

AN ORDINANCE AMENDING CHAPTER 8, "CONSTRUCTION REGULATIONS," ARTICLE VI, "UNIFORM CODES AND OTHER REGULATIONS," DIVISION 2, "BUILDING CODE," OF THE ABILENE MUNICIPAL CODE, BY AMENDING CERTAIN SECTIONS AS SET OUT BELOW; PROVIDING A SEVERABILITY CLAUSE; AND DECLARING A PENALTY.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ABILENE, TEXAS:

PART 1: That Chapter 8, Article VI, Division 2, "Building Code," of the Abilene Municipal Code be amended as set out in Exhibit "A," attached hereto and made a part of this ordinance for all purposes.

PART 2: That if any provision or any section of this ordinance shall be held to be void or unconstitutional, such holding shall in no way affect the validity of the remaining provisions or sections of this ordinance, which shall remain in full force and effect.

PART 3: That any person, firm or corporation violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not more than Two Hundred Dollars (\$200.00). Each day such violation shall continue or be permitted to continue, shall be deemed a separate offense. Said Ordinance, being a penal ordinance, becomes effective ten (10) days after its publication in the newspaper, as provided by Section 19 of the Charter of the City of Abilene.

PASSED ON FIRST READING this 19 day of May, A.D. 1988.

PASSED ON SECOND AND FINAL READING this 23 day of June, A.D. 1988.

ATTEST:

*Patricia Hancock*  
CITY SECRETARY

*Dale Ferguson*  
MAYOR

APPROVED:

*Dorothy Palermo*  
CITY ATTORNEY

EXHIBIT "A"

APPENDIX CHAPTER 5

"Accessibility Standards"

(a) General Purpose & Application

- (1) **Purpose.** This article is concerned with nonambulatory disabilities, semi-ambulatory disabilities, disabilities of coordination and aging.

It is intended to make all buildings and facilities covered by this chapter accessible to, and functional for, the physically handicapped to, through and within their doors, without loss of function, space or facilities where the general public is concerned.

- (2) **Application to Existing Buildings.** Buildings in existence at the time of the adoption of this code are not required to meet these requirements at this time. However, significant alterations, repairs, additions or any change in the use or occupancy shall comply with the provisions of Sections 307 and 502 of this code.

- (3) **Scope.** This chapter is applicable to all buildings regulated by Article 7, Article 601b, Vernon's Texas Civil Statutes, hereafter referred to in this chapter as the state law, and to buildings indicated in Table 33-A.

Applications for permits for buildings regulated by state law shall be accompanied by a letter certifying the plans and specifications have been certified by the State Purchasing and General Service Commission to be in compliance with the state law.

Those buildings regulated by the state law and built in accordance with their state certified plans, including any variances or waivers granted by the state, shall be deemed to be in compliance with the requirements of this chapter.

Applications for permits for buildings not regulated by state law, but required to comply with the requirements of this chapter by Table 33-A, shall be accompanied by plans and specifications indicating how compliance with this chapter will be achieved.

If special or unusual conditions exist that make compliance to specific requirements of this chapter impractical, the Board of Building Standards may make exceptions to these requirements. The Board of Building Standards may also grant alternate methods of achieving accessibility by the handicapped than those required by this chapter.

- (b) **Definitions.** The following words and terms are defined only for the clarification and use of this appendix chapter.

Access Aisle - An accessible space between elements such as parking spaces, seating, and desks that provides clearances appropriate for

use of the elements.

Accessible - Describes a site, building facility, or portion thereof that complies with this standard and that can be approached, entered, and used by physically disabled people.

Accessible Route - A continuous unobstructed path having a smooth and firm surface, sufficient in width and configuration to permit a person in a standard-sized wheelchair to obtain free access to buildings and facilities and to all elements and functional spaces within the buildings and facilities. Accessible routes may include but are not limited to walks, halls, aisles, corridors, elevators, ramps, curb ramps, and clear floor spaces at fixtures.

Appropriate Number - A number that is sufficient to accommodate the disabled users of a site, building, facility, or element.

Assembly Areas - A room, building, or other facility large enough to accommodate fifty or more persons for purposes such as social functions, recreation, food consumption, amusements, etc. Such spaces may include but are not limited to auditoriums, gymnasiums, dining rooms, motion picture theaters, recreation halls, stadiums and grandstands, theaters for stage productions, and conference rooms.

Automatic Door - A door equipped with a power-operated mechanism and controls that open and close the door automatically upon receipt of momentary actuating signals. The switch that begins the automatic control may be a photo-electric device, floor mat, or manual switch.

Buildings or Facilities - Includes all or any portion of buildings, structures, equipment, roads, walks, parking lots, park sites, or other real property.

Circulation Route - An exterior or interior way of passage from one place to another for pedestrians, including but not limited to walks, hallways, courtyards, stairways and stair landings.

Component - An element or space in a building or facility.

Cross Slope - The slope of a pedestrian or vehicular way that is perpendicular or diagonal to the direction of travel.

Detectable - Perceptible by one or more of the senses.

Element - Means an architectural or mechanical part of a building, facility, space or site.

lbf - Pounds force.

Level - As used in these standards, shall include any surface or part of a surface not having a slope in excess of 1:50 (2%) at any

point, in any direction. Slopes expressed in terms of 1/4 inch per foot shall be considered 2.0% and shall be acceptable.

Physically Handicapped - Means any person who has disability which limits one or more major life activities including but not limited to such functions as performing manual tasks, walking, seeing, hearing or speaking.

Operable Part - A part of a piece of equipment or appliance used to insert or withdraw objects, or to activate, deactivate, or adjust the equipment or appliance (e.g., coin slot, pushbutton, handle).

Performing Areas - Any raised or recessed floor surface of sufficient size so that the area can be used for the same purposes as a stage (see stage).

Power Assisted Door - A door with a mechanism that helps to open the door, or relieve the opening resistance of a door, upon the activation of a switch or a continued force applied to the door itself. If the switch or door is released, such doors immediately begin to close or close completely within 3 to 30 seconds (see automatic door).

Principal (Primary) Entrance - An entrance intended to be used by the occupants and visitors to enter or leave a building or facility. This may include, but is not limited to, the main entrance.

Ramp - A walking surface in an accessible space or route that has a running slope greater than 1:20 (5.0%).

Running Slope - The slope of a pedestrian way that is parallel to the direction of travel (see cross slope).

Service Entrance - An entrance intended primarily for delivery or service.

Signage - Verbal, symbolic, and pictorial information.

Site - A parcel of land bounded by a property line or a designated portion of a public right-of-way.

Site Improvements - Landscaping, paving for pedestrian and vehicular ways, outdoor lighting, recreational facilities and similar site additions.

Space - A definable area of a building, facility, or site. Examples include toilet rooms, halls, assembly areas, parking, courtyards and lobbies.

Stage - A partially enclosed portion of an assembly building or assembly area which is designed or used for the presentation of events such as theatrical productions, musical productions, or other entertainment wherein scenery, drops, or other effects are installed and where the

distance between the top of the proscenium opening in the ceiling above the stage is more than five feet (see performing areas).

Standard - Any standard or specification set out in this publication which provides or enhances accessibility to the handicapped.

- (c) **Design Criteria.** The accessibility standards and specifications contained in this section are based on space, equipment, and human data contained in this subsection.
- (1) **Wheelchair.** The wheelchair is the basic vehicle for use by nonambulatory persons. Its specifications establish the fundamental design requirements for making buildings and facilities accessible to and usable by handicapped persons.
- (A) The dimensional specifications listed below and as shown in Figures (c) 1.1 through (c) 1.3 represent the standard collapsible model wheelchair.
- (i) Length: 42 inches (107 cm).
  - (ii) Width, open: 26 inches (66 cm).
  - (iii) Width, folded: 11 inches (28 cm).
  - (iv) Height of seat from floor: 19 inches (48 cm).
  - (v) Height of armrest from floor: 30 inches (76 cm).
  - (vi) Height of pusher handles from floor: 36 inches (91 cm).
- (B) The space required for a wheelchair user to make a continuous 180 degree turn is a clear space having a diameter of at least 60 inches (152 cm). See Figure (c) 2. Clear areas of 54x62 inches (137x157 cm) minimum as illustrated in Figure (c) 3.1, or T-shaped spaces having 36x36 inches (91x91 cm) minimum dimensions, as illustrated in Figure (c) 3.2, are also satisfactory for accomplishing 180 degree turns.
- (C) The minimum clear width necessary to allow two wheelchairs to pass is 60 inches (152 cm). A 48 inch (122 cm) wide path will allow for passage of a wheelchair and pedestrian.
- (D) The space necessary to occupy a single wheelchair at rest is 48x30 inches (122x76 cm). See Figures (c) 4.1 through (c) 4.6.
- (2) **Walking Aids.** Persons using crutches, braces, canes or walkers are generally able to function within the dimensional standards prescribed for wheelchairs; therefore, human data relative to such devices are limited to that shown in Figure (c) 5.
- (3) **Reach Limitation.** Accessible elements of a building or facility is dependent both on height and location in relation to a person sitting in a standard wheelchair.

- (A) **Forward Reach.** If clear floor space will allow only a forward approach to an object, the maximum high forward reach allowed shall be 48 inches (122 cm). See Figure (c) 6.1. If the forward reach is over an obstruction, reach and clearances shall be as shown in Figure (c) 6.2.
- (B) **Side Reach.** If clear floor space allows parallel approach by a person in a wheelchair, the maximum high side reach allowed shall be 54 inches (137 cm) as illustrated in Figure (c) 7.1. If the side reach is over an obstruction, the reach and clearances shall be as shown in Figure (c) 7.2.
- (C) To be accessible, special equipment may sometimes require measurements different from those provided herein. The location and dimensional requirements should be dictated by equipment design with mobility limitations a consideration.
- (d) **General.** The specifications and statements contained in this subsection are common to all spaces and elements of buildings and facilities and shall have both interior and exterior application.
- (1) **Circulation Routes.** General circulation routes connecting all spaces and elements within a building or facility shall be accessible by complying with paragraphs (s) and (3) below and other appropriate standards contained in this section.
- (2) **Accessible Routes.** At least one accessible route shall be provided from accessible parking spaces, passenger loading zones, and public sidewalks to the building or facilities they serve and at least one accessible route shall connect applicable buildings, facilities, elements, and spaces that are on the same site. Accessible routes shall never be less than 36 inches (91 cm) wide at any point and shall comply with this and other appropriate standards contained in this section.
- (3) **Ground and Floor Surfaces.** Ground and floor surfaces along accessible routes and in accessible rooms and spaces including floors, walks, ramps, stairs, and curb ramps shall be stable, firm, relatively smooth, and non-slip under most weather conditions. Soft or loose surfaces such as sand and gravel shall not be allowed in spaces required to be accessible or as part of an accessible route. Cobblestone and other irregular surfaces such as improperly laid flagstone and brick pavers, shall not be part of accessible routes or spaces and elements requiring freedom of movement.
- (4) **Surface Slopes.** Any accessible space or accessible route having a running slope greater than 1:20, shall be considered a ramp and shall comply with Subsection (h) of this section. Cross slopes shall not exceed 1:50 (2.0%) in accessible routes and spaces required to be accessible. Slopes expressed in terms of 1/4 inch per foot shall be considered acceptable.

- (5) **Changes in Level.** Changes in level up to 1/4 inch (6 mm) may be vertical and without edge treatment. Changes in level between 1/4 inch and 3/4 inch (6 and 19 mm) shall be beveled with a slope no greater than 1:2.
- (6) **Hazards.** All circulation routes, accessible spaces, and accessible routes shall be free of conditions that may be dangerous to handicapped persons. Hazardous elements and conditions may include but are not limited to those referenced below.
- (A) **Protruding Objects.** Objects projecting from walls with their leading edges between 27 inches (68 cm) and 80 inches (203 cm) above the finished floor shall protrude no more than 4 inches (20 cm) into walks, halls, corridors, passageways, or aisles. See Figure (d) 1.1. Objects mounted with their leading edges at or below 27 inches (68 cm) may protrude any amount provided such protrusion does not reduce the clear width of an accessible route or maneuvering space. See Figure (d) 1.2.
- (B) **Free-standing Objects.** Objects mounted on posts or pylons may overhang 12 inches (30 cm) maximum within a range of 27 to 80 inches (68 to 203 cm) above the ground or floor surface. Free-standing objects and their supports shall not reduce the clear width of an accessible route or maneuvering space.
- (C) **Head Room.** Walks, halls, corridors, stairways, and all accessible routes or circulation spaces shall have at least 80 inches (203 cm) clear head room measured from the walking surface. See Figure (d) 1.1.
- (D) **Gratings.** If gratings are located in pedestrian routes, they shall have spaces no greater than 1/2 inch (13 mm) wide in one direction. Gratings with elongated openings shall be placed so that the long dimension is perpendicular to the dominant direction of travel. See Figure (d) 2.1 and (d) 2.2.
- (7) **Mounting Heights for Children.** When children are the primary users of a building or facility such as an elementary or middle school, mounting heights of various elements, fixtures and equipment should be adjusted to meet the needs of the age group that the facility is to serve. Certain fixtures and equipment listed in Table (d) 1 shall comply with the corresponding mounting height requirements.
- (e) **Parking and Passenger Loading Zones.** If parking spaces and/or loading zones are provided by or otherwise made available to or under the control of the building or facility owner, agent, or occupant, an appropriate number of spaces shall be made available according to the zoning ordinance.
- (f) **Curb Ramps.**
- (1) **General.** Wherever curbs intersect accessible routes, curb ramps shall be provided.

**(2) Curb Ramp Requirements.**

(A) Curb ramps shall be located so that they are not obstructed by parked vehicles and shall not intrude into vehicular traffic lanes.

(B) **Slope.** Curb ramps shall not exceed the slope and rise ratios set out in following table.

| Maximum Allowable<br>Slope % | Maximum Rise     | Maximum Horizontal<br>Projection (Run) |
|------------------------------|------------------|--|
| 16.7% (1:6)                  | 3 inches (8 cm)  | 18 inches (46 cm)                      |
| 12.5 % (1:8)                 | 7 inches (18 cm) | 56 inches (142 cm)                     |
| 11.0% (1:9)                  | 8 inches (20 cm) | 72 inches (183 cm)                     |

(C) Sloped surfaces shall have a slip-resistant texture or finish.

(D) The minimum width of a curb ramp shall be 36 inches (91 cm), exclusive of flared sides. Curb ramps between 36 inches and 48 inches (91 cm and 122 cm) wide and without side protection shall have flared sides.

(E) Curb ramps intersecting with pedestrian walks shall have flared sides. The maximum allowable slope of the flare shall be 1:10 (10%).

(g) **Sidewalks and Building Approaches.** When sidewalks or other defined walkways are part of an accessible route to buildings or facilities, they shall adhere to the standards and specifications of this subsection.

(1) **Width.** Walkways in excess of 30 feet (9 m) in length shall be a minimum of 44 inches (112 cm) wide. A minimum width of 36 inches (91 cm) is acceptable for walkways less than 30 feet (9 m) in length and having no drop-off hazards, obstacles, or turning requirements greater than 90 degrees.

(2) **Surface.** Walk finishes and materials shall provide a surface that is firm, stable and slip-resistant. Irregular surfaces such as cobblestone or improperly laid flagstone and brick are not acceptable.

(3) **Changes in Level.** Walks shall have a continuous common surface not interrupted by steps or abrupt changes in level. Level changes not exceeding 3/4 inches (2 cm) having beveled edges are acceptable.

(4) **Slope.** Walks or portions of walks exceeding a slope of 1:20 (5%) shall be classified as ramps and shall comply with Subsection (h).

EXCEPTION: A slope not exceeding 6% may be permitted on walks less than 30 feet (9 m) in length.

