



Capital Improvements Plan

ADA Projects

Group C

General Specifications

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1. Design Criteria from the ADA Accessibility Guidelines

A. General Information for Accessible Ramps

Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp.

Wheelchair Ramp Specs: Slope and Rise

Ramp slopes between 1:16 and 1:20 are preferred. The ability to manage an incline is related to both its slope and its length. Wheelchair users with disabilities affecting their arms or with low stamina have serious difficulty using inclines.

Most ambulatory people and most people who use wheelchairs can manage a slope of 1:16. Many people cannot manage a slope of 1:12 for 30 ft (9 m).

Therefore, to build according to wheelchair ramp specs, 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).

No alteration shall be undertaken which decreases or has the effect of decreasing accessibility or usability of a building or facility below the requirements for new construction at the time of alteration.

Wheelchair Ramp Specs: Clear Width

The minimum clear width of a ramp shall be 36 in (915 mm).

Wheelchair Ramp Specs: Landings

Level landings are essential toward maintaining an aggregate slope that complies with ADA guidelines. A ramp landing that is not level causes individuals using wheelchairs to tip backward or bottom out when the ramp is approached.

Therefore, ramps shall have level landings at bottom and top of each ramp and each ramp run. Landings shall have the following features

- The landing shall be at least as wide as the ramp run leading to it.
- The landing length shall be a minimum of 60 in (1525 mm) clear.
- If ramps change direction at landings, the minimum landing size shall be 60 in by 60 in (1525 mm by 1525 mm).
- If a doorway is located at a landing, then the area in front of the doorway shall comply with the ADA wheelchair ramp specs shown in this Figure 25, below.

Wheelchair Ramp Specs: Handrails

The requirements for stair and ramp handrails in this guideline are for adults. When children are principal users in a building or facility (e.g. elementary schools), a second set of handrails at an appropriate height can assist them and aid in preventing accidents.

A maximum height of 28 inches measured to the top of the gripping surface from the ramp surface or stair nosing is recommended for handrails designed for children.

Sufficient vertical clearance between upper and lower handrails (9 inches minimum) should be provided to help prevent entrapment.

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 have the following features:

- Handrails shall be provided along both sides of ramp segments. The inside handrail on switchback or dogleg ramps shall always be continuous.
- 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.
- The clear space between the handrail and the wall shall be 1 - 1/2 in (38 mm).
- Gripping surfaces shall be continuous.
- Top of handrail gripping surfaces shall be mounted between 34 in and 38 in (865 mm and 965 mm) above ramp surfaces.
- Ends of handrails shall be either rounded or returned smoothly to floor, wall, or post.
- Handrails shall not rotate within their fittings.

Cross Slope and Surfaces

The cross slope of ramp surfaces shall be no greater than 1:50. Ramp surfaces shall comply with ADA standards for ground and floor surface.

Wheelchair Ramp Specs: Edge Protection

Ramps and landings with drop-offs shall have curbs, walls, railings, or projecting surfaces that prevent people from slipping off the ramp. Curbs shall be a minimum of 2 in (50 mm) high.

Ramp Specs: Outdoor Conditions

Outdoor ramps and their approaches shall be designed so that water will not accumulate on walking surfaces.

B. Figures

(Note: These diagrams are standards from the ADAAG, and details from other sources. Not all figures are included here, so numbering is not consecutive.)

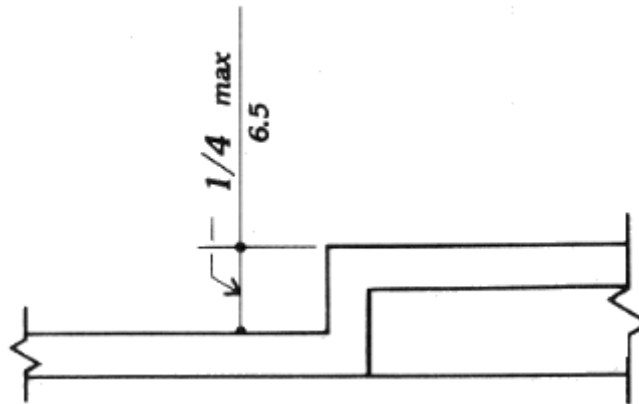


Figure 7(c)
Accessible Route
Changes in level

Cross section drawing showing a maximum 1/4 inch vertical change in level.

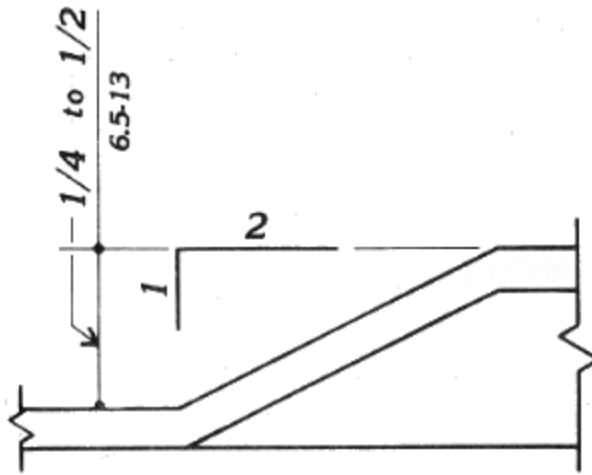
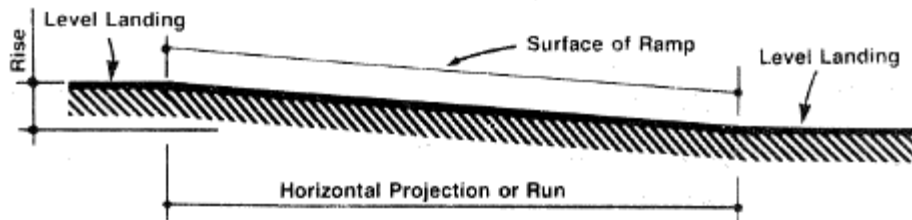


