4.4.3 Driveway Crossings

Driveway crossings permit cars to cross the sidewalk and enter the street, and they consist of the same components found in curb ramps. It is the driver's responsibility to yield to the pedestrian at the driveway–sidewalk interface.

Figure 4-32: Driveway crossings without landings confront wheelchair users with severe and rapidly changing cross-slopes at the driveway flare.

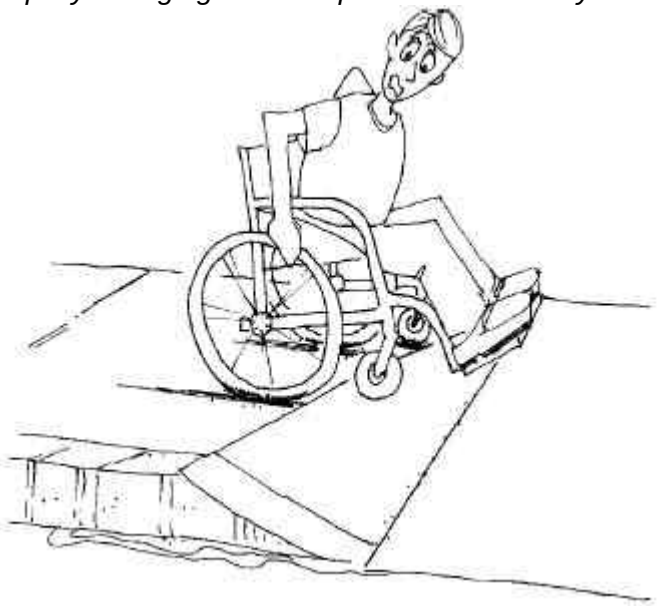


Figure 4-33: When sidewalks have a planter strip, the ramp of the driveway does not interfere with a pedestrian's path of travel.

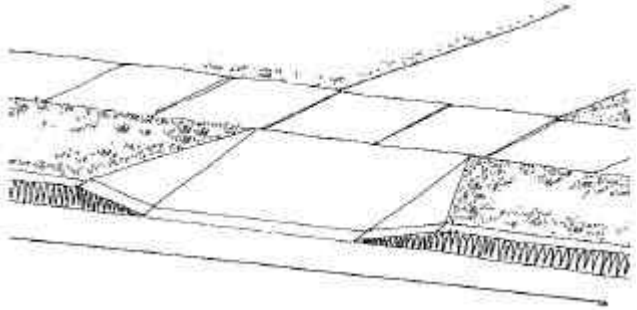


Figure 4-34: On wide sidewalks, there is enough room to provide a ramp for drivers and retain a level landing for pedestrians.

Figure 4-35: Jogging the sidewalk back from the street provides a level landing for pedestrians on narrow sidewalks.

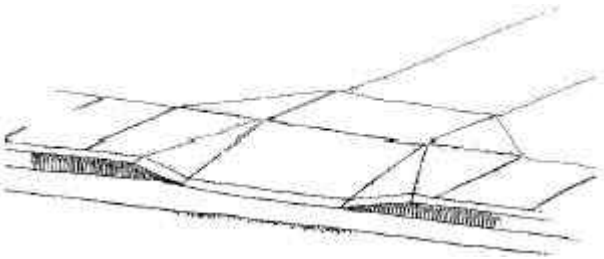
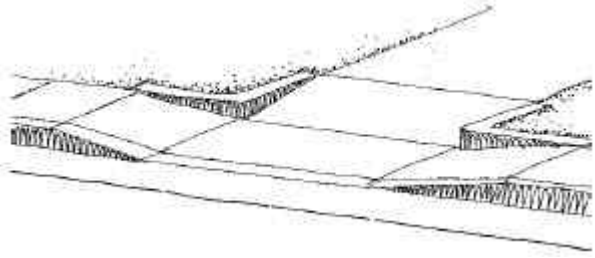