(5) **Obstructions.** Extreme care should be taken so that objects such as receptacles, dispensing machines, signs, flower boxes, trees, and



other plants are not placed in such a manner that hazards are created along a walkway. See Subsection (d).

- (A) No protrusions shall reduce the clear width of any portion of a walkway to less than 36 inches (9 cm).
- (B) An overhead clearance (headroom) of at least 80 inches (203 cm) must be provided the entire length and width of a walkway.
- (C) Objects projecting from walls shall conform to the specifications contained in Subsection (d).

(6) **Walks at Entries.** Walks terminating at accessible building entries shall have landings complying with the applicable standards and specifications of Subsection (i).

(h) **Ramps.** Any part of an accessible route with a slope greater than 1:20 (5%) shall be considered a ramp and shall comply with this Subsection. See Figure (h) 1 and Table (h) 1.

EXCEPTIONS: 1. Sloped surfaces less than 6% and less than 30 feet (9 m) in length may be exempted.

2. Aisles and floor surfaces within the seating areas of theaters and auditoriums are exempted if the slope does not exceed 1:10 (10%).

(1) **Slope and Rise.** Ramps shall not exceed the slope and rise ratios set out in Table (h) 1.

(2) **Width.** The minimum clear width of a ramp shall be 48 inches (122 cm).

EXCEPTIONS: Single-run ramps not in excess of 30 feet (9 m) in lengths may have widths of no less than 36 inches (91 cm).

(3) **Landings.** Ramps shall have level landings at the bottom and top of each run complying with the following:

(A) The landings shall be at least as wide as the widest ramp run leading to it.

(B) The landing length shall be a minimum of 60 inches (152 cm) and clear.

(C) There shall be a level landing of at least 60x60 inches (152x152 cm) wherever ramps change direction.

EXCEPTIONS: Level platforms shall not be required when change of direction does not exceed 45 degrees and the intersecting surfaces are blended so that an abrupt level differential is not created.

- (D) If a doorway is located at a landing, then the area in front of the doorway shall comply with Paragraph (2), Subsection (i) of this section.
- (4) **Handrails.** Any ramp or portion of a ramp having a horizontal projection greater than 72 inches (183 cm) shall have handrails on both sides. Handrails are not required on curb ramps. Ramp handrails shall comply with this paragraph.
- (A) Handrails shall be provided along with both sides of ramp segments. The inside handrail on switchback or dog-leg ramps shall always be continuous.
- (B) Where handrails are not continuous, they shall extend at least 12 inches (30 cm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface. Full extensions shall not be required where such extensions would create protruding hazards.
- (C) Handrails that are wall-mounted or are located adjacent to another surface or object shall have a clear space between the rail and the wall surface or object of at least 1-1/2 inches (4 cm).
- (D) Handrail gripping surfaces shall be continuous without interruption by mounting brackets, mullions, or newel posts.
- (E) Handrails shall be mounted not less than 30 inches (76 cm) nor more than 34 inches (86 cm) above the ramp surface and secured so that they can support a horizontal thrust of 50 pounds per linear foot.
- (F) The diameter or width of the gripping surface of handrails shall be 1-1/4 inches to 1-1/2 inches (3 to 4 cm), or shaped to provide an equivalent gripping surface. Handrails shall not rotate in their mountings.
- (G) Open-sided ramp segments and landings not protected by curbs, walls, or other edge protective features, shall have intermediate horizontal or vertical rails or other features arranged so that the passage of a 9 inch (23 cm) sphere at the ramp surface is prohibited. (See Figure (h) 2.
- (H) Where full extension would create protruding hazards, rail termination cues shall be provided. Such cues may include but are not limited to those illustrated in Figure (p) 3.
- (5) **Surfaces and Cross-slopes.** Ramp surfaces shall have a slip-resistant texture or finish such as is provided by exposed crushed stone aggregate concrete, rubber, raised abrasive strips, grooves or other roughened finish. Surfaces that are raised, etched or grooved in such a manner that permits water accumulation are prohibited. The cross-slope of ramp surfaces shall be no greater than 1:50.

(6) **Edge Protection.** Ramps and landings with drop-offs shall have curbs, walls, railings, or projecting surfaces that prevent persons from slipping off the ramp. Curbs shall be a minimum of 2 inches (5 cm) high.

(i) **Entrances.**

(1) **Building Accessibility.** Portions of buildings shall be accessible to the physically handicapped as required by Table No. 33-A, and at least one primary entrance to a building which is required to be accessible shall be usable by the physically handicapped and be on a level that would provide accessibility to the elevators where provided.

(2) **Entry Platforms.** Landings, porches and platforms at accessible entrances shall comply with the applicable specifications shown in Figures (i) 1.1 through (i) 1.3. A maximum slope of 1:50 (2.0%) is permitted to allow for water runoff; less than 2.0% is preferred. Slopes expressed in terms of 1/4 inch per foot shall be considered 2.0% and shall be acceptable.

(3) **Door Clearances.** Accessible entrances shall have doors and door openings complying with Subsection (j).

(4) **Internal Access.** All accessible entrances shall be connected by an accessible route to all spaces and elements where accessibility is required within a building or facility.

(5) **Service Entrances.** A service entrance shall not be the sole accessible entrance unless it is the only entrance to a building or facility.

(j) **Doors and Door Openings.** All doors, door openings, and gates to applicable spaces and elements of buildings and facilities and along accessible routes, shall comply with the requirements of this subsection.

(1) **Revolving Doors and Turnstiles.** Revolving doors or turnstiles shall not be the only means of passage at an accessible entrance or along an accessible route.

(2) **Double-Leaf Doorways.** If doorways have two door leaves, then at least one leaf shall meet the specifications in Paragraphs (3) and (4) below. That leaf shall be an active leaf.

(3) **Clear Width.** Doorways shall have a minimum clear opening of 32 inches (81 cm) with the door open 90 degrees, measured between the face of the door and the stop. See Figures (j) 1.1 and (j) 1.2. Openings more than 24 inches (61 cm) in depth shall have minimum door widths of 36 inches (91 cm). See Figure (j) 1.3. Door widths shall be increased in proportion to the width of the passage leading to it when turning requirements dictate. Minimum ratio requirements shall be as shown in Figures (j) 3.1 through (j) 3.3.

EXCEPTION: Door clearances of 30 inches (76 cm) are permitted if;

1. the depth of the opening is no greater than

8 inches (20 cm);

2. the door swings open in excess of 90 degrees; and
3. a clear area of 60x60 inches (152x152 cm) is provided on each side of the doorway.

- (4) **Maneuvering Clearances at Doors.** Minimum maneuvering clearances for doors that are not automatic shall be as shown in Figures (i) 1.1 through (i) 1.3. The floor or ground area within the required clearances shall be level and clear. Entry doors to acute care hospital bedrooms for inpatients shall be exempt from the requirements for space at the latch side of the door if the door is at least 44 inches (112 cm) wide.
- (5) **Two Doors in Series.** The minimum space between two hinged or pivoted doors in series shall be 48 inches (122 cm) plus the width of any door swinging into the space. If the space between two doors in a series is not sufficient to provide the minimum 48 inches (122 cm) clearance, the doors shall swing either in the same direction or at least one shall swing away from the space between the doors. See Figures (j) 2.1 and (j) 2.2.
- (6) **Raised Thresholds and Floor-level Changes at Doorways.** Changes in level at doors shall not exceed 1/2 inch (13 mm) in height and shall be beveled with a slope no greater than 1:2.

EXCEPTION: A maximum height of 3/4 inch (19 mm) is permitted when doors remain open during passage such as doors without closers, sliding doors, and automatic doors.

- (7) **Door Hardware.** Handles, knobs, pulls, latches, locks, and other operating devices on accessible doors shall have a shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or severe twisting of the wrist to operate. The force required to activate door hardware shall be not greater than 5 lbf. Preferred designs include but are not limited to lever-operated mechanisms, push-type mechanisms, and U-shaped handles. When sliding doors are fully open, operating hardware shall be exposed and usable from both sides. Doors to hazardous areas such as loading platforms, boiler rooms, mechanical and electrical rooms, and to other areas that might be dangerous to a blind person, shall be made identifiable to the touch by a textured surface on the door handle, knob, pull, or other operating hardware. This textured surface may be made by knurling or roughening or by a material applied to the contact surface.

IMPORTANT: Such textured surfaces shall NOT be provided for emergency exit doors or any doors other than those to hazardous areas.

- (8) **Door Closers.** If a door has a closer, then the sweep period of the closer shall be adjusted so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (8 cm) from the latch, measured to the leading edge of the door.
- (9) **Door Opening Force.** The maximum force for pushing or pulling open a door shall comply with this paragraph. For hinged doors, the force shall be applied perpendicular to the door at the door opener for 30 inches (76 cm) from the hinged side, whichever is farther from the hinge. For sliding or folding doors, the force shall be applied parallel to the door at the door pull or latch.
- (A) Exterior hinged doors shall not exceed 8.5 lbf. Slight increases in opening force shall be allowed where 8.5 lbf is insufficient to compensate for air pressure differentials.
- (B) Sliding doors, folding doors and interior hinged doors shall not require a force exceeding 5 lbf.
- (C) Fire doors shall be adjusted to meet the minimum opening force permitted by governing fire safety standards.
- (10) **Automatic and Power-assisted Doors.** If automatic or power-assisted doors are utilized within a building or facility, they shall comply with this paragraph.
- (A) Automatic doors shall comply with American National Standard for power-operated doors, ANSI A156.10-1979. Custom designed installation utilizing slow-opening, low-powered automatic doors as described in Paragraph 1.1.1 of ANSI A156.10-1979, shall not open to back check faster than 3 seconds and shall require no more than 15 lbf to stop door movement.
- (B) When power-assisted doors are utilized, the door-opening force shall comply with Paragraph (9) above except in power failure situations.
- (k) **Corridors, Halls and Passageways.** All corridors, halls and passageways serving all applicable spaces and elements of a building or facility shall be considered part of an accessible route and shall comply with this subsection.
- (1) **Width.** The minimum width of corridors, halls, and passageways shall be 44 inches (112 cm). There shall be no projections in the 44-inch (112 cm) clear space.

EXCEPTIONS: Clearance of no less than 36 inches (91 cm) are allowed for distances less than 30 feet (9 m) provided all intersecting passageways, doors, door openings, and maneuvering clearances comply with Subsections (i) and (j) above.

- (2) **Floor Surfaces.** Floor finishes and materials shall provide a surface that is firm, stable, and slip-resistant. Irregular surface such as can be caused by improperly laid brick or flagstone are not permitted.
  - (3) **Protruding Objects.** Objects projecting into corridors, halls and passageways shall comply with Paragraph (6), Subsection (d), of this section.
- (1) **Toilet Rooms.** When toilet facilities are provided, an appropriate number but never less than one shall comply with this section.
    - (1) **Appropriate Number and Location.**
      - (A) At least 20% of the total number of restrooms within a building or facility, shall comply with the standards and specifications of this subsection and shall be located in places considered equitable to the remaining units. Accessible mens and womens restrooms shall be required except in buildings and facilities where only unisex restrooms are provided.
      - (B) In multi-level structures, toilet rooms shall be located so that handicapped persons shall not be required to travel more than two floor levels to reach an accessible unit. For purposes of consistency, it is recommended that multi-level buildings have accessible toilet rooms located on the main entry level.
      - (C) Horizontal distances from any part of a building to at least one accessible toilet room per sex, shall not exceed 250 feet (76 m).
    - (2) **Doors and Entrances.** All doors to and within applicable toilet rooms shall comply with Subsection (j) above. Doors without latching devices shall not swing into the clear floor space required for any fixture. Alcove or vestibule entries in applicable toilet rooms shall comply with Subsection (j) above, and shall not have door configurations in conflict with that subsection.
    - (3) **Clear Floor Space.** All applicable fixtures and controls required by this subsection to be accessible, shall be on an accessible route. An unobstructed turning space of at least 60x60 inches (152x152 cm) shall be provided in all applicable toilet rooms. The clear floor spaces at fixtures and controls, the accessible route, and the turning space may overlap provided the clear space under fixtures is in compliance with Figure (1) 7.
    - (4) **Toilet Stalls.** If toilet stalls are provided in toilet rooms required to be accessible, then a reasonable number but always at least one shall:
      - (A) be on an accessible route.

- (B) have the size and arrangement complying with appropriate standards and specifications and in the configurations illustrated in Figures (1) 1.1 and (1) 1.2.
- (C) have a toe clearance of no less than 9 inches (23 cm) under the front partition and at least one side partition. If depth of the stall is greater than 60 inches (152 cm) then a toe clearance is not required.
- (D) have out-swinging doors complying with Subsection (j) above. Door openings greater than 32 inches shall be required when the approach and turning requirements restrict wheelchair movement. Maneuvering clearances at stall openings shall be as shown in Figure (i) 1 or shall provide space for turning ratios sufficient to permit wheelchair entry and exit as shown in Figure (1) 1. To make it easier for users to close toilet stall doors, it is recommended that spring hinges, closers, or pull-bars mounted on the inside surface of the door near the hinge side be provided.

EXCEPTIONS: Door openings of 30 inches (76 cm) are acceptable if a clear floor area of at least 60x48 inches (152x122cm) is provided in front of the stall.

- (E) have grab bars complying with the length and positions shown in Figures (1) 1 through (1) 3. Bars may be mounted by any desired method so long as they have a gripping surface at the locations shown, do not obstruct the required clear floor area, and that comply as follows:
  - (i) the outside diameter of the gripping surface shall be 1-1/4 inches to 1-1/2 inches (3 to 4 cm).
  - (ii) if grab bars are mounted on or adjacent to a wall, the space between the wall and the grab bar shall be 1-1/2 inches (4 cm).
  - (iii) the structural strength of grab bars, their fasteners, and mounting devices shall be such that they can support at least 250 lbf.
  - (iv) primary grab bars shall be mounted so that they are horizontal to the floor at heights of 33 to 36 inches (84 to 91 cm) above the floor. Secondary or supplemental grab bars may be mounted vertically or diagonally provided they do not interfere with the use of the primary bars. All grab bars and any wall or other adjacent surface shall be free of any sharp or abrasive elements.
  - (v) have water closets complying with Paragraph (5) below.

- (F) have toilet paper dispenser within easy reach of the water closet but shall not interfere with the use of the grab bars. See Figure (1) 2.2 for preferred location.
- (5) **Water Closets.** At least one water closet in each accessible toilet room shall comply with this paragraph.
- (A) **Clear Floor Space.** Clear floor space for water closets not in stalls shall comply with applicable dimensions per Figure (1) 3.1 through (1) 3.3. Clear floor space may be arranged to allow either a left-handed or right-handed approach.
- (B) **Height.** The height of accessible water closets shall be 17 to 19 inches (43 to 48 cm) measured from the floor to the top of the toilet seat. Thick seats and filler rings may be used to adapt standard fixtures to the proper heights.
- (C) **Flush Controls.** Flush controls shall be hand operated and shall be mounted on the wide side of the toilet area no more than 44 inches (112 cm) nor less than 28 inches (71 cm) above the floor.
- (6) **Urinals.** If urinals are provided, a reasonable number but always at least one, shall be on an accessible route and shall comply with this paragraph.
- EXCEPTION: Urinal specifications shall not be required in toilet rooms having at least one accessible water closet with the rim (not including the seat) no higher than 17 inches (43 cm) above the floor.
- (A) **Height.** Urinals shall be floor-mounted, or wall-hung with an elongated rim mounted no higher than 17 inches (43 cm).
- (B) **Clear Floor Space.** A clear floor area of at least 30x48 inches (76x122 cm) shall be provided in front of urinals to allow a forward approach.
- (C) **Flush Controls.** Flush controls shall be hand-operated and shall be mounted on the wide side of the toilet area no more than 44 inches (112 cm) nor less than 28 inches (71 cm) above the floor.
- (7) **Lavatories.** If lavatories are provided, a reasonable number but always at least one shall comply with this paragraph. Lavatory approach accessibility may be satisfied by complying with either Subparagraph (A) or (B) below.
- (A) Frontal approach accessibility shall be achieved by complying with the height and space requirements shown in Figures (1) 4.1 and (1) 4.2.