Figure 7(d)
Accessible Route
Changes in level

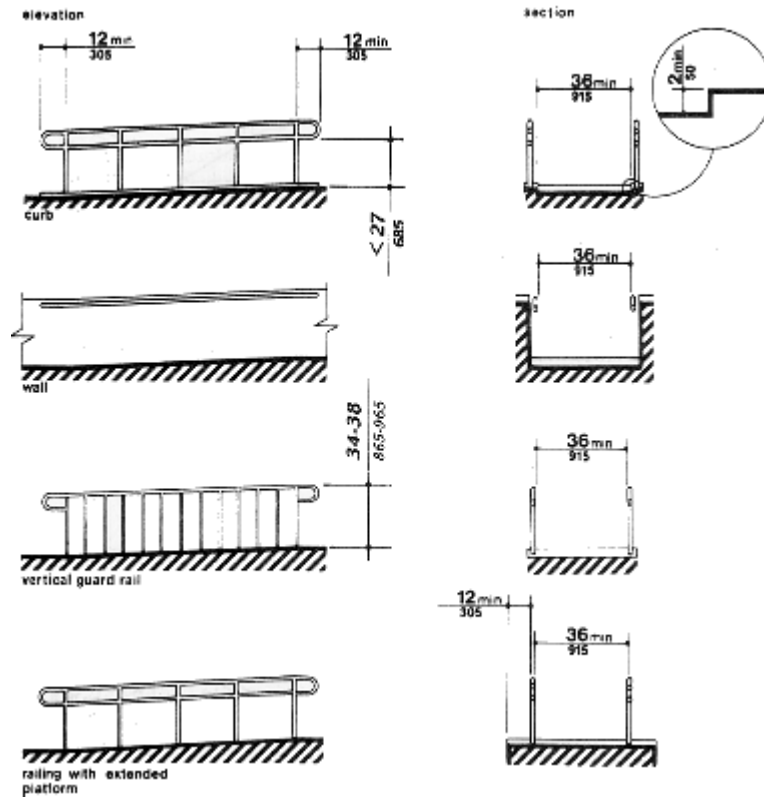
Cross section drawing showing a change in level 1/4 to 1/2 inch high with a 1:2 slope.



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

Figure 16
Components of a Single Ramp Run and Sample Ramp Dimensions

If the slope of a ramp is between 1:12 and 1:16, the maximum rise shall be 30 inches (760 mm) and the maximum horizontal run shall be 30 feet (9 m). If the slope of the ramp is between 1:16 and 1:20, the maximum rise shall be 30 inches (760 mm) and the maximum horizontal run shall be 40 feet (12 m).



/p>

Figure 17
Examples of Edge Protection and Handrail Extensions

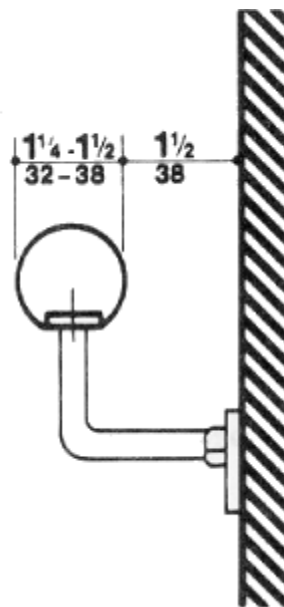
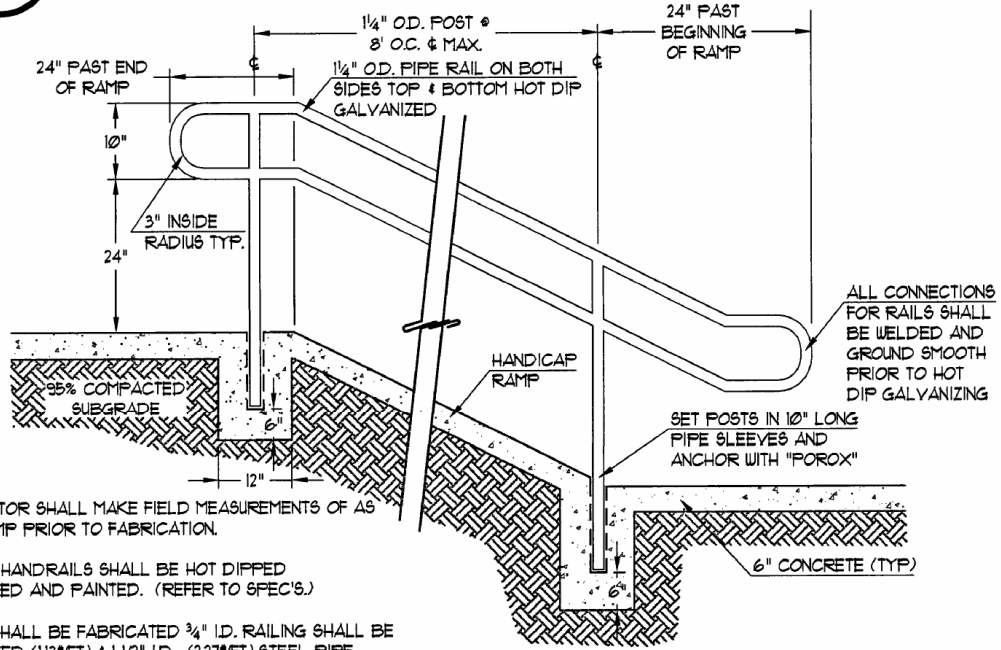


Figure 39a
Size and Spacing of Handrails and Grab Bars Handrail



NOTE:
 CONTRACTOR SHALL MAKE FIELD MEASUREMENTS OF AS BUILT RAMP PRIOR TO FABRICATION.