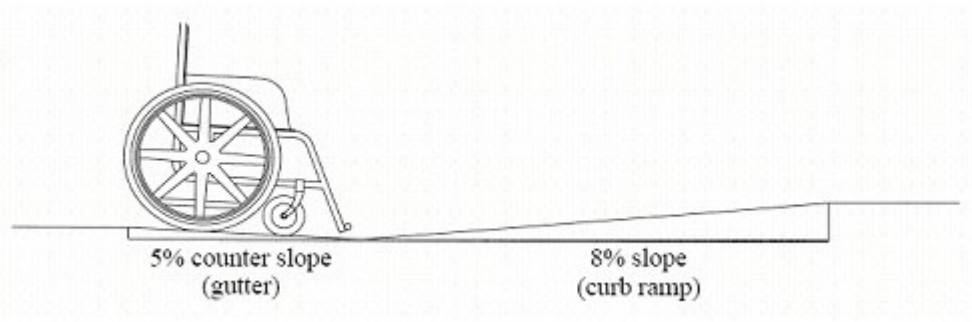
Figure 4-36: Although parallel driveway crossings provide users with level landings, users continuing on the sidewalk are forced to negotiate two ramps.



642.1.4 Running Slope, or Grade

The running slope, or grade is defined as the slope parallel to the direction of travel, with the running grade defined as the average grade along a continuous grade. The grade of a sidewalk should be as level as possible allowing easy use by travelers. For pedestrian facilities on public access routes, the running grade of sidewalks will be a maximum of 5%. If this is technically infeasible, the sidewalk may be consistent with the running grade of the adjacent roadway. If the sidewalk cannot be kept at the same grade as the adjacent roadway and the grade is greater than 5%, the sidewalk may be considered a ramp and designed in accordance with EPG 642.2 Sidewalk Ramp and Curb Ramp Design Criteria.

The rate of change in grade, the algebraic difference, measured over 2 ft. intervals, is not to exceed 13%. An example of a 13% change in grade is shown in Figure 642.1.4.1. Figure 642.1.4.2 illustrate how excessive slopes impact wheelchairs.



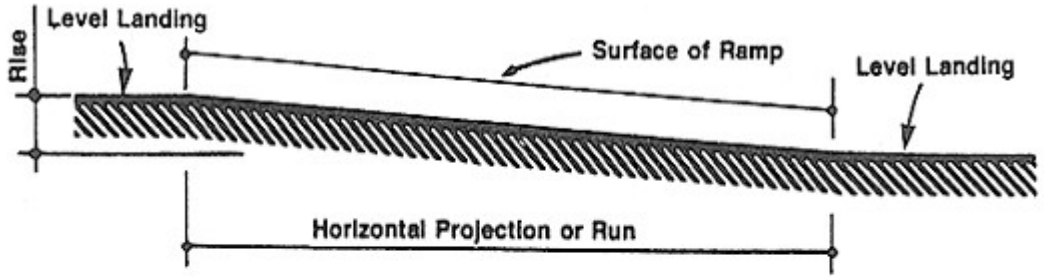
EPG

642.2.1 Slope and Rise of Sidewalk Ramps

When the running slope, or grade, of a sidewalk exceeds 5% it is a ramp. If the sidewalk is adjacent to the street or separated by a narrow planting strip, the sidewalk grade may be equal to the grade of the street and not be considered a ramp. Ramps typically occur on an accessible route leading to a facility or otherwise separated from the street.

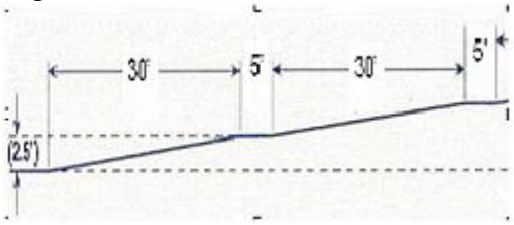
The cross slope for all ramps is to be 1%, but a maximum of 2.0% is allowed by ADA standards. Although the maximum running slope of a ramp in new construction is 1V:12H (8.33%), as discussed before, all sidewalks are to be designed with the least running slope possible. In an

alteration project if it is technically infeasible to meet the running slope requirement, every effort should be made to flatten the slope as much as possible and provide landings where necessary. Clear documentation of any exceptions should be kept in the project file.
The maximum rise in any run will be 30 in. Examples of various slopes and ramp lengths are shown in Figure 642.2.1.