- (B) Side approach accessibility can be achieved by complying with the height and space requirements shown in Figures (1) 4.3 and (1) 4.4.
- (C) Hot water and drain pipes under lavatories shall be insulated or otherwise covered and there shall be no sharp or abrasive surfaces under the lavatories.
- (D) Faucet controls and other operating devices relative to the use of lavatories, shall be within the reach limitations prescribed in Subsection (c) and as shown in Figure (1) 4. Faucet controls shall be operable with one hand and shall not require tight grasping, pinching, or severe twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf. Lever-operated, push-type, and electronically controlled mechanisms are examples of preferred designs. Self-closing valves shall remain open for at least 10 seconds.

**(8) Toilet Room Fixtures and Equipment.**

- (A) **Mirrors.** If mirrors are provided, an appropriate number but never less than one, shall be mounted so that the bottom edge is no higher than 40 inches (102 cm) from the floor. They shall be mounted on an accessible route at a location consistent with that of other mirrors in the same restroom.

EXCEPTION: Mirrors having a permanent (fixed) tilt may be mounted higher than the prescribed height provided the viewing level is equal to the 40-inch (102 cm) height at a distance of approximately 48 inches (122 cm). See Figure (1) 5.

- (B) **Controls, Dispensers, and Other Equipment.** At least one of each type of control, dispenser, or other operable equipment that is provided in a toilet room shall be on an accessible route and shall:
  - (i) be no higher than 48 inches (122 cm) above the floor for frontal approach and 54 inches (137 cm) maximum for side approach. A minimum height of 28 inches is recommended.
  - (ii) have controls that are operable with one hand and not requiring tight grasping, pinching or severe twisting of the wrist. The force required to activate operating controls shall be no greater than 5 lbf.

- (m) **Elevators.** Elevators or other means of vertical transportation suitable for wheelchair use, shall be provided in buildings and facilities having more than one level. All passenger elevators within a building or facility required to provide vertical access, shall be on accessible routes, shall serve all levels normally used by the general occupants and visitors, and shall comply with the standards and specifications contained in this subsection.

EXCEPTION: Exemptions may be allowed for mezzanines, balconies, porches, galleries, verandas, basements, penthouses and other areas having insufficient functions unrelated to the buildings purpose when such areas; contain less than 2000 square feet of floor space; do not contain activities and functions involving the sale of goods or service; and do not contain educational or employment opportunities not available in accessible locations within the same building.

- (1) **Automatic Operations.** If elevators are user operated, each car shall be equipped with a self-leveling feature that will automatically bring the car to floor landings within a tolerance of 1/2 inch (13 mm) under rated loading to zero loading conditions. This self-leveling feature shall be automatic and independent of the operating device and shall correct for overtravel and undertravel.
- (2) **Hall Call Buttons.** Call buttons in elevator lobbies and halls shall be no higher than 54 inches (137 cm) above the floor for parallel approach and 48 inches (122 cm) for frontal approach. Such call buttons shall have visual signals to indicate when each call is registered and when each call is answered. Call buttons shall be 3/4 inch (19 mm) in the smallest dimension. When two call buttons in a set are provided, the button designating the up direction shall be on top.
- (3) **Hall Lanterns.** A visible and audible signal shall be provided at each hoistway entrance to indicate which car is answering a call. Audible signals shall sound once for the up direction and twice for the down direction, or shall have verbal annunciators that say "up" or "down". Visible signals shall have the following features:
  - (A) Hall lantern fixtures shall be mounted so that their centerline is at least 72 inches (183 cm) above the lobby floor.
  - (B) Visual elements shall be at least 2-1/2 inches (6 cm) in the smallest dimension.
  - (C) Signals shall be visible from the vicinity of the hall call button. In-car lanterns, visible from the vicinity of hall call buttons, and conforming to the above requirements, shall be acceptable.
- (4) **Door Protective and Re-opening Device.** Elevator doors shall open and close automatically. They shall be provided with re-opening a device that will stop and reopen the car and hoistway doors automatically if the doors become obstructed by an object or person. The device shall be capable of completing these operations without requiring contact for an obstruction passing through the opening at heights of 5 and 29 inches (13 and 74 cm). Door re-opening devices shall remain effective for at least 20 seconds if the doorway remains unobstructed. After

20 seconds, the door may begin to close; however, door closing movement must be stoppable when a person or object exerts minimal pressure on the door edge.

- (5) **Door and Signal Timing for Hall Calls.** The minimum acceptable time from notification that a car is answering a call until the doors of that car start to close shall be calculated from the following equation:

$$T = \frac{D}{1.5 \text{ ft/s}} \quad \text{or} \quad T = \frac{D}{46 \text{ cm/s}}$$

where T = total time in seconds and D = distance from a point in the lobby or corridor 60 inches (152 cm) directly in front of the farthest call button controlling that car to the centerline of its hoistway door. See Figure (m) 1. For cars with in-car lanterns, T begins when the lantern is visible from the vicinity of the hall call buttons and an audible signal is sounded.

- (6) **Door Delay for Car Calls.** The minimum time for elevator doors to remain open in response to a car call shall be 3 seconds.
- (7) **Door and Floor Plan of Elevator Cars.** The floor area of elevator cars shall provide space for wheelchair users to enter the car, maneuver within reach of controls, and exit the car. Acceptable door openings and inside dimensions shall be as shown in Figures (m) 3.1 through (m) 3.4. Door openings shall never be less than 32 inches (81 cm) wide. The clearance between the car platform sill and the edge of any hoistway landing shall be no greater than 1-1/4 inches (3 cm).
- (8) **Illumination Levels.** The level of illumination at the car controls, platform, and car threshold and landing sill shall be at least five footcandles.
- (9) **Car Controls.** Elevator control panels shall have the following features:
- (A) **Buttons.** All control buttons shall be at least 3/4 inch (2 cm) in their smallest dimensions. They may be raised, flush or recessed.
- (B) **Height.** No floor buttons shall be higher than 54 inches (137 cm) above the floor for parallel approach and 48 inches (122 cm) for frontal approach. Emergency controls, including the emergency alarm and emergency stop, shall be grouped at the bottom of the panel and should have their centerlines no less than 35 inches (89 cm) from the floor. See Figure (m) 2.
- (C) **Location.** Controls shall be located on a front wall if cars have center opening doors, and at the side or front wall next to the door if cars have side opening doors. See Figure (m) 3.2 through (m) 3.3

- (D) **Car Position Indicators.** In elevator cars, a visual car position indicator shall be provided above the car control panel or over the door to show the position of the elevator in the hoistway. As the car passes or stops at a floor served by the elevators, the corresponding numeral shall illuminate and an audible signal shall sound. A single-sounding tone shall be sufficient. The audible signal shall be no less than 20 decibels with a frequency no higher than 1500 Hertz. An automatic verbal announcement of the floor number at which a car passes may be substituted for the audible signal. The visual indicator shall be at least 1/2 inch (13 mm) high.
- (E) **Emergency Communications.** If an emergency two-way communication system is provided, the in-cab controlling devices shall be no higher than 54 inches (137 cm) for side approach or 48 inches (122 cm) for frontal approach measured from the floor. They shall be identifiable by symbols and lettering complying with Subsection (s) and located adjacent to the devices. If the system uses a hand-set, the length of the cord from the panel to the hand-set shall be at least 29 inches (74 cm).
- (10) **Handrails.** At least one in-cab handrail shall be provided. If only one handrail is provided, it should be located on the rear wall.
- (A) Handrails shall be mounted not less than 32 inches (81 cm) nor more than 36 inches (91 cm) above the floor, measured to the top of the rail, and secured to support a horizontal thrust of 50 pounds per linear foot and not rotate in their mountings.
- (B) The diameter or width of the gripping surface of handrails shall be 1-1/4 to 1-1/2 inches (3 to 4 cm), or shaped to provide an equivalent gripping surface.
- (C) The clear space between the handrail and the wall surface shall be no less than 1-1/2 inch (4 cm).
- (n) **Drinking Fountains and Water Coolers.** If drinking fountains or water coolers are provided, an appropriate number but never less than one shall be on an accessible route and shall comply with the standards and specifications of this subsection.
- (1) **Appropriate Number.** A minimum of 30% of the total number of units located within a building or facility shall be considered appropriate provided they are strategically located throughout the facility. At least one accessible drinking unit on each floor level of a multi-story building or facility shall be provided. The appropriate number of accessible units in exterior locations, such as in parks and recreational and sports facilities, shall be based on the total number of units provided and the distance and location of the units.
- (2) **Clearances.**
- (A) For frontal approach, wall and postmounted cantilevered units shall have a clear knee space between the bottom of the apron and the floor or ground, of 25 to 27 inches (64 to 69 cm) high,

30 inches (76 cm) wide, and 17 to 19 inches (43 to 48 cm) deep. Such units shall also have a minimum clear floor space of 30x48 inches (76x122 cm) to allow a person in a wheelchair to approach the unit facing forward. See Figure (n) 1.1 and (n) 1.2. Such units shall not create protruding hazards per Subsection (d) (6).

- (B) Free-standing or built-in units not having a clear space under them, shall have a clear floor space in front sufficient in size to allow a person in a wheelchair to make a parallel approach to the unit. See Figures (n) 1.3 and (n) 1.4.
- (3) **Spouts.** Accessible drinking units shall have up-front spout outlets no higher than 36 inches (91 cm) measured from the floor. The spout shall direct the water flow in a trajectory that is parallel or nearly parallel to the front of the unit. The spout shall provide a flow of water approximately 4 inches (10 cm) high so that a cup or glass may be inserted under the flow of water.
- (4) **Controls.** Controls shall be up-front no higher than 36 inches (91 cm) nor lower than 28 inches (71 cm) above the floor. They shall be operable with one hand and shall not require tight grasping, pinching or severe twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.
- (o) **Telephones.** If public telephones are provided, they shall comply with this subsection.
- (1) **Appropriate Number.** When single units are scattered throughout a building or facility, at least one on each level located no farther than 250 feet (91 m) from any point of the building or facility at that level shall be provided. At least one unit in every "bank" of units shall be considered appropriate.
- (2) **Clear Floor or Ground Space.** A clear floor or ground space sufficient in size to allow either a forward or parallel approach by a person using a wheelchair shall be provided at telephones. See Figures (o) 1 and (c) 4 for minimum space requirements. Bases, enclosures, and fixed seats shall not impede approaches to telephones by people who use wheelchairs.
- (3) **Mounting Heights.** The highest operable part of the telephone shall be within the reach ranges specified in Subsection (c) of this section. Also see Figure (o) 1.
- (4) **Enclosures.** If telephone enclosures are provided, they may overhang the clear floor space required in Paragraph (2) of this subsection, within the following limits.

- (A) **Side Reach.** The overhang as shown in Figure (o) 1.1, shall be no greater than 12 inches (30 cm). The height of the lowest overhanging part shall be no greater than 27 inches (68 cm) as shown in Figure (o) 1.1.
  - (B) **Full-height Enclosures.** Entrances to full-height enclosures shall have a minimum clear opening of 30 inches (76 cm). See Figure (o) 1.2.
  - (C) **Forward Reach.** If the overhang is greater than 12 inches (30 cm) then the clear width of the enclosure shall be 30 inches (76 cm) minimum. See Figure (o) 1.3.
  - (D) Where telephone enclosures protrude into halls, corridors, or aisles, they shall not be in violation of Paragraph (6) Section (d) of this section.
- (5) **Controls.** Telephones should have pushbutton controls where service for such equipment is available.
- (p) **Stairs.** All stairs or sets of steps, both interior and exterior, in excess of four in a series and connecting levels not served by an elevator, shall comply with this subsection.
- (1) **Treads and Risers.** On any given flight of stairs, all steps shall have uniform riser heights and uniform tread widths (run). Stair treads shall have runs no less than 11 inches (28 cm) measured from riser to riser. See Figure (p) 1.
  - (2) **Handrails.** Stairways shall have handrails at both sides of all stairs.

EXCEPTION: Stairways of less than 44 inches (112 cm) in width may have handrails on only one side provided that no open-sided conditions exist. The application of handrails on "both sides" may not be appropriate in some outdoor situations; however, exterior steps having in excess of four risers in a series, shall have at least one handrail where the normal flow of traffic would be expected.

- (A) Handrails shall be mounted not less than 32 inches (81 cm) nor more than 34 inches (86 cm) above the leading edge of the treads and secured to support a horizontal thrust of 50 pounds per linear foot.
- (B) The diameter or width of the gripping surface of handrails shall be 1-1/4 to 1-1/2 inches (3 to 4 cm), or shaped to provide an equivalent gripping surface. Handrails shall not rotate in their mountings.
- (C) Handrails shall be continuous wherever possible. The inside handrail on switchback or dog-leg stairs, shall always be continuous. When it is not possible for handrails to be

continuous, they shall extend at least 12 inches (30 cm) beyond the top and bottom riser. The top extension shall be parallel with the floor or ground surface. At the bottom, the handrails shall continue to slope for the distance of the width of one tread from the bottom riser then be horizontal for the minimum 12 inch (30 cm) distance. See Figure (p) 2. Full extensions shall not be required where such extensions would create protruding hazards.

- (D) When handrails are attached to or mounted adjacent to a wall or other surface, the clear space between the surface and the handrail shall be no less than 1-1/2 inches (4 cm).
  - (E) Gripping surface shall be uninterrupted by newel posts, balusters, or other construction elements or obstructions.
  - (F) Where full extensions would create protruding hazards, rail termination cues shall be provided. Such cues may include but are not limited to those illustrated in Figure (p) 3.
- (q) **Areas of Assembly.** Assembly areas as defined in the definitions shall comply with this subsection.

(1) **Spectator Areas.**

- (A) **Appropriate Number.** The appropriate number of seating spaces usable by persons in wheelchairs shall be based on building or facility function and the configuration of the spectator areas, as a whole, but never less than the numbers specified in Table (q) 1.

TABLE (q) 1

| <u>Seating Capacity</u> | <u>Min. # of Spaces</u> |
|-------------------------|-------------------------|
| 50 - 100                | 2                       |
| 101 - 300               | 4                       |
| 301 - 600               | 6                       |
| Over 600                | 1.0% of total           |

- (B) **Placement of Wheelchair Seating.** The location of wheelchair areas shall be on accessible routes and shall be an integral part of any seating plan and shall be dispersed to that they are located on a basis equal to that provided for the majority of the audience. Provisions shall be made so that spectators in wheelchairs can sit next to at least one non-disabled spectator.
- (C) **Size and Configuration of Wheelchair Seating Areas.** The ground or floor surface at wheelchair locations shall be level (within 2.0% slope) and shall provide clear spaces as shown in Figure (q) 1 and shall accommodate two people in wheelchairs.

EXCEPTION: When more than four wheelchair spaces (2 pairs) are provided in any given area, the remaining number of spaces shall not be required to be situated in pairs.

(D) **Placement of Listening Devices.** If listening devices are provided at individual fixed seats, then such seats should be located within a 50 foot (15 m) viewing distance of the stage, playing, or performing area and shall have a complete view of such area.

(2) **Performing Areas.** An accessible route shall connect wheelchair seating locations with performing areas including gymnasium floors, stages, arena floors and support areas such as dressing rooms, rehearsal areas, locker rooms, etc. If such route is located outside the assembly area, consideration must be given to provide the shortest possible route and to protect the users from adverse conditions.