FINISH OF HANDRAILS SHALL BE HOT DIPPED GALVANIZED AND PAINTED. (REFER TO SPEC'S.)

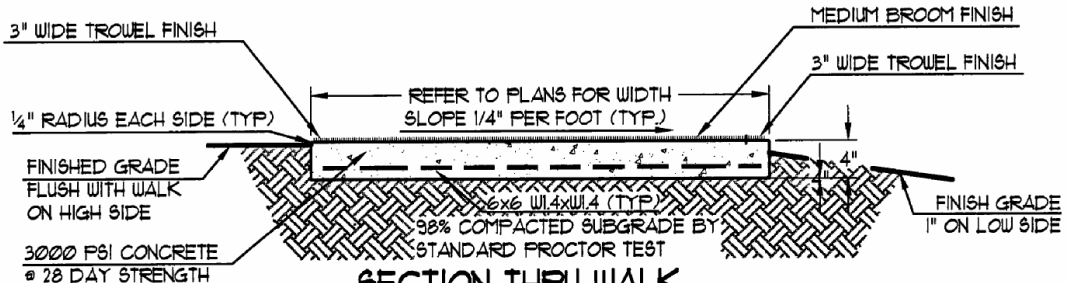
RAILING SHALL BE FABRICATED 3/4" I.D. RAILING SHALL BE FABRICATED (1.13"/FT) & 1 1/2" I.D. (2.27"/FT) STEEL PIPE (SCHEDULE 40) WELD ALL JOINTS. GRIND WELDS SMOOTH.

CONTINUE RAILING THROUGH LANDINGS.

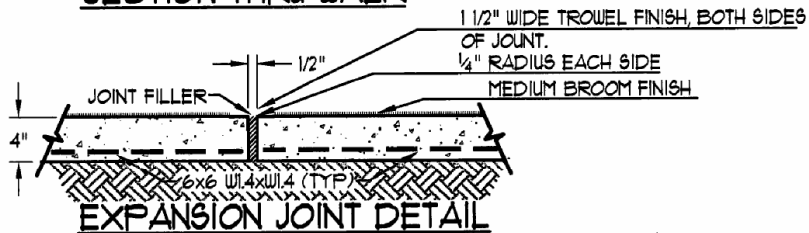
HANDICAP RAMP RAILING

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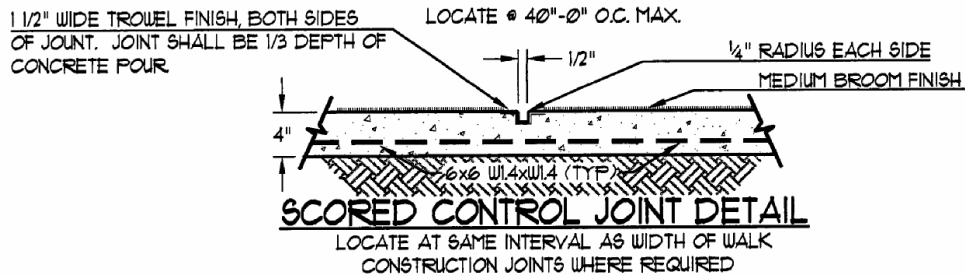
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SECTION THRU WALK



EXPANSION JOINT DETAIL



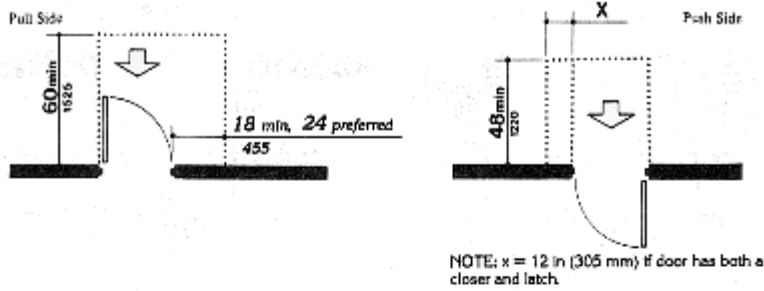
SCORED CONTROL JOINT DETAIL

LOCATE AT SAME INTERVAL AS WIDTH OF WALK CONSTRUCTION JOINTS WHERE REQUIRED

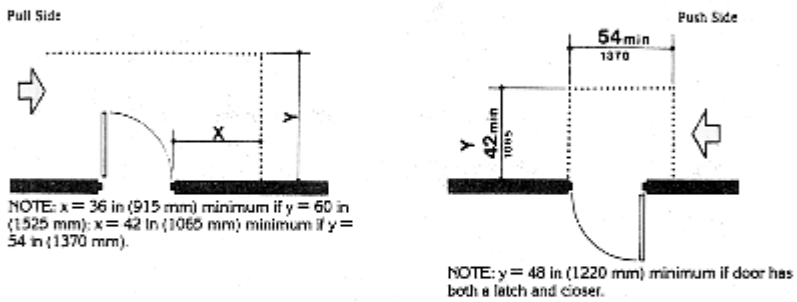
CONCRETE WALK DETAIL

14

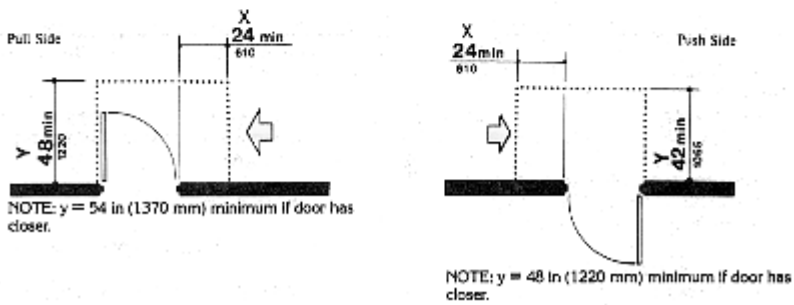
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(b) Front Approaches — Swinging Doors



(b) Hinge Side Approaches — Swinging Doors



(c) Latch Side Approaches — Swinging Doors

NOTE: All doors in alcoves shall comply with the clearances for front approaches.

