiles in Safety](#)

If you use a built-up curb ramp, remember that the gutter it is crossing may be used as direct water drainage for the parking lot. It may be necessary to place a pipe under the ramp so that water can continue down the gutter rather than the curb ramp effectively working like a small dam.

### **Curbs in excess of 6 inches in height**

When something is classified as a curb ramp, handrails are not required, even if the rise is greater than 6 inches. Handrails are required on ramps with a rise of greater than 6 inches (ICC A117.1 405.8), but handrails are not part of the curb ramp requirements in recognition of street slopes and site drainage requirements. However, a site designer could add handrails if they felt that the rise was such that a person might need them for additional assistance.

### **Detectable warnings**

At this time, the IBC does not require detectable warnings on curb ramps (2009 IBC 1109.9). If they are provided ICC A117.1 does provide criteria for the location, area covered, standardization, contrast and pattern/texture (ICC A117.1 406.13 and 705). The intent of the truncated domes is for a person with vision impairments to realize when they have moved into a vehicular route. The location will vary based on the layout of the route and the orientation of the curb ramp on that route. For your information, detectable warnings are addressed in the Americans with Disabilities Act Accessibility Guidelines (ADAAG) but they are not required on curb ramps in the 2004 ADA/ABA Guidelines. For information on the development of new criteria, [click here](#).



Figure 4: Example of the new painted curb requirements

### **Something new**

The 2010 ICC A117.1 has added a new requirement for the sides of curb ramps when the curbs along the street or parking lot are painted. The purpose is to provide a visual clue for person with sight impairments. This version of the standard requires that the curb portion along the flared sides also be painted, but not the curb portion at the ramp itself (see Figure 4). It is important not to paint the flared sides of the curb ramps or the ramp surface itself.

The epoxy paints used for outdoor surfaces can be extremely slippery when wet.

### **Possible solutions**

A possible solution for sites where a 36-inch wide sidewalk is preferred would be to depress a section of the sidewalk to the level of the parking lot. A curb ramp at both ends of the route would be a straight slope, thus eliminating the need to either go around or negotiate over sloped sides. The minimum recommended length of the bottom landing would be 60



Figure 5: Curb solution with depressed sidewalk

inches, so that a person using a wheelchair could move to the front of the curb ramp on a flat surface (Figure 5). Since this is the width of the access aisle, that should not be a problem. The sidewalk could even be depressed along the entire width of several accessible spaces. This would allow multiple access points, thus greatly reducing the chance that the route would be blocked. Other options might be not having curbs (Figure 6) or locating the curb ramp away from the building edge (Figure 7). To see

- [▶ Events Calendar](#)
- [▶ Message from the President](#)
- [▶ The Heart of the Matter](#)

**GET ENERGY EFFICIENT**

This two-in-one book combines the **2009 IECC** and the **ASHRAE/IESNA 90.1-2007** to bring you everything you need to build energy efficient homes and buildings!



**Save money, build smarter.**

**NOW AVAILABLE!**

Figure 6 and 7, [click here](#).

Just some quick easy ideas that may help reduce that mountain to a molehill!

### **Bibliography**

2009 *International Building Code* (2009 IBC)

ICC A117.1 *Accessible and Usable Buildings and Facilities*, 2003 and 2010 editions (ICC A117.1)

United States Access Board – Public Rights-of-Way Guidelines



**NEW GUIDES FOR GOING GREEN**  
Get expert advice on: Green Homes, Green Roofs,  
and Building Design  
**LEARN MORE!**

©2010, International Code Council, Volume VII, No. 6