	Maximum Rise		Maximum Horizontal Projection	
Slope	in	mm	ft	m
1:12 to < 1:16	30	760	30	9
1:16 to < 1:20	30	760	40	12

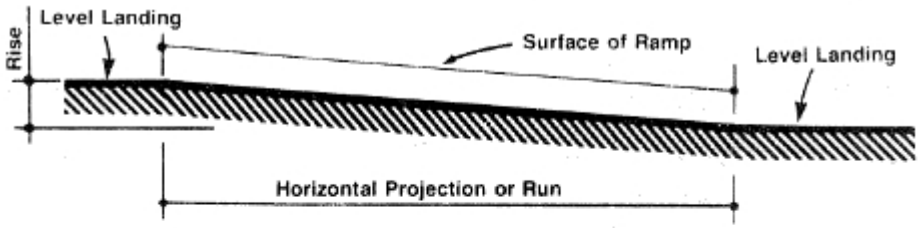
Figure 642.2.1



A landing will be located at the top and bottom of all ramps and between segments that have a 30 in. rise. The landing will be at least the width of the ramp with a minimum length of 60 in. If a turn is required the landing must be 5 ft. x 5 ft. For example, a segment with a running slope of 1V:12H, or 8.33% will require a 5 ft. x 5 ft. landing every 30 ft. if it is part of a switchback access route.
A vertical rise greater than 6 in. will require a handrail. Handrails must be compliant with ADA standards, Section 4.8.5 (http://www.ada.gov/reg3a.html#Anchor-19425) ****
Edge protection will be provided on ramps and landings with drop-offs and shall have curbs, walls, railings, or projecting surfaces that prevent people from slipping off the ramp. Curbs shall have a minimum height of 2 in.

*****ADA.GOV**
4.8 Ramps.
4.8.1* General. Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with 4.8.
4.8.2* Slope and Rise. The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be 30 in (760 mm) (see Fig. 16). Curb ramps and ramps to be constructed on existing sites or in existing

buildings or facilities may have slopes and rises as allowed in 4.1.6(3)(a) if space limitations prohibit the use of a 1:12 slope or less.
4.8.3 Clear Width. The minimum clear width of a ramp shall be 36 in (915 mm).
4.8.4* Landings. Ramps shall have level landings at bottom and top of each ramp and each ramp run. Landings shall have the following features:
(1) The landing shall be at least as wide as the ramp run leading to it.
(2) The landing length shall be a minimum of 60 in (1525 mm) clear.
(3) If ramps change direction at landings, the minimum landing size shall be 60 in by 60 in (1525 mm by 1525 mm).
(4) If a doorway is located at a landing, then the area in front of the doorway shall comply with 4.13.6.
4.8.5* Handrails. If a ramp run has a rise greater than 6 in (150 mm) or a horizontal projection greater than 72 in (1830 mm), then it shall have handrails on both sides. Handrails are not required on curb ramps or adjacent to seating in assembly areas. Handrails shall comply with 4.26 and shall have the following features:
(1) Handrails shall be provided along both sides of ramp segments. The inside handrail on switchback or dogleg ramps shall always be continuous.
(2) If handrails are not continuous, they shall extend at least 12 in (305 mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface (see Fig. 17).
(3) The clear space between the handrail and the wall shall be 1 - 1/2 in (38 mm).
(4) Gripping surfaces shall be continuous.
(5) Top of handrail gripping surfaces shall be mounted between 34 in and 38 in (865 mm and 965 mm) above ramp surfaces.
(6) Ends of handrails shall be either rounded or returned smoothly to floor, wall, or post.
(7) Handrails shall not rotate within their fittings.
4.8.6 Cross Slope and Surfaces. The cross slope of ramp surfaces shall be no greater than 1:50. Ramp surfaces shall comply with 4.5.



	Maximum Rise		Maximum Horizontal Projection	
Slope	in	mm	ft	m
1:12 to < 1:16	30	760	30	9
1:16 to < 1:20	30	760	40	12

[D]

Fig. 16
Components of a Single Ramp Run and Sample Ramp Dimensions