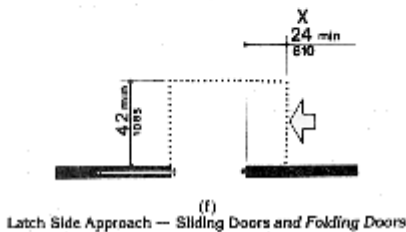
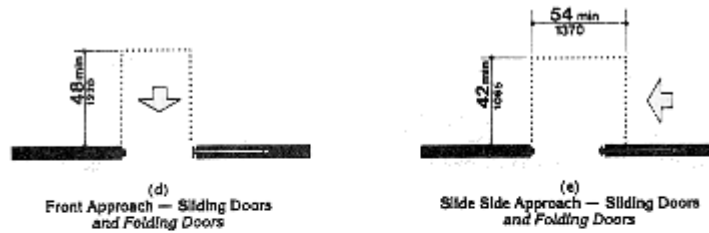


Figure 25

Maneuvering Clearances at Doors

NOTE: All doors in alcoves shall comply with the clearances for front approaches.

Diagram (a) Front Approaches -- Swinging Doors. Front approaches to pull side of swinging doors shall have maneuvering space that extends 18 in (455 mm) minimum beyond the latch side of the door and 60 in (1525 mm) minimum perpendicular to the doorway.

Front approaches to push side of swinging doors, equipped with both closer and latch, shall have maneuvering space that extends 12 in (305 mm) minimum beyond the latch side of the door and 48 in (1220 mm) minimum perpendicular to the doorway.

Front approaches to push side of swinging doors, not equipped with latch and closer, shall have maneuvering space that is the same width as door opening and extends 48 in (1220 mm) minimum perpendicular to the doorway.

Diagram (b) Hinge Side Approaches. Hinge-side approaches to pull side of swinging doors shall have maneuvering space that extends 36 in (915 mm) minimum beyond the latch side of the door if 60 in (1525 mm) minimum is provided perpendicular to the doorway or maneuvering space that extends 42 in (1065 mm) minimum beyond the latch side of the door shall be provided if 54 in (1370 mm) minimum is provided perpendicular to the doorway.

Hinge-side approaches to push side of swinging doors, not equipped with both latch and closer, shall have a maneuvering space of 54 in (1370 mm) minimum, parallel to the doorway and 42 in (1065 mm) minimum, perpendicular to the doorway.

Hinge side approaches to push side of swinging doors, equipped with both latch and closer, shall have maneuvering space of 54 in (1370 mm) minimum, parallel to the doorway, 48 in (1220 mm) minimum perpendicular to the doorway.

Diagram (c) Latch Side Approaches -- Swinging Doors. Latch-side approaches to pull side of swinging doors, with closers, shall have maneuvering space that extends 24 in (610 mm) minimum beyond the latch side of the door and 54 in (1370 mm) minimum perpendicular to the doorway.

Latch-side approaches to pull side of swinging doors, not equipped with closers, shall have maneuvering space that extends 24 in (610 mm) minimum beyond the latch side of the door and 48 in (1220 mm) minimum perpendicular to the doorway.

Latch-side approaches to push side of swinging doors, with closers, shall have maneuvering space that extends 24 in (610 mm) minimum parallel to the doorway beyond the latch side of the door and 48 in (1220 mm) minimum perpendicular to the doorway.

Latch-side approaches to push side of swinging doors, not equipped with closers, shall have maneuvering space that extends 24 in (610 mm) minimum parallel to the doorway beyond the latch side of the door and 42 in (1065 mm) minimum perpendicular to the doorway.

Diagram (d) Front Approach -- Sliding Doors and Folding Doors. Front approaches to sliding doors and folding doors shall have maneuvering space that is the same width as the door opening and shall extend 48 in (1220 mm) minimum perpendicular to the doorway.

Diagram (e). Slide-side approaches to sliding doors and folding doors shall have a maneuvering space of 54 in (1370 mm) minimum, parallel to the doorway, and 42 in (1065 mm) minimum, perpendicular to the doorway.

Diagram (f) Latch Side Approach -- Sliding Doors and Folding Doors. Latch-side approaches to sliding doors and folding doors shall have a maneuvering space that extends 24 in (610 mm) minimum beyond the latch side of the door and extends 42 in (1065 mm) minimum perpendicular to the doorway.

Depending on the direction of approach, diagrams (a) through (f) illustrate minimum maneuvering space depths and latch side clearances for both push and pull sides of swinging, sliding and folding doors. (4.13.6).

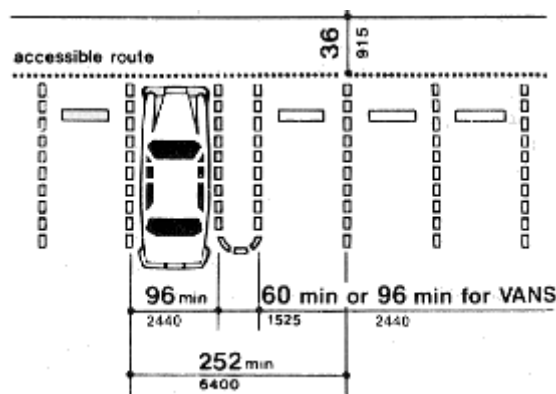
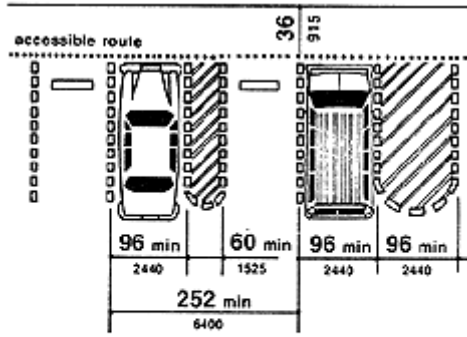


Figure 9
Dimensions of Parking Spaces

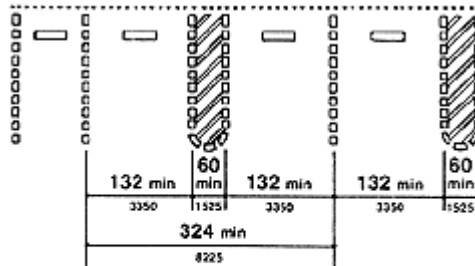
The access aisle shall be a minimum of 60 inches (1525 mm) wide for cars or a minimum of 96 inches (2440 mm) wide for vans. The accessible route connected to the access aisle at the front of the parking spaces shall be a minimum of 36 inches (915 mm).



(a)
Van Accessible Space at End Row

Fig. A5
Parking Space Alternatives

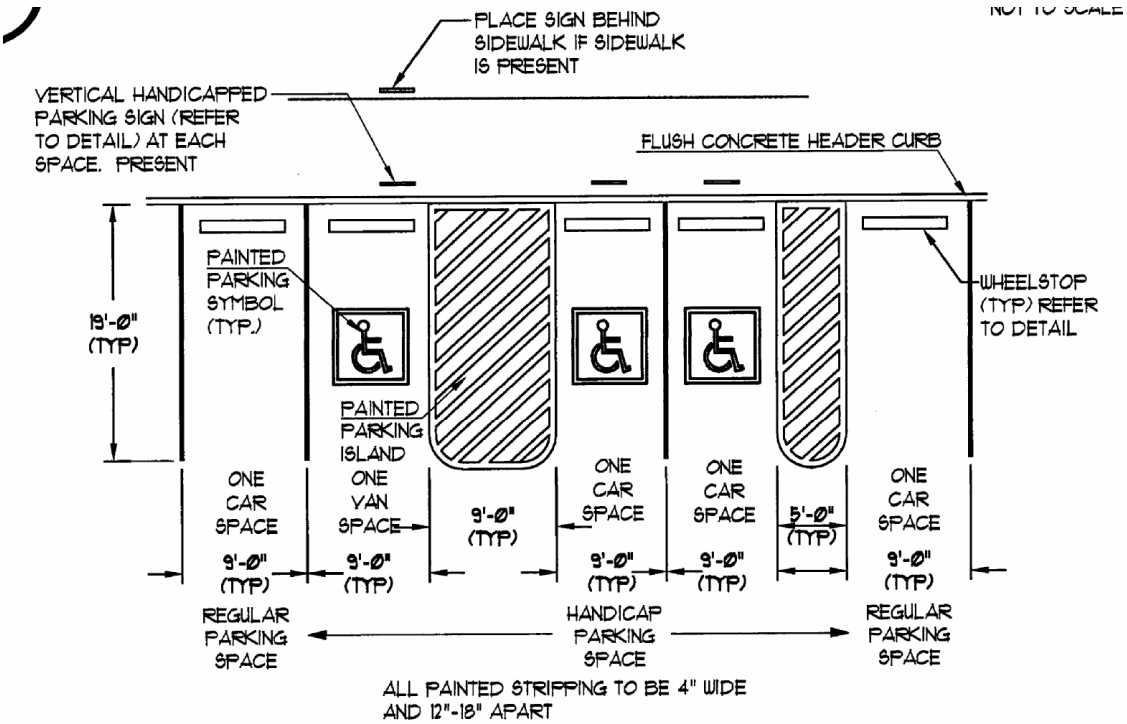
Figure A5a
Parking Space Alternatives
Van Accessible Space at End Row



(b)
Universal Parking Space Design

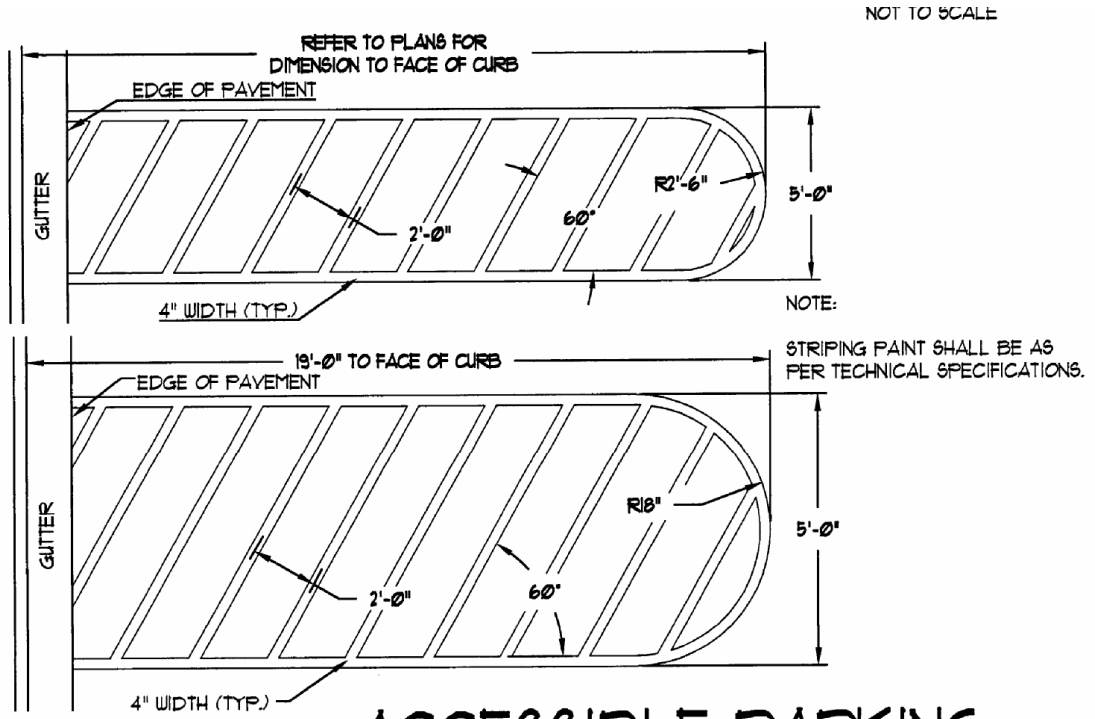
Fig. A5
Parking Space Alternatives

Figure A5b
Parking Space Alternatives
Universal Parking Space Design



HANDICAP PARKING DETAIL

NOT TO SCALE



ACCESSIBLE PARKING

NOT TO SCALE

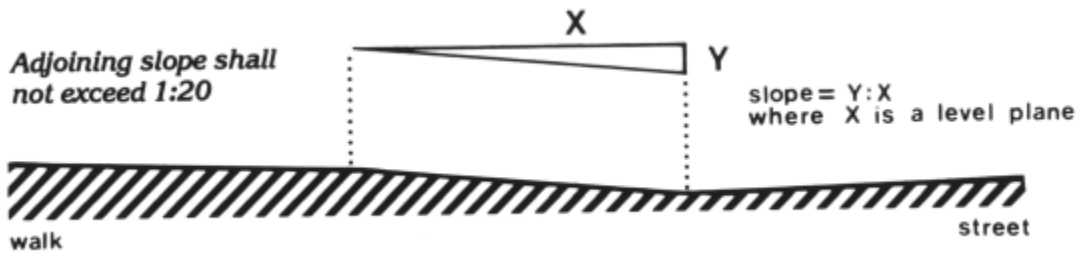
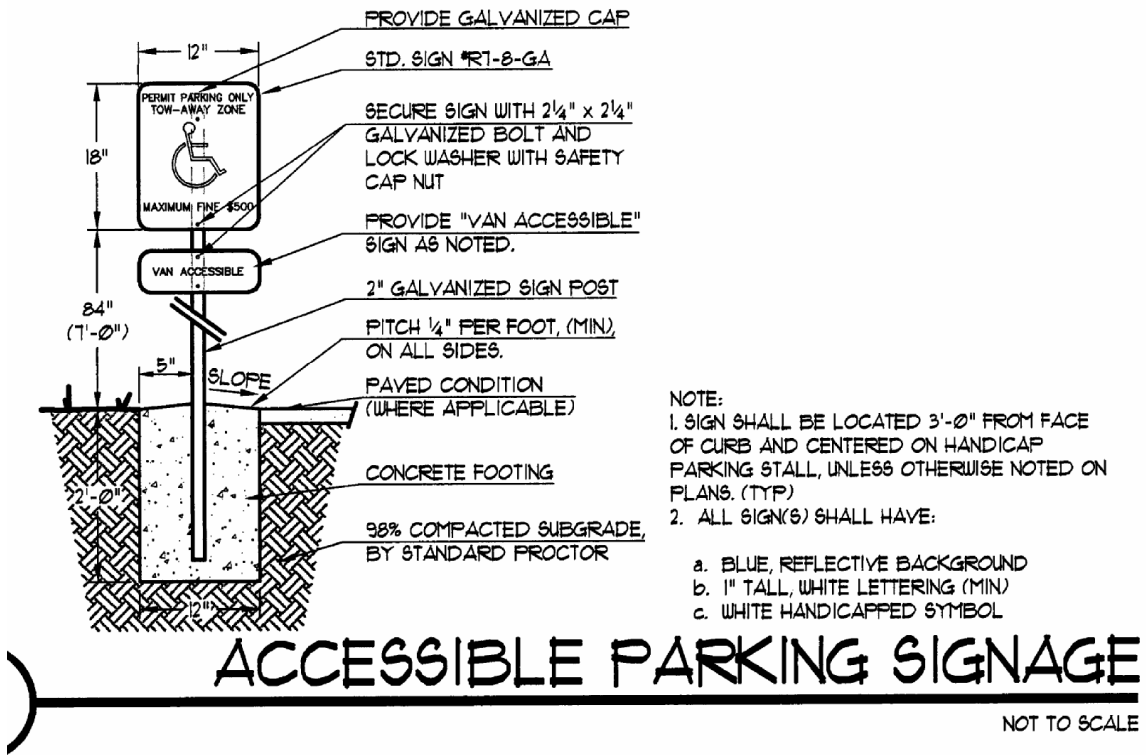


Figure 11
Measurement of Curb Ramp Slopes

The ramp slope is a ratio equal to the vertical rise (y) divided by the horizontal run (x). It is equal to the tangent of the angle that the plane of the ramp surface makes with a horizontal (level) plane. For a curb ramp, the adjoining slope at walk or street shall not exceed 1:20.

