

TECH SHEET

Sidewalk Design Pedestrian Safety

EMC Insurance Companies®

Walking is a basic human activity, and almost everyone is a pedestrian at one time or another. The American Association of State Highway and Transportation Officials (AASHTO) Green Book states that “Pedestrians are a part of every roadway environment, and attention should be paid to their presence in rural as well as urban areas.” According to the Institute of Transportation Engineers, sidewalks “reduce the incidence of pedestrian collisions, injuries, and deaths in residential areas and along two-lane roadways.”

Without sidewalks, public rights-of-way are inaccessible to all pedestrians, including persons with disabilities. Sidewalks are recommended on both sides of all urban arterial, collector and most local roadways. Although local codes vary, the separation of the pedestrian from motorized traffic is an essential design feature of a safe and functional roadway.

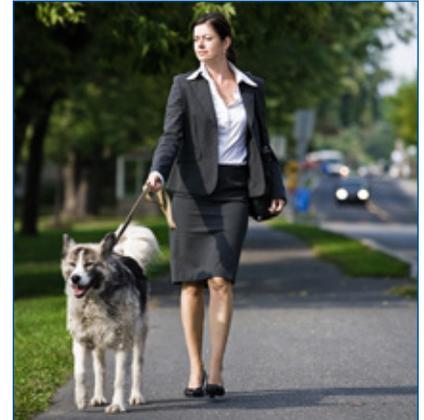
Basic Sidewalk Requirements

All sidewalks require the following basic ingredients for success: adequate width, a buffer from vehicular travel, curbing, gentle cross-slope (2 percent or less), a buffer to private properties, adequate sight distances around corners and at driveways, “shy distances” to walls and other structures, a clear path of travel free of street furniture, continuity, a well-maintained condition, ramps at corners and flat areas across driveways. Sidewalks also require sufficient capacity at corners so that the predicted volume of pedestrians can gain access to and depart from signalized intersections in an orderly manner.

Sidewalk Width

Most guidelines require design widths to be at least 60 inches. This is known as the pedestrian zone. Sidewalks should have a minimum width of 7½ feet if set back from the curb. Anything less does not meet the minimum requirements for people with disabilities. Walking is a social activity and for two people to walk together, 5 feet of space is the

minimum. In some areas, such as near schools, sporting complexes, parks and shopping districts, the recommended minimum width for a sidewalk is 10 feet.



Shy Distance

The width of the sidewalk is also affected by pedestrian travel tendencies. Pedestrians tend to travel in the center of sidewalks to separate themselves from traffic and avoid street furniture, vertical obstructions and other pedestrians entering and exiting buildings. Pedestrians avoid the edge of the sidewalk close to the street because it often contains utility poles, bus shelters, parking meters, sign poles and other street furniture. The sidewalk area that pedestrians tend to avoid is referred to as the “shy distance.” Taking into account the shy distance, only the center 6 feet of a sidewalk that is 10 feet wide is used by pedestrians for travel.

Continued

Obstructions

At least 6 feet of the sidewalk width should remain clear of obstructions such as sign posts, utility and signal poles, mailboxes, parking meters, fire hydrants, trees and other street furniture. Obstructions should be placed between the sidewalk and the roadway, to create a “buffer” for increased pedestrian comfort. Movable obstructions such as sign boards, tables and chairs should be placed in such a way that maintains the 6-foot minimum width. Obstructions should not impair visibility of motorists. Vertical clearance to obstructions (signs, overhanging trees, etc.) should be at least 80 inches.

Planting Strips

Well-designed streets include planting strips. A planting strip should be 2 feet wide or greater (4 feet if planting trees), and landscaped with low-maintenance plantings or grass. The extra separation from motor vehicle traffic decreases road noise, prevents water puddles from being splashed onto sidewalks and generally increases a walker’s sense of security. Planting strips offer many other benefits, such as room for trees, sign posts and poles and a place for snow removed from sidewalks during the winter.

Object Setback

Street furniture, such as benches, garbage cans and bus shelters, should be out of the normal travel path to the greatest extent possible. Object setback is the area adjacent to the roadway that is free of obstructions. However, the purpose of the object setback is to provide an operational clearance to increase driver comfort and avoid a negative impact on traffic flow. It also improves aesthetics, provides an area for excess snow removed and, in areas with curbside parking, provides a clear area to open car doors. The maximum object setback possible should be provided. The minimum object setback recommended is 2 feet, as measured from the back of curb. Additional object setback beyond the minimum may be required near turning radius at intersections and driveways.

Street furniture that is higher than 3.5 feet can create a sight-distance concern and may require additional setback, depending on the intersection. Trees, street furniture and other objects should not reduce visibility of pedestrians, bicyclists or motorists. On higher speed roads (40 mph and above), trees are often set at the back of the sidewalk. On low-speed roadways, trees are best placed between the sidewalk and curb. A setback of 4 feet from the curb should be provided. Areas that have significant accumulations of snow during the winter will also require a greater object setback. A minimum width of 72 inches is recommended for areas where significant amounts of snow will be plowed from the sidewalks.

Grades

If possible, grades should be kept to no more than 5 percent, and, terrain permitting, grades greater than 8 percent should be avoided. When this is not possible, railings and other aids can be installed to help elderly adults and individuals with disabilities. The Americans with Disabilities Act (ADA) does not require designers to change topography, but only to work within its limitations and constraints.

For Additional Information

U.S. Department of Transportation:

www.fhwa.dot.gov

- Designing Sidewalks and Trails for Access

Transportation Research Board: www.trb.org

- Guide for Reducing Collisions Involving Pedestrians

Iowa Statewide Urban Design and Specifications: www.iowasudas.org

EMC Tech Sheets: www.emcins.com

- Sidewalk Design ADA Considerations
- Sidewalk Maintenance Program