EXCEPTIONS: 1. Performing areas containing less than 800 square feet of floor space may be exempted from compliance.

2. Dressing rooms, locker rooms, equipment rooms, or other performing area support facilities containing a total of less than 800 square feet of floor space or that serve functions that are available in other accessible locations within the same general area may be exempted from compliance.

3. Stage-like areas not meeting the definition criteria of Subsection (b) of this section, or that contain less than 800 square feet of floor space, may be exempted from compliance.

(r) **Platform Lifts.** Platform lifts may be used as an alternative to ramps as a means of vertical accessibility. When lifts are considered appropriate, they shall comply with applicable safety regulations in addition to the following:

(1) **Platform Size.** The minimum clear floor area shall be no less than 48 inches (122 cm) deep (in line of travel) and 30 inches (76 cm) wide.

EXCEPTION: A minimum depth of 40 inches (102 cm) is allowed if adequate protection and footrest clearances are provided.

(2) **Controls.** Operating mechanisms shall be located so that a forward or side approach reach is possible from either direction of travel and shall be mounted between 28 inches (71 cm) and 48 inches (122 cm) above the platform floor. All control devices shall be operable with one hand and shall not require tight grasping, pinching, or severe twisting of the wrist.

(3) **Handrails.** There shall be at least one handrail or other gripping surface complying with the following:



- (A) Handrails shall be mounted not less than 32 inches (81 cm) nor more than 36 inches (91 cm) above the floor, and secured to support a horizontal thrust of 50 pounds per linear foot. Rails shall not rotate in their mountings.
  - (B) The diameter or width of the gripping surface of handrails shall be 1-1/4 to 1-1/2 inches (3 to 4 cm), or shaped to provide an equivalent gripping surface.
  - (C) The clear space between the handrail and the wall surface shall be no less than 1-1/2 inches (4 cm).
- (4) **Wheelstops and Guard Rails.** Wheelstops and guard rails shall be provided wherever necessary to prevent wheelchairs from rolling or slipping from platform edge.
- (5) **Approach.** Lifts shall be considered part of an accessible route and shall be approachable in accordance with dimensional requirements of Subsections (c) 1 and (j) 4 of this section.

TABLE NO. 33-A—MINIMUM EGRESS AND ACCESS REQUIREMENTS

| USE <sup>1</sup>  | MINIMUM OF TWO EXITS OTHER THAN ELEVATORS ARE REQUIRED WHERE NUMBER OF OCCUPANTS IS AT LEAST | OCCUPANT LOAD FACTOR <sup>2</sup> (Sq. Ft.) | ACCESS BY MEANS OF A RAMP OR AN ELEVATOR MUST BE PROVIDED FOR THE PHYSICALLY HANDICAPPED AS INDICATED <sup>3</sup> |
|---|--|---|--|
| 1. Aircraft Hangars (no repair)   | 10   | 500   | Yes <sup>12</sup>  |
| 2. Auction Rooms  | 30   | 7   | Yes  |
| 3. Assembly Areas, Concentrated Use (without fixed seats)<br>Auditoriums<br>Bowling Alleys (Assembly areas)<br>Churches and Chapels<br>Dance Floors<br>Lobby Accessory to Assembly Occupancy<br>Lodge Rooms<br>Reviewing Stands<br>Stadiums | 50   | 7   | Yes <sup>4 5</sup>   |
| 4. Assembly Areas, Less-concentrated Use<br>Conference Rooms<br>Dining Rooms (Restaurants)<br>Drinking Establishments<br>Exhibit Rooms<br>Gymnasiums<br>Lounges<br>Stages   | 50   | 15  | Yes <sup>4 6</sup><br>Yes <sup>14</sup>  |
| 5. Children's Homes and Homes for the Aged  | 6  | 80  | Yes <sup>7</sup>   |
| 6. Classrooms   | 50   | 20  | Yes <sup>8</sup>   |
| 7. Dormitories  | 10 <sup>7</sup>  | 50  | Yes <sup>7</sup>   |
| 8. Dwellings  | 10   | 300   | No   |
| 9. Garage, Parking  | 30   | 200   | Yes <sup>9</sup>   |
| 10. Hospitals and Sanitariums—Nursing Homes   | 6  | 80  | Yes  |
| 11. Hotels and Apartments   | 10   | 200   | Yes <sup>10</sup>  |
| 12. Kitchen—Commercial  | 30   | 200   | No   |
| 13. Library Reading Room  | 50   | 50  | Yes <sup>4</sup>   |
| 14. Locker Rooms  | 30   | 50  | Yes  |
| 15. Malls (see Appendix Chapter 7)  | —  | —   | —  |
| 16. Manufacturing Areas   | 30   | 200   | Yes <sup>7 12</sup>  |

| USE <sup>1</sup>                      | MINIMUM OF TWO EXITS OTHER THAN ELEVATORS ARE REQUIRED WHERE NUMBER OF OCCUPANTS IS AT LEAST | OCCUPANT LOAD FACTOR <sup>2</sup> (Sq. Ft.) | ACCESS BY MEANS OF A RAMP OR AN ELEVATOR MUST BE PROVIDED FOR THE PHYSICALLY HANDICAPPED AS INDICATED <sup>3</sup> |
|---------------------------------------|--|---|--|
| 17. Mechanical Equipment Room         | 30   | 300   | No   |
| 18. Nurseries for Children (Day-care) | 7  | 35  | Yes <sup>13</sup>  |
| 19. Offices                           | 30   | 100   | Yes <sup>7 12</sup>  |
| 20. School Shops and Vocational Rooms | 50   | 50  | Yes  |
| 21. Skating Rinks                     | 50   | 50 on the skating area; 15 on the deck      | Yes <sup>4</sup>   |
| 22. Storage and Stock Rooms           | 30   | 300   | No   |
| 23. Stores—Retail Sales Rooms         |  |   | Yes <sup>12</sup>  |
| Basement                              | 11   | 20  | Yes  |
| Ground Floor                          | 50   | 30  | Yes  |
| Upper Floors                          | 10   | 50  | Yes  |
| 24. Swimming Pools                    | 50   | 50 for the pool area; 15 on the deck        | Yes <sup>4</sup>   |
| 25. Warehouses                        | 30   | 500   | No   |
| 26. All others                        | 50   | 100   |  |

<sup>1</sup>For additional provisions on number of exits from Group H and I Occupancies and from rooms containing fuel-fired equipment or cellulose nitrate, see Sections 3320, 3321 and 3322, respectively.

<sup>2</sup>This table shall not be used to determine working space requirements per person.

<sup>3</sup>Elevators shall not be construed as providing a required exit.

<sup>4</sup>Access to secondary areas on balconies or mezzanines may be by stairs only, except when such secondary areas contain the only available toilet facilities.

<sup>5</sup>Reviewing stands, grandstands and bleachers need not comply.

<sup>6</sup>Access requirements for conference rooms, dining rooms, lounges and exhibit rooms that are part of an office use shall be the same as required for the office use.

<sup>7</sup>Access to floors other than that closest to grade may be by stairs only, except when the only available toilet facilities are on other levels.

<sup>8</sup>When the floor closest to the grade offers the same programs and activities available on other floors, access to the other floors may be by stairs only, except when the only available toilet facilities are on other levels.

<sup>9</sup>Access to floors other than that closest to grade and to garages used in connection with apartment houses may be by stairs only.

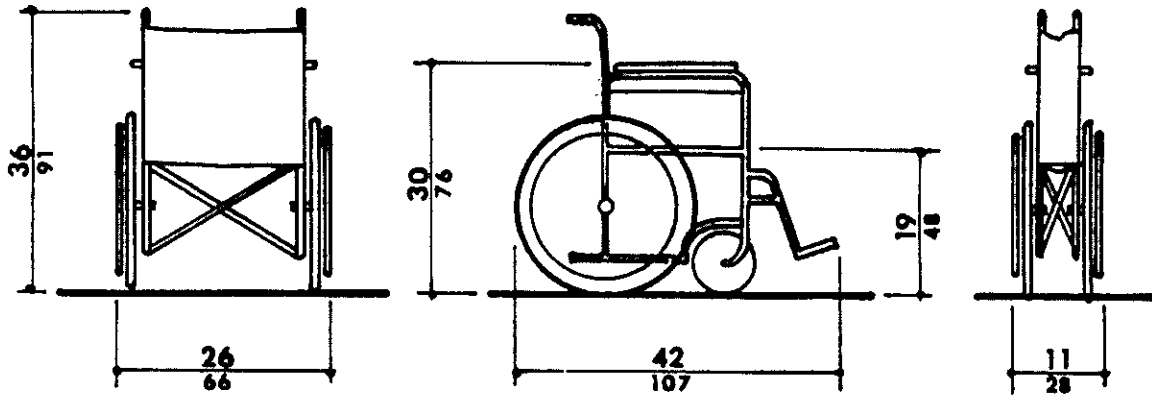
<sup>10</sup>See Section 1213 for access to buildings and facilities in hotels and apartments.

<sup>11</sup>See Section 3303 for basement exit requirements.

<sup>12</sup> When occupant load is 10 or more.

<sup>13</sup> When occupant load is 50 or more.

<sup>14</sup> Assembly Areas, 15 or more.

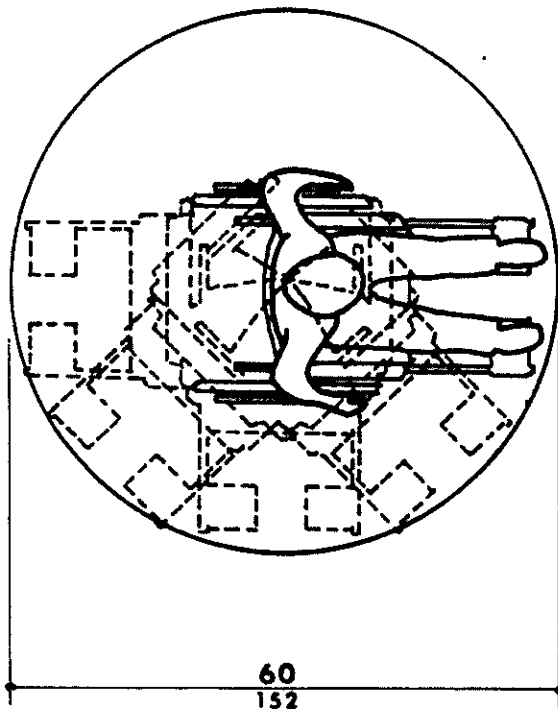


(c) 1.1

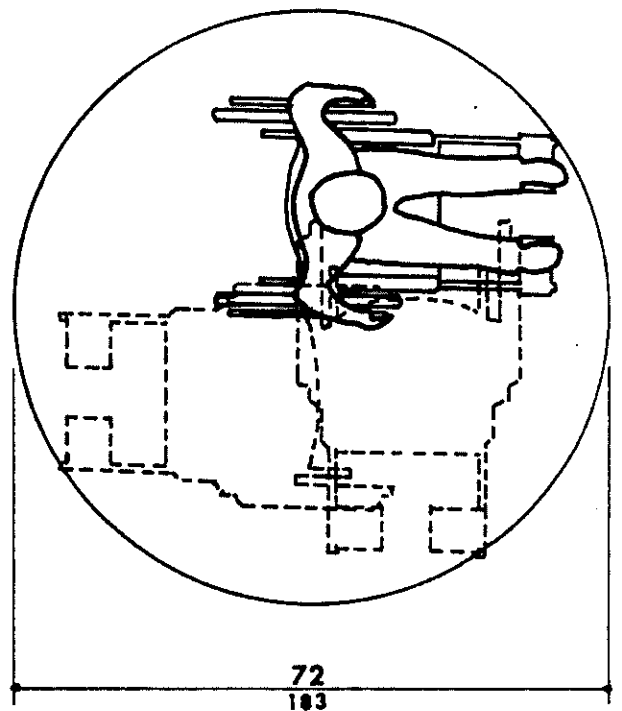
(c) 1.2

(c) 1.3

FIGURE (c) 1

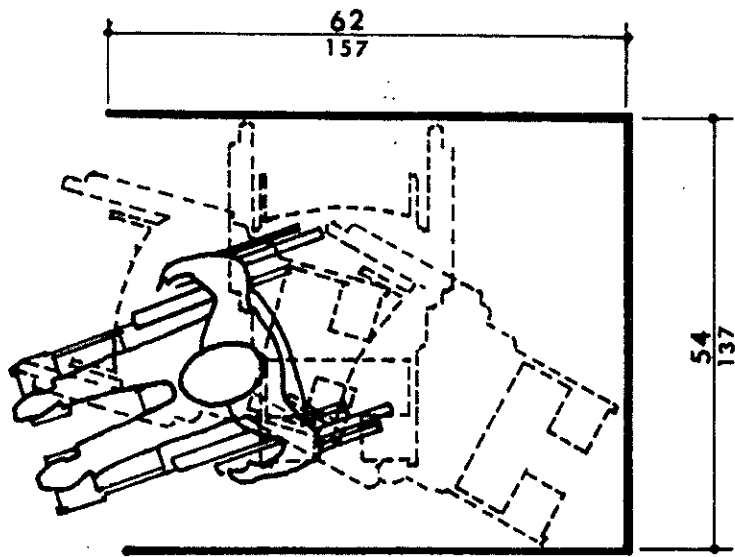


(c) 2.1

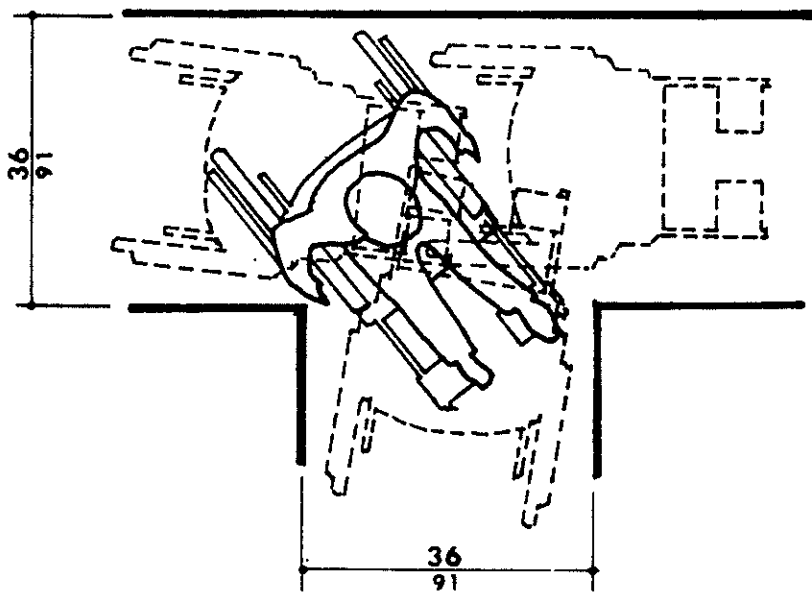


(c) 2.2 *N.I.J.*

FIGURE (c) 2

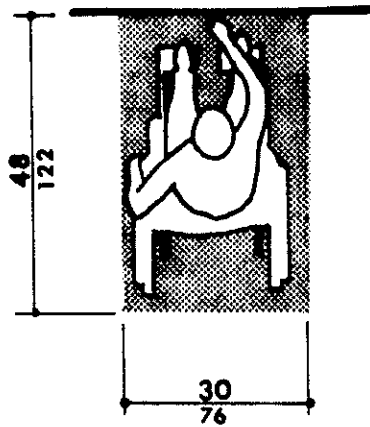


(c) 3.1

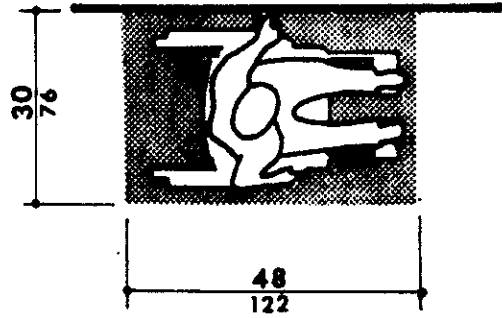


(c) 3.2

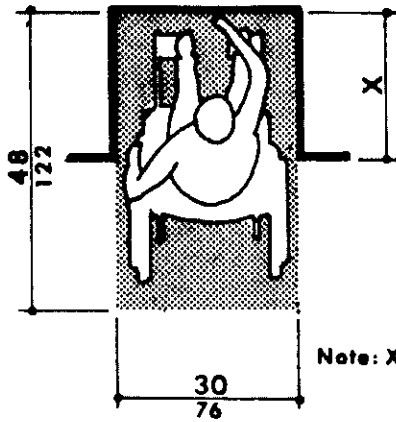
FIGURE (c) 3



(c) 4.1 ✓

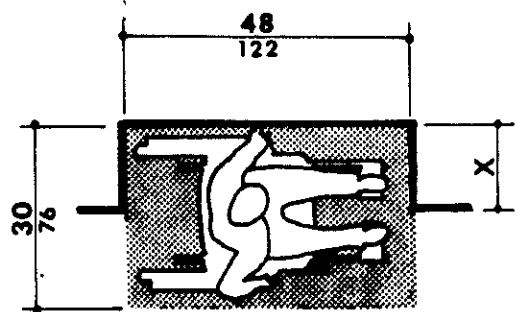


(c) 4.2 ✓



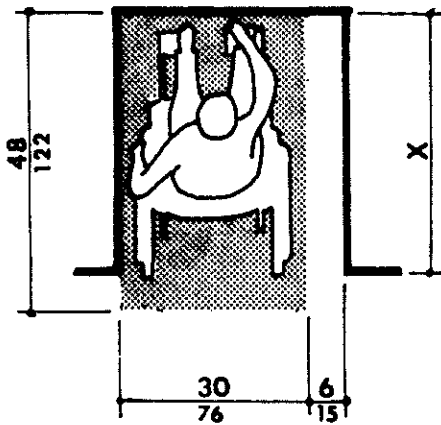
Note:  $X \leq 24$  in (61 cm)

(c) 4.3



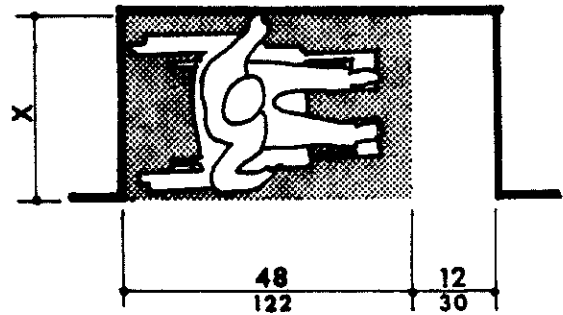
Note:  $X \leq 15$  in (38 cm)

(c) 4.4



Note: If  $X > 24$  in (61 cm), add 6 in (15 cm) to width.

(c) 4.5 ✓



Note: If  $X > 15$  in (38 cm), add 12 in (30 cm) to width.

(c) 4.6 ✓

FIGURE (c) 4

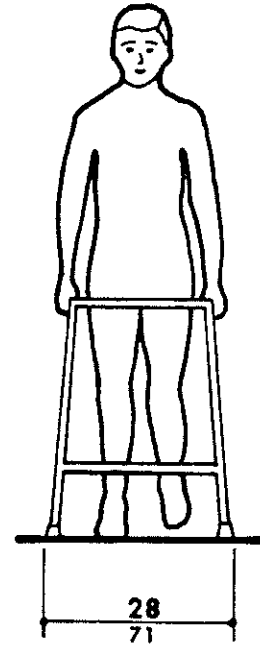
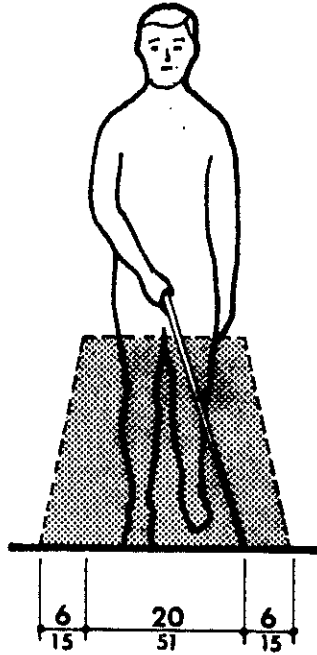
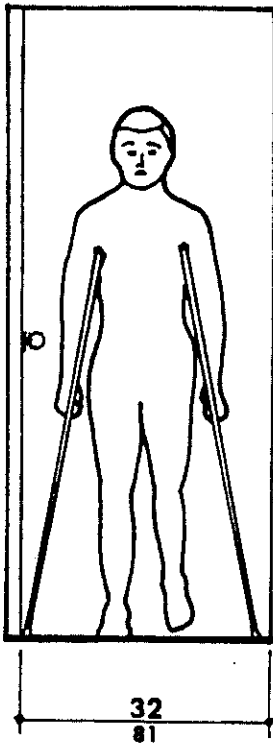
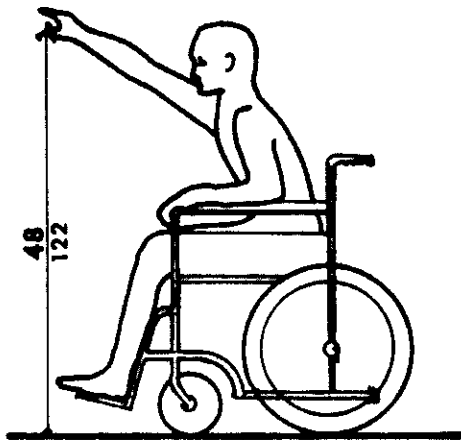
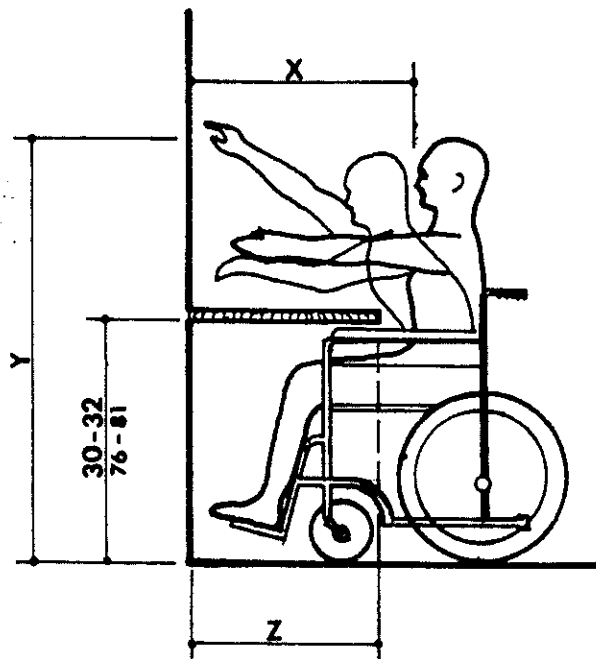


FIGURE (c) 5



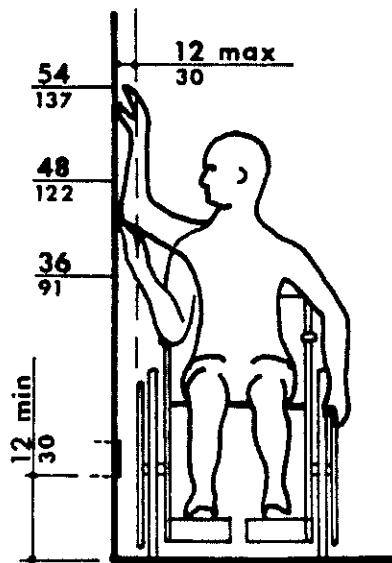
(c) 6.1 ✓



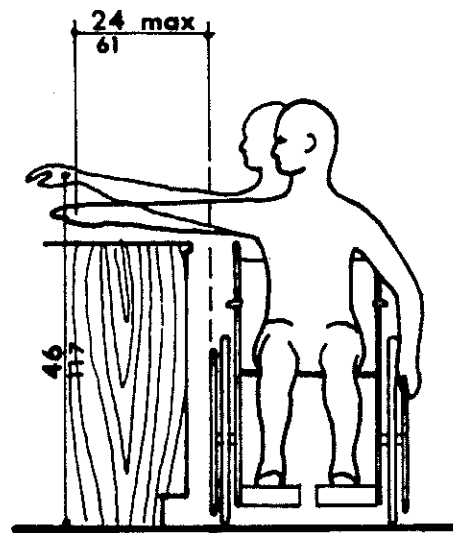
Note: X shall be  $\leq 25$  in (63 cm); Z shall be  $\geq X$ .  
 If  $X < 20$  in (51 cm), Y shall be 48 in (122 cm) maximum. If  $X = 20$  in to 25 in (51 cm to 63 cm), Y shall be 44 in (112 cm) maximum.