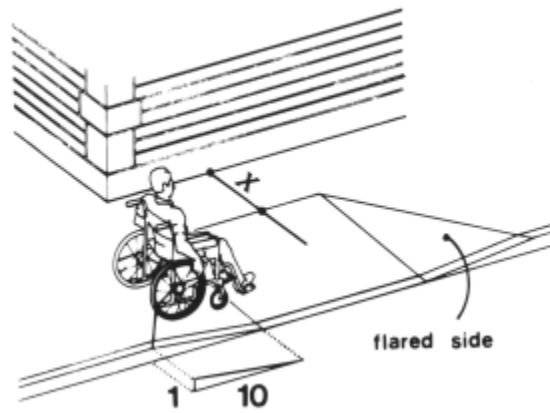


Figure 12(a)
Sides of Curb Ramps
Flared Sides

Note: If X is less than 48 inches, then the slope of the flared side shall not exceed 1:12.

This figure shows a typical curb ramp, cut into a walkway perpendicular to the curb face, with flared sides having a maximum slope of 1:10. The landing at the top, measured from the top of the ramp to the edge of the walkway or closest obstruction is denoted as "x". If x, the landing depth at the top of a curb ramp, is less than 48 inches, then the slope of the flared side shall not exceed 1:12.

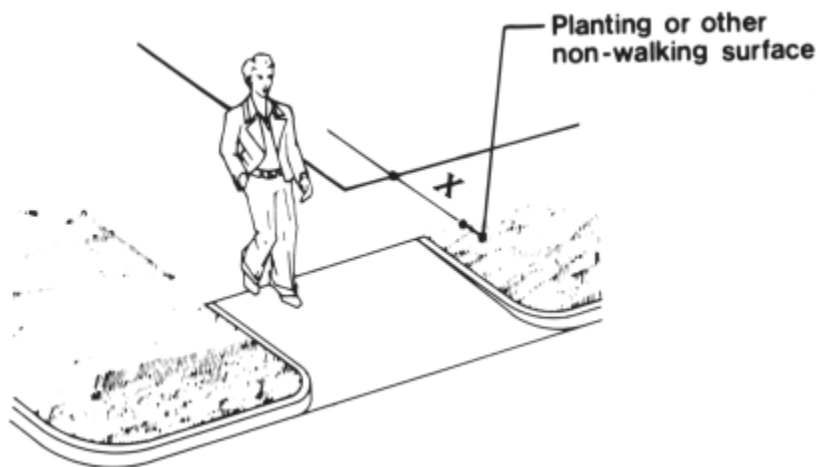
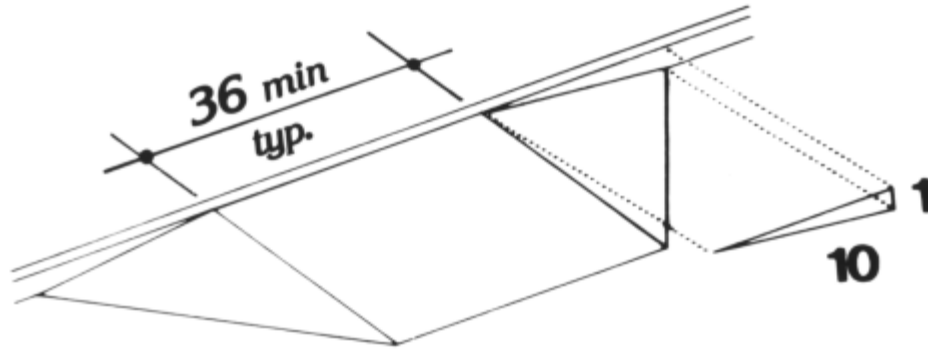


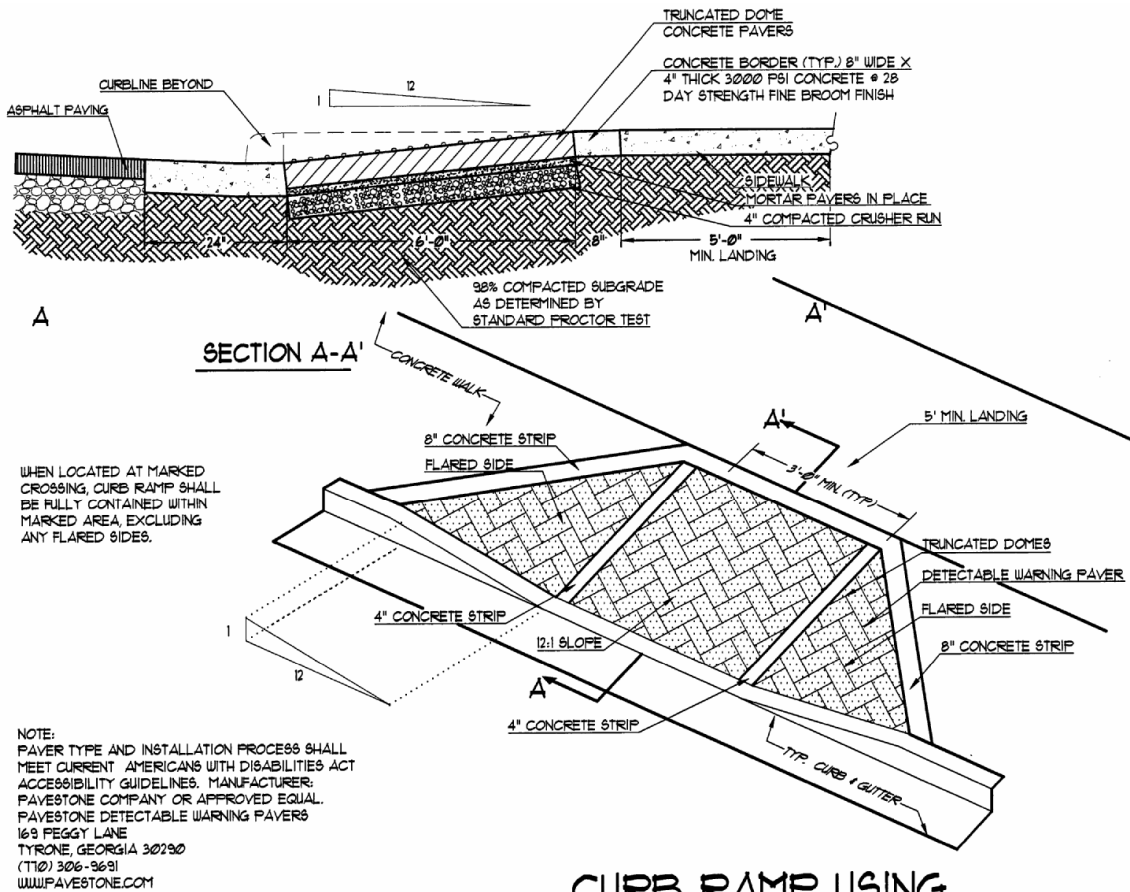
Figure 12(b)
Sides of Curb Ramps
Returned Curb

Where the curb ramp is completely contained within a planting strip or other non-walking surface, so that pedestrians would not normally cross the sides, the curb ramp sides can have steep sides including vertical returned curbs.



**Figure 13
Built-Up Curb Ramp**

A built-up curb ramp extends outward from the curb and slopes to the ground surface. The sides must also be tapered from the ramp surface to the ground, with a maximum slope of 1:10, so that there are no drop-offs along the edges.

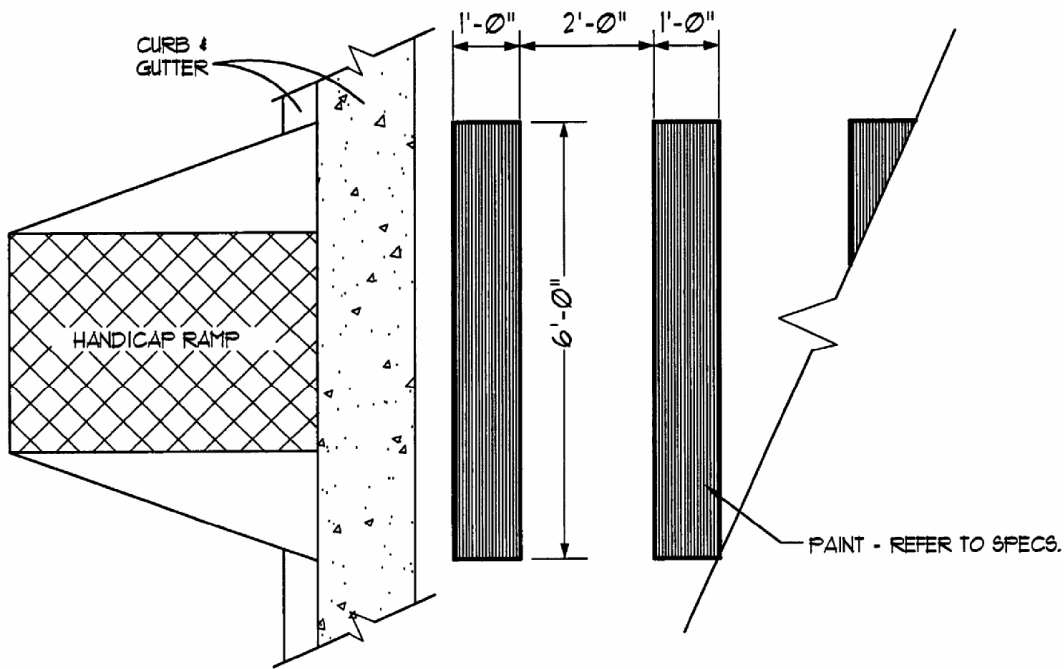


**CURB RAMP USING
DETECTABLE WARNING PAVERS**



PROVIDE DETECTABLE WARNING

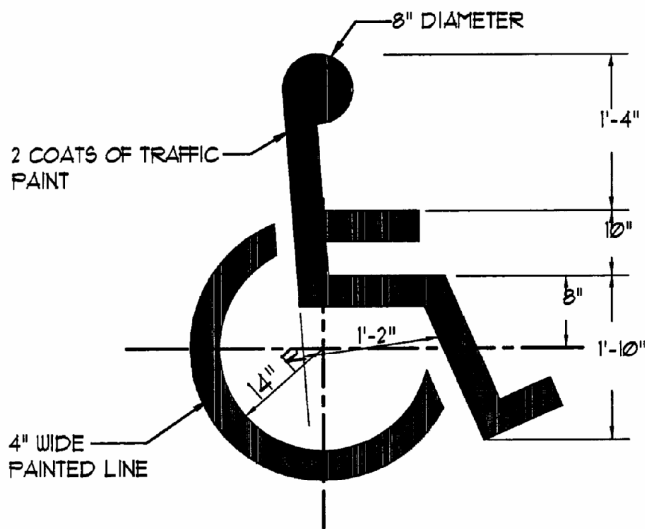
NOT TO SCALE



8

CROSS-WALK STRIPING DETAIL

NOT TO SCALE



INTERNATIONAL HANDICAP SYMBOL

NOT TO SCALE