(c) 6.2

FIGURE (c) 6



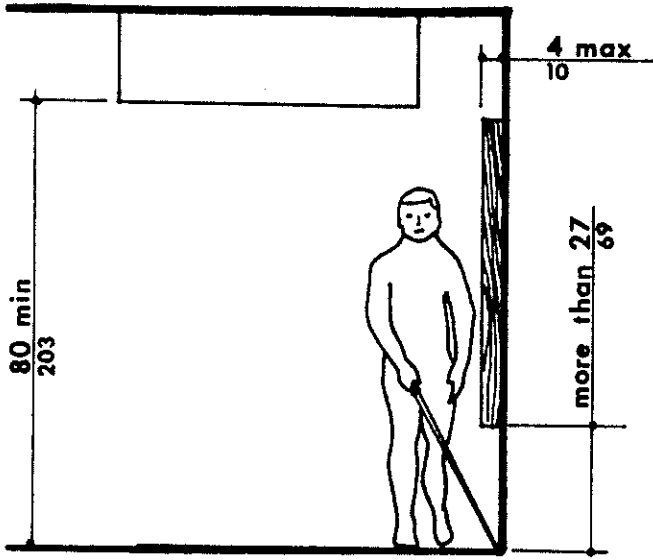
(c) 7.1 ✓



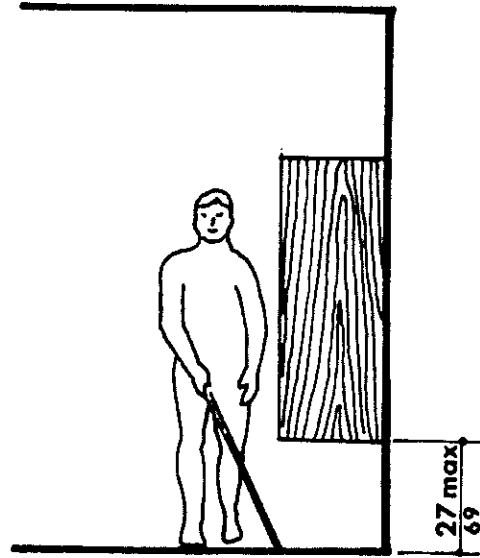
(c) 7.2

FIGURE (c) 7



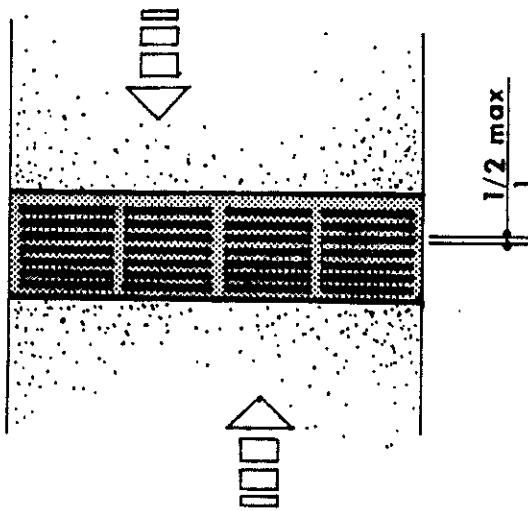


(d) 1.1 ✓

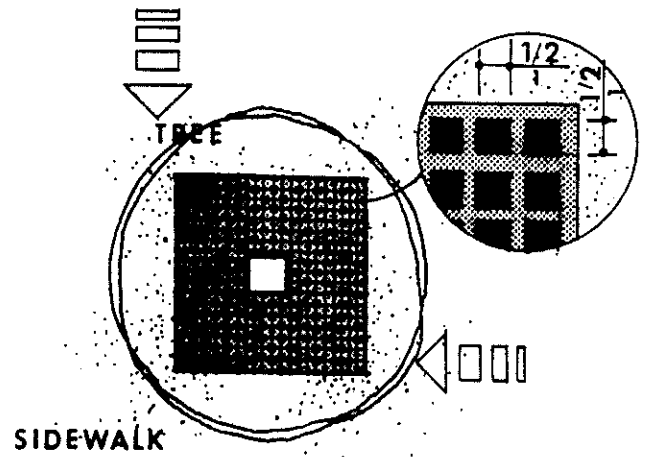


(d) 1.2 ✓

FIGURE (d) 1

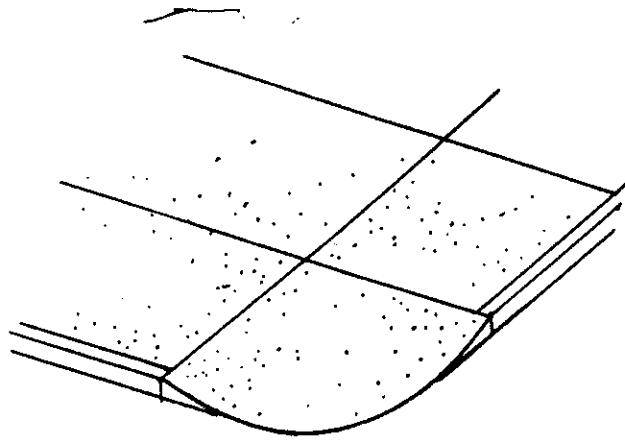


(d) 2.1

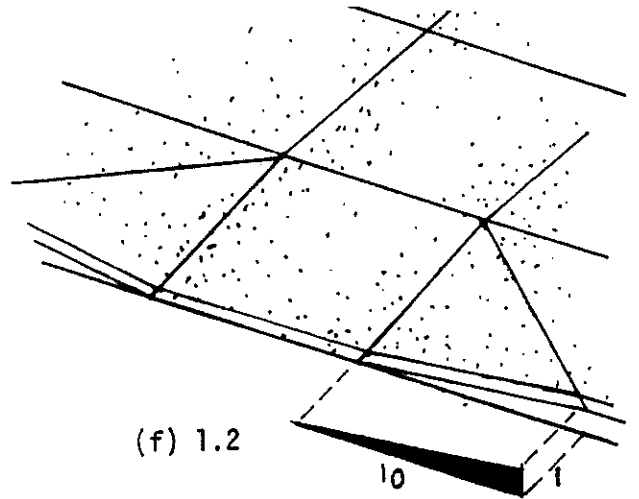


(d) 2.2

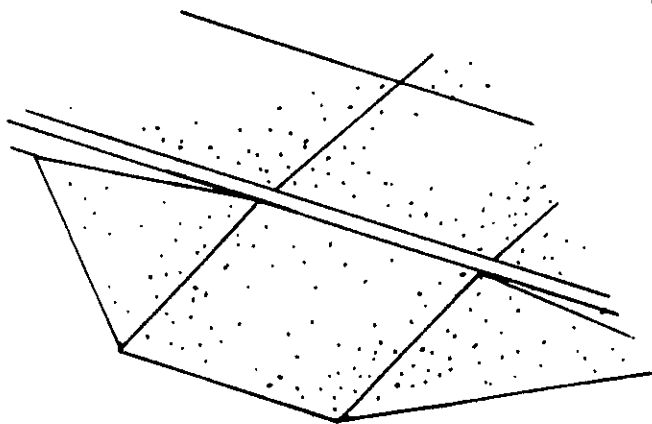
FIGURE (d) 2



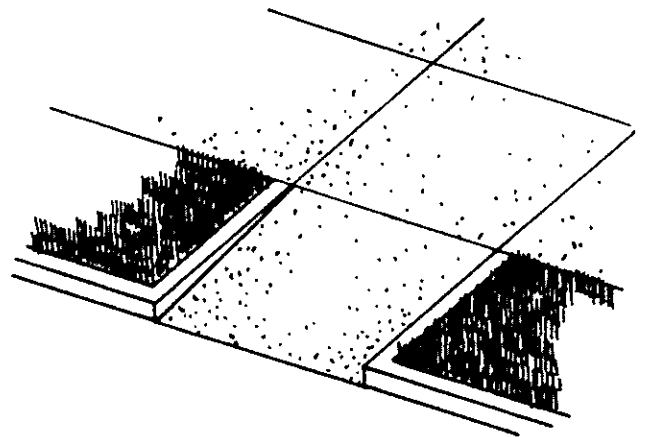
(f) 1.1



(f) 1.2



(f) 1.3



(f) 1.4

FIGURE (f) 1

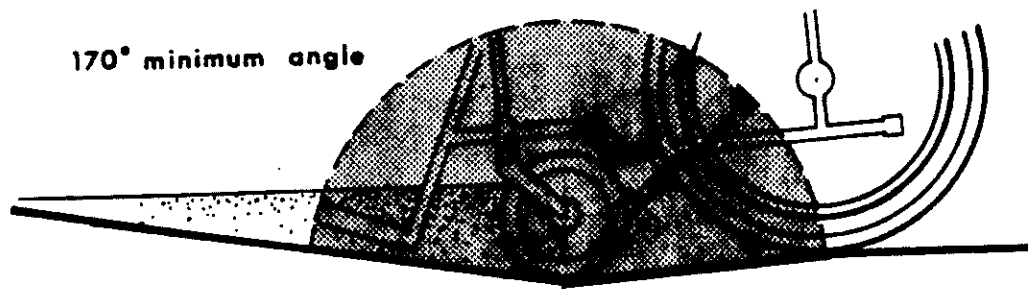


FIGURE (f) 2

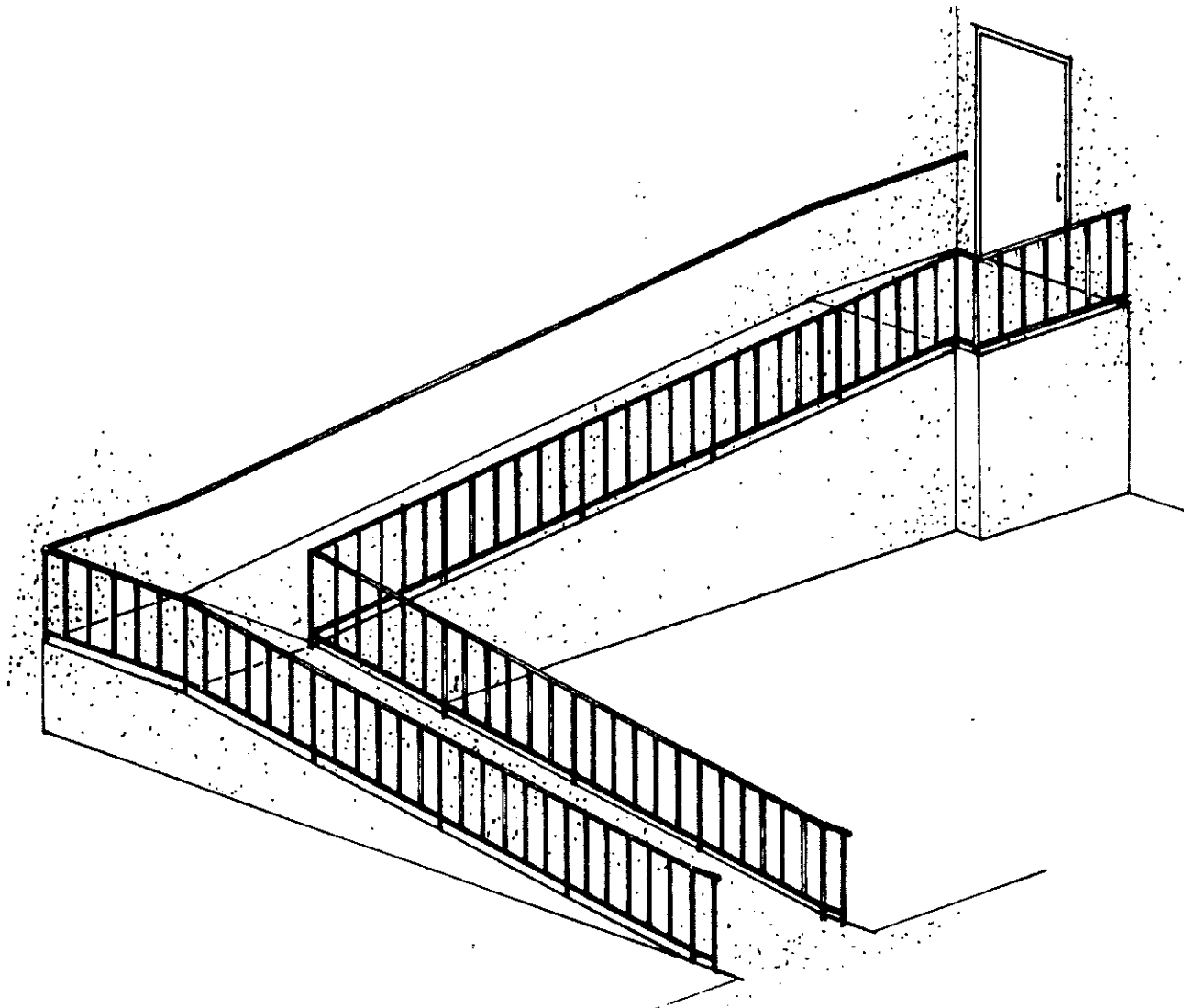
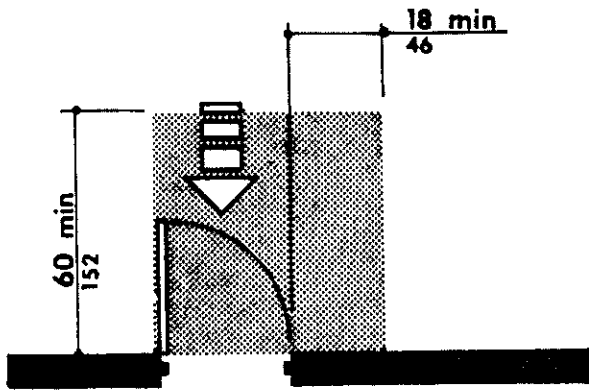


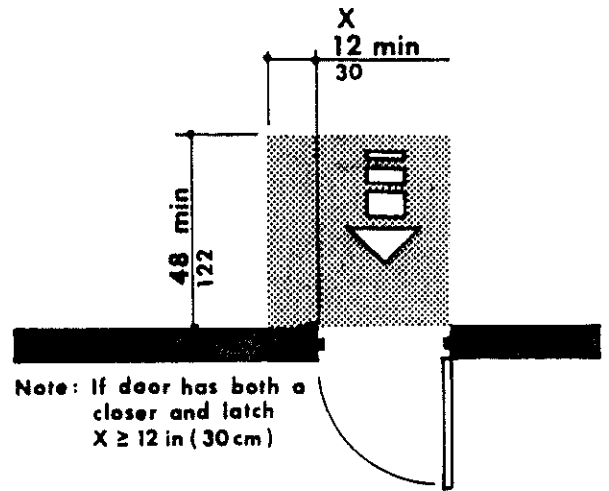
FIGURE (h) 1

Table (h)1

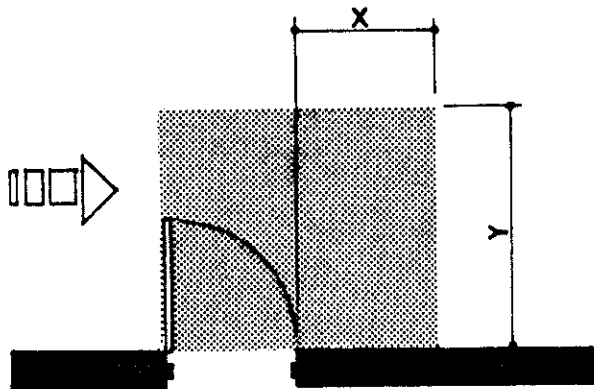
| Maximum Allowable Slope % | Maximum Rise       | Maximum Horizontal Projection (Run) |
|---------------------------|--------------------|-------------------------------------|
| 16.7% (1:6)               | 3 inches (8 cm)    | 18 inches (46 cm)                   |
| 12.5% (1:8)               | 7 inches (18 cm)   | 56 inches (142 cm)                  |
| 10.0% (1:10)              | 9 inches (23 cm)   | 96 inches (244 cm)                  |
| 8.3% (1:12)               | 30 inches (76 cm)  | 30 feet (9 m)                       |
| 7.1% (1:14)               | 34 inches (86 cm)  | 40 feet (12 m)                      |
| 6.0% (1:16)               | 44 inches (112 cm) | 60 feet (18 m)                      |



(i) 1.1

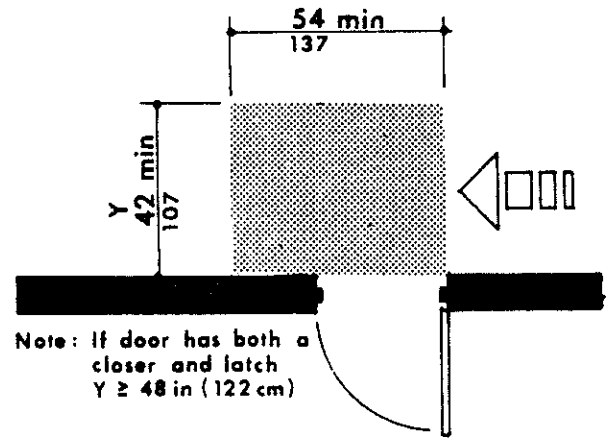


Note: If door has both a closer and latch  $X \geq 12$  in (30 cm)

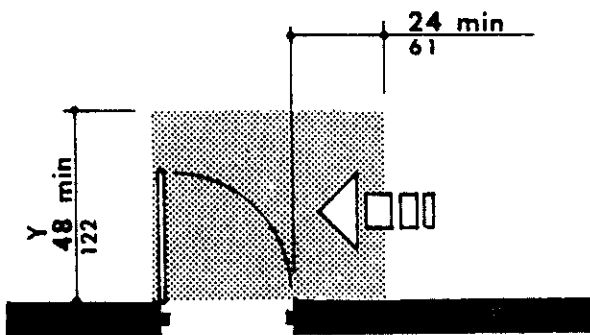


Note: If  $Y \geq 60$  in (152 cm),  $X \geq 36$  in (91 cm)  
If  $Y \geq 54$  in (137 cm),  $X \geq 42$  in (107 cm)

(i) 1.2

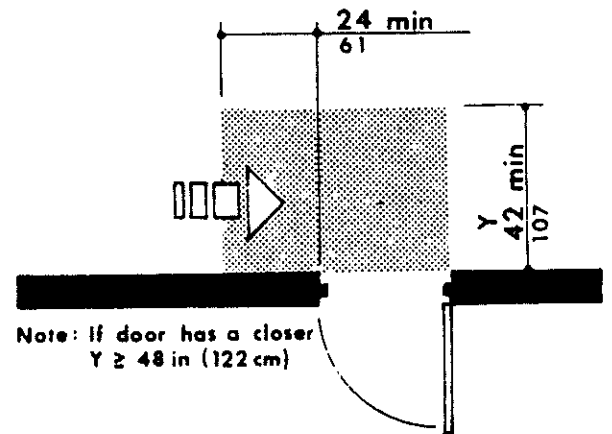


Note: If door has both a closer and latch  $Y \geq 48$  in (122 cm)



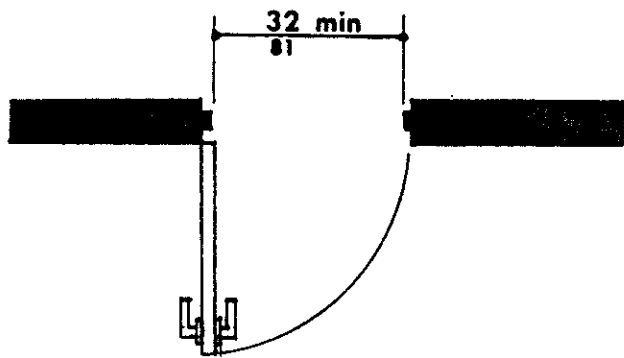
Note: If door has a closer  $Y \geq 54$  in (137 cm)

(i) 1.3

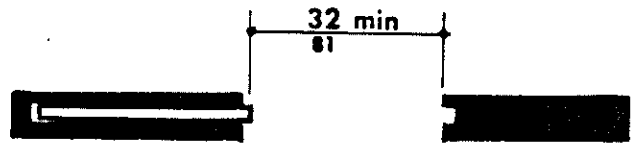


Note: If door has a closer  $Y \geq 48$  in (122 cm)

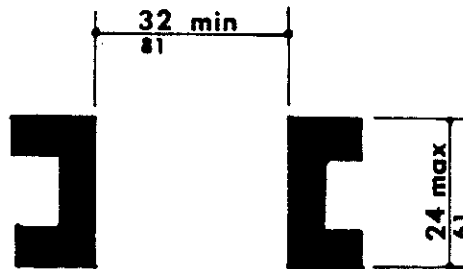
FIGURE (i) 1



(j) 1.1



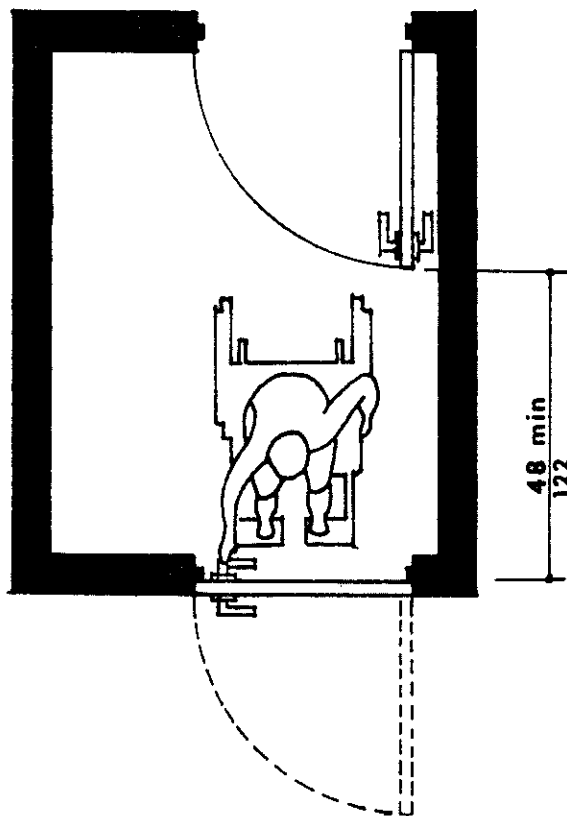
(j) 1.2



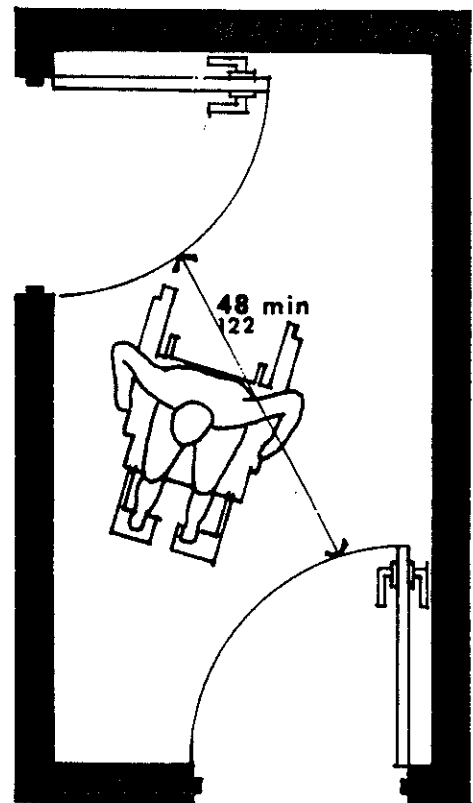
(j) 1.3

Note: Door openings must have a 36 in (81 cm) minimum width when depths exceed 24 in (61 cm).

FIGURE (j) 1



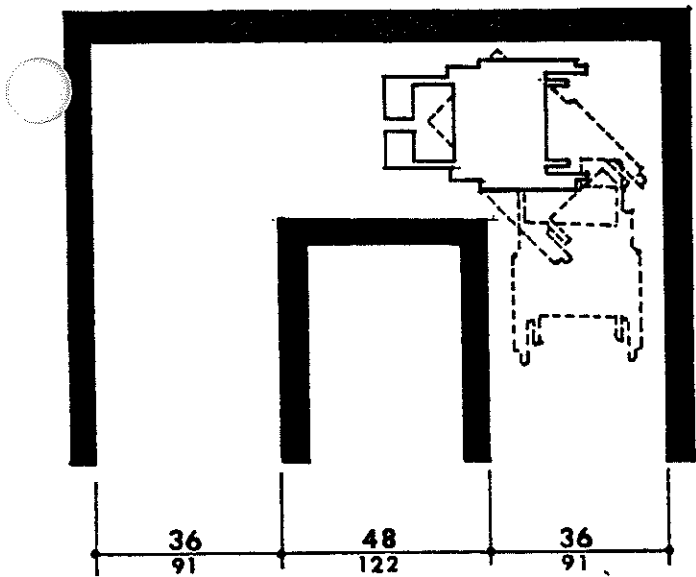
(j) 2.1



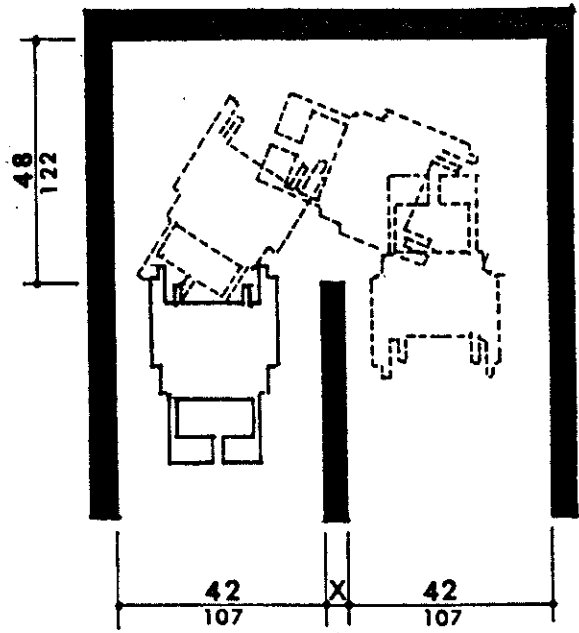
(j) 2.2

FIGURE (j) 2

00143

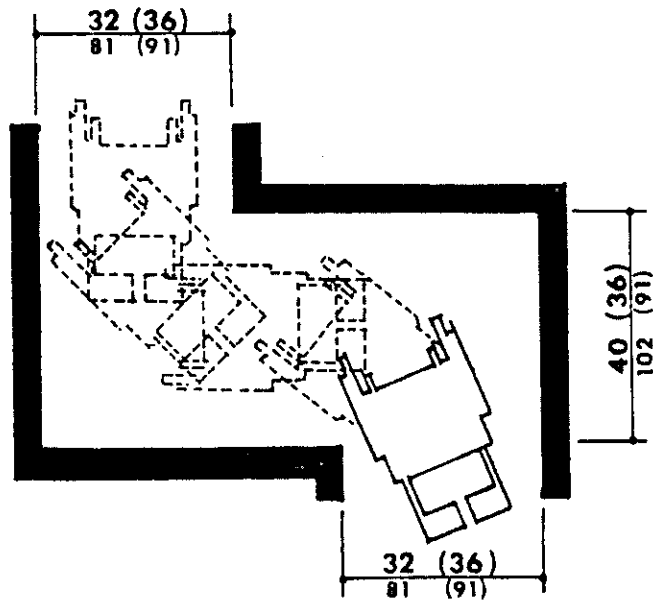


(j) 3.1



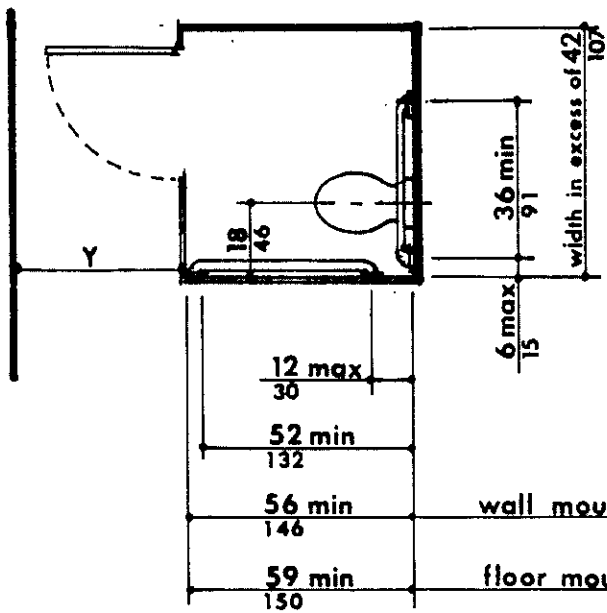
(j) 3.2

Note: Dimensions shown apply when  $X \leq 48$  in (122 cm)

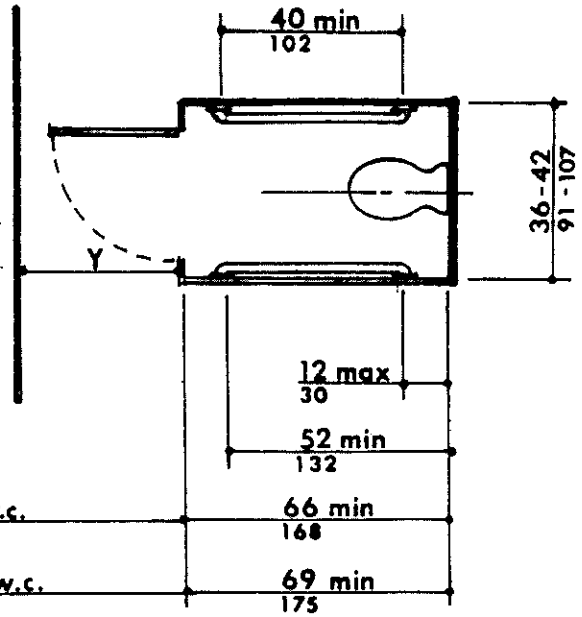


(j) 3.3

FIGURE (j) 3

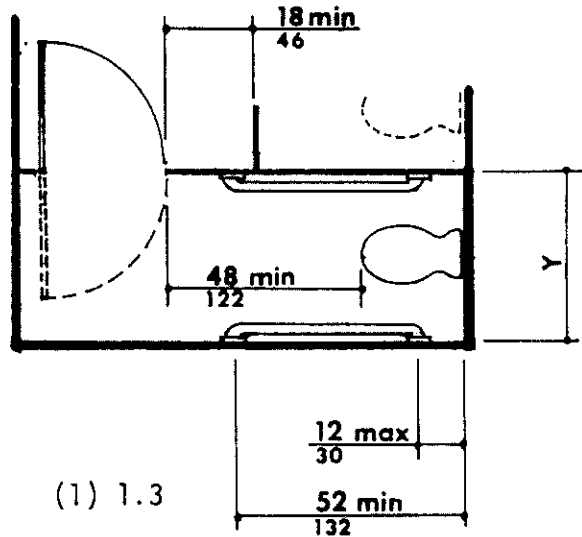


(1) 1.1



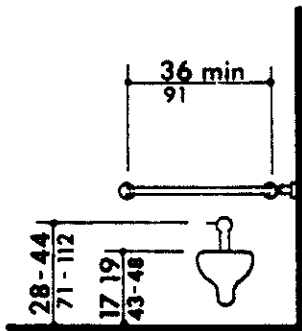
(1) 1.2

If stall door width is:  
 32 in (81 cm), Y shall be 40 in (102 cm) min.  
 36 in (91 cm), Y shall be 36 in (91 cm) min

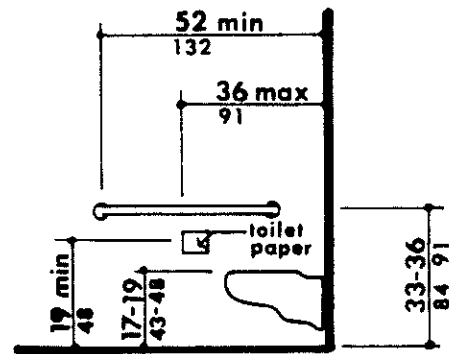


(1) 1.3

FIGURE (1) 1

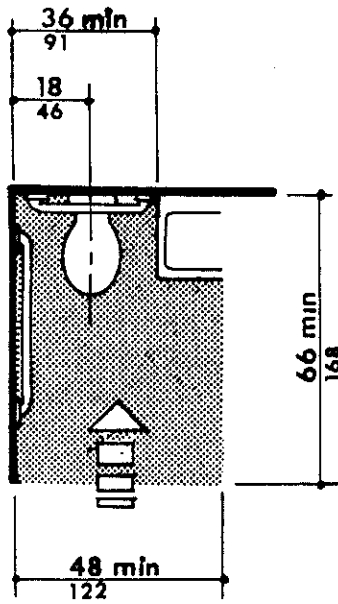


(1) 2.1

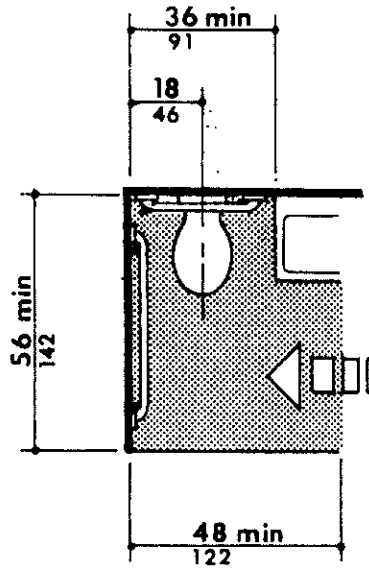


(1) 2.2

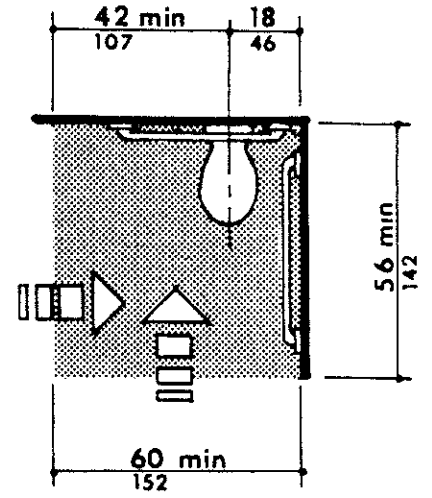
FIGURE (1) 2



(1) 3.1



(1) 3.2



(1) 3.3

FIGURE (1) 3

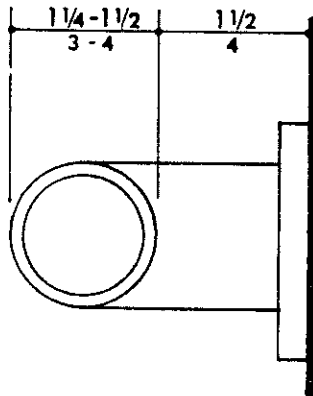


FIGURE (1) 6

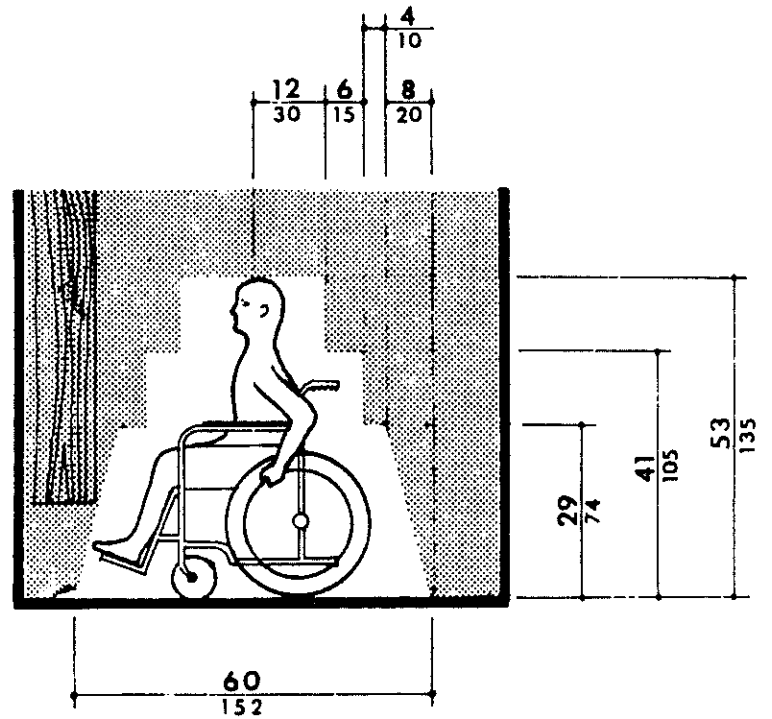


FIGURE (1) 7



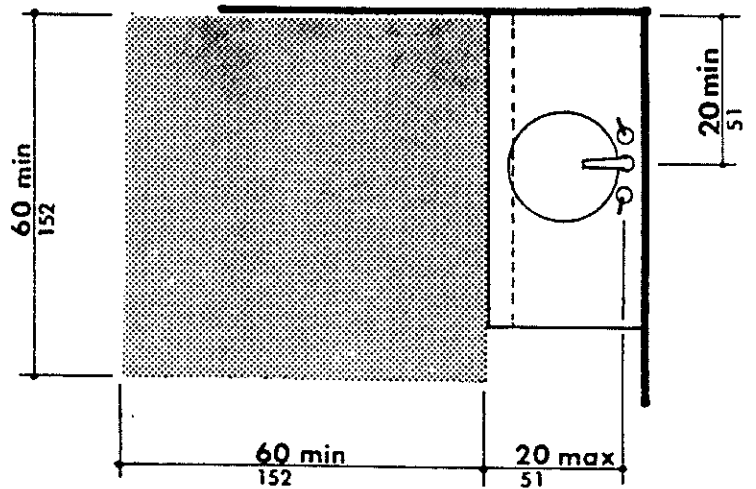
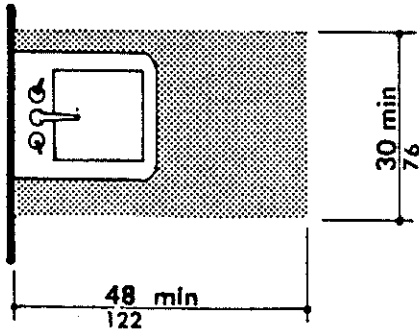
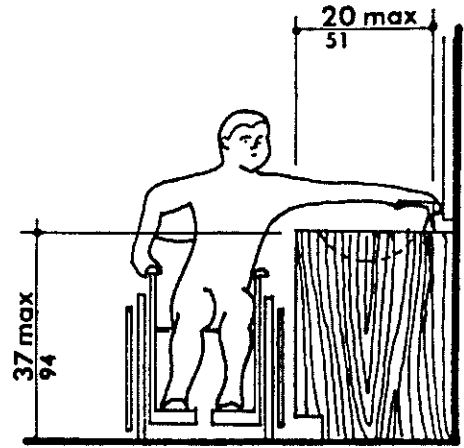
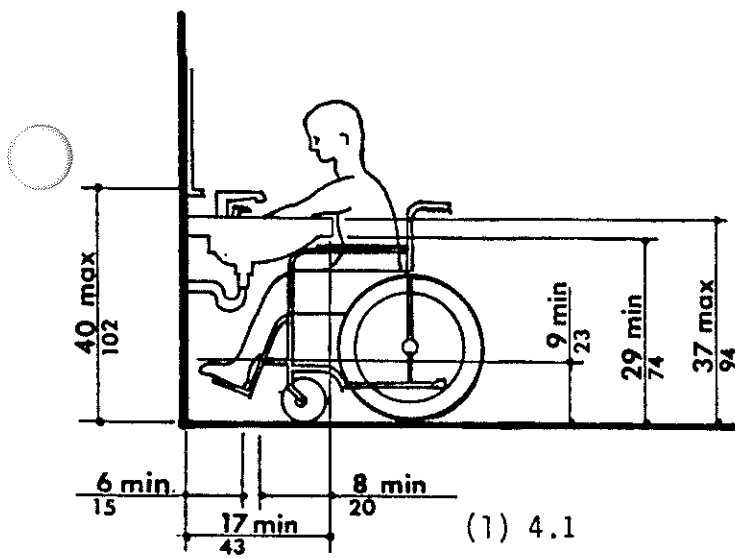


FIGURE (1) 4

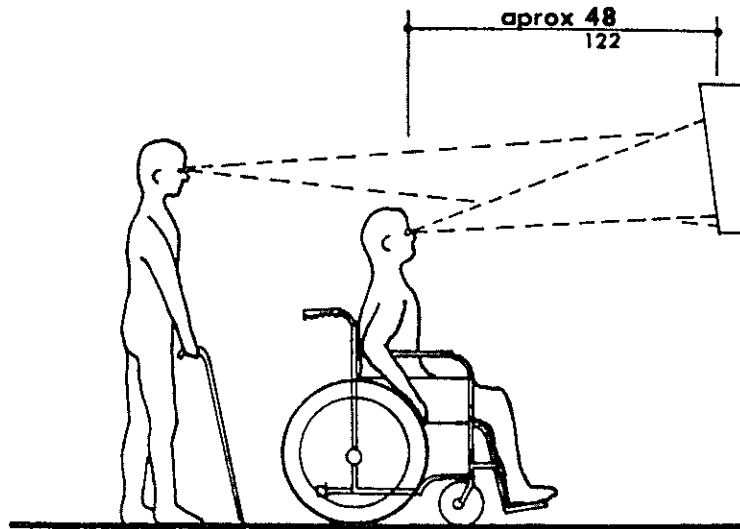


FIGURE (1) 5

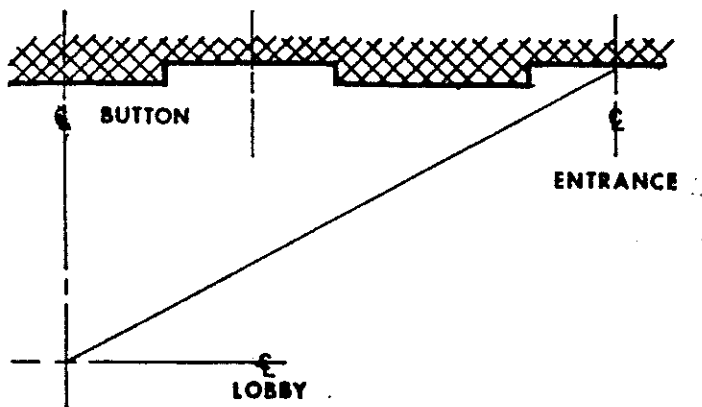


FIGURE (m) 1

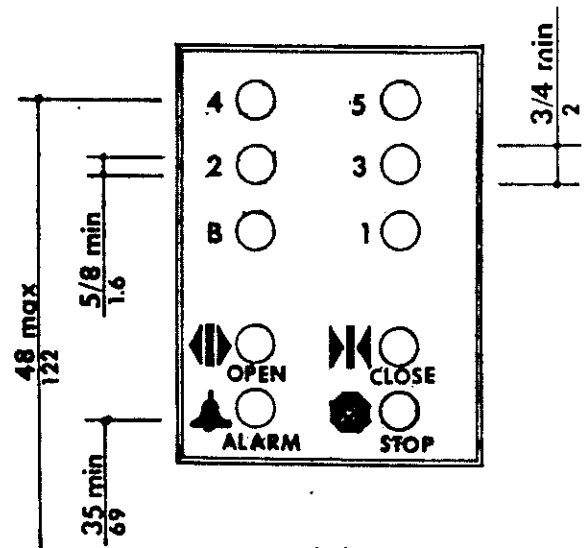
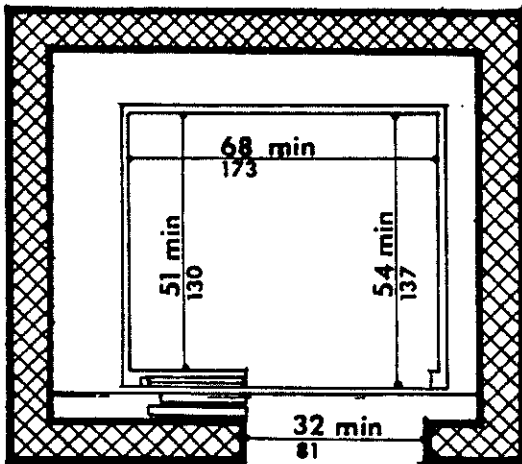
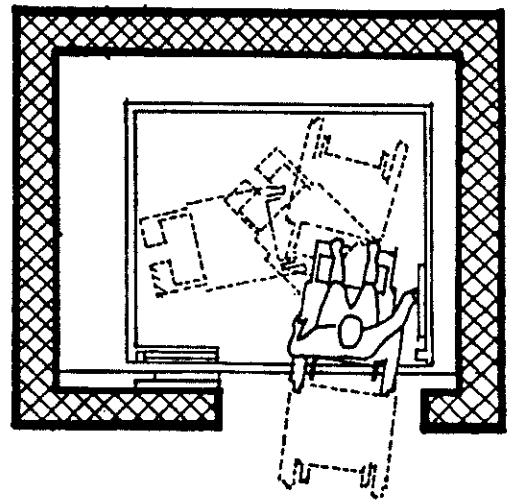


FIGURE (m) 2

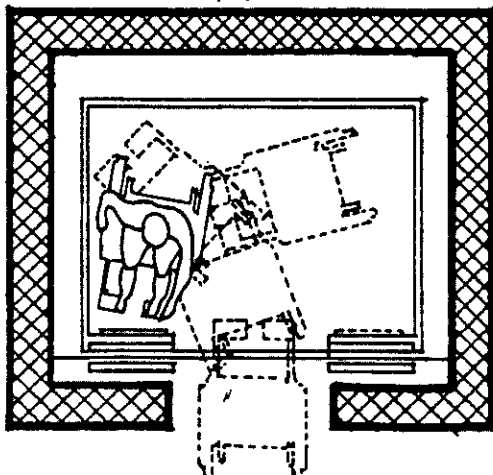


Note. Cabs less than 68 inches (173 cm) but no less than 54 inches (137 cm) are allowed if capacity is less than 2000 lb. A center opening door may necessitate increasing the width.

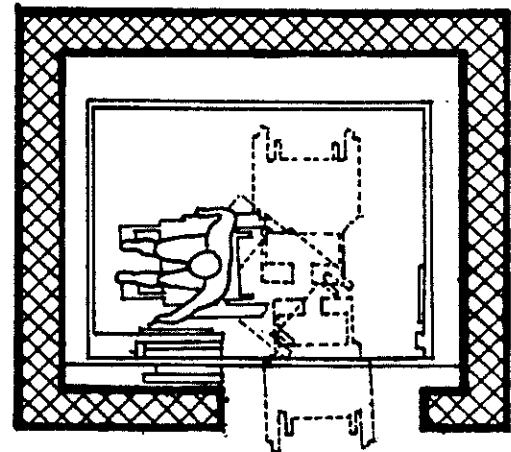
(m) 3.1



(m) 3.2

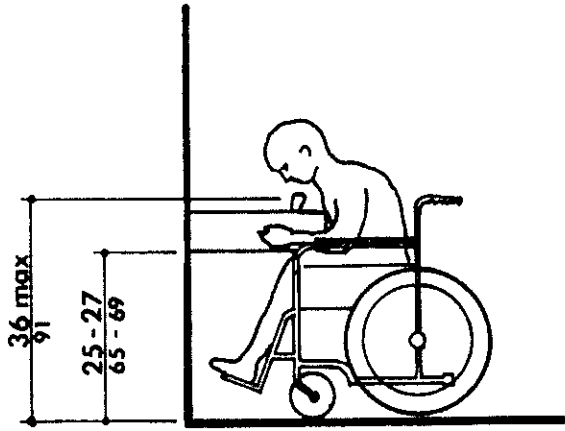


(m) 3.3

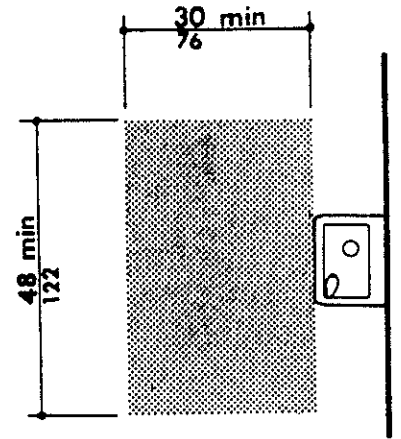


(m) 3.4

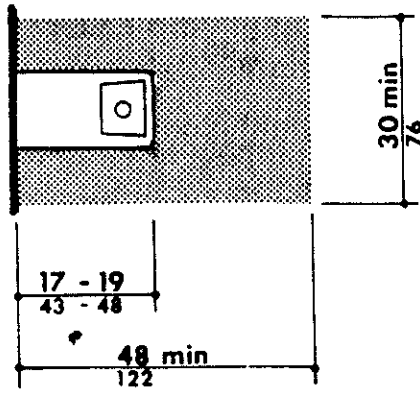
FIGURE (m) 3



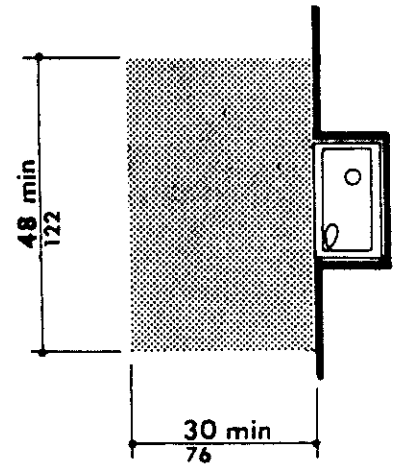
(n) 1.1



(n) 1.3

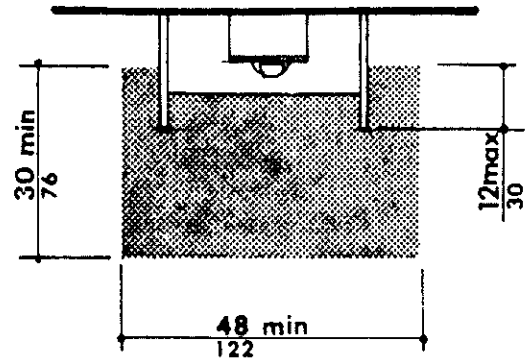
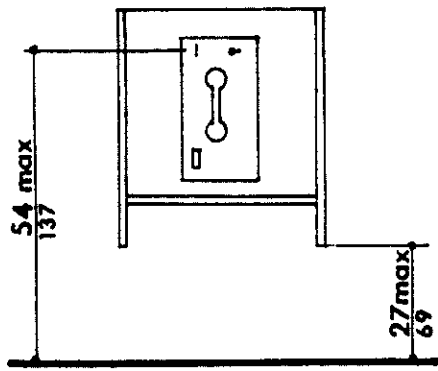


(n) 1.2

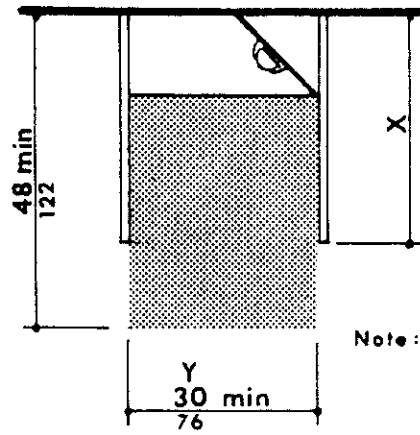
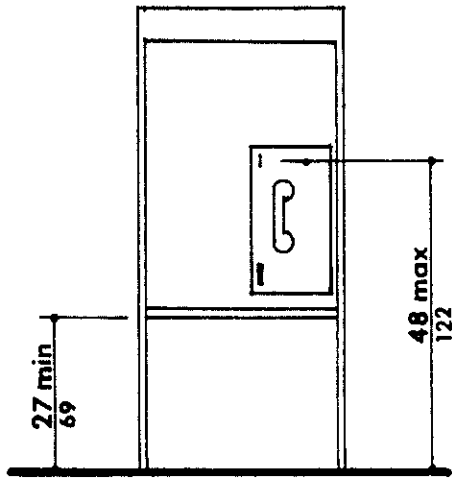


(n) 1.4

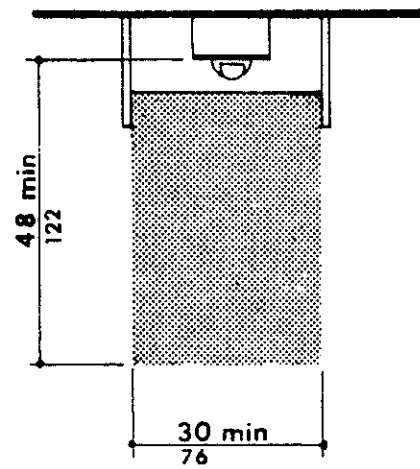
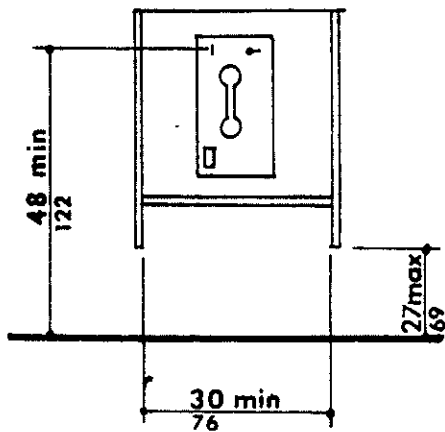
FIGURE (n) 1



(o) 1.1



(o) 1.2



(o) 1.3

FIGURE (o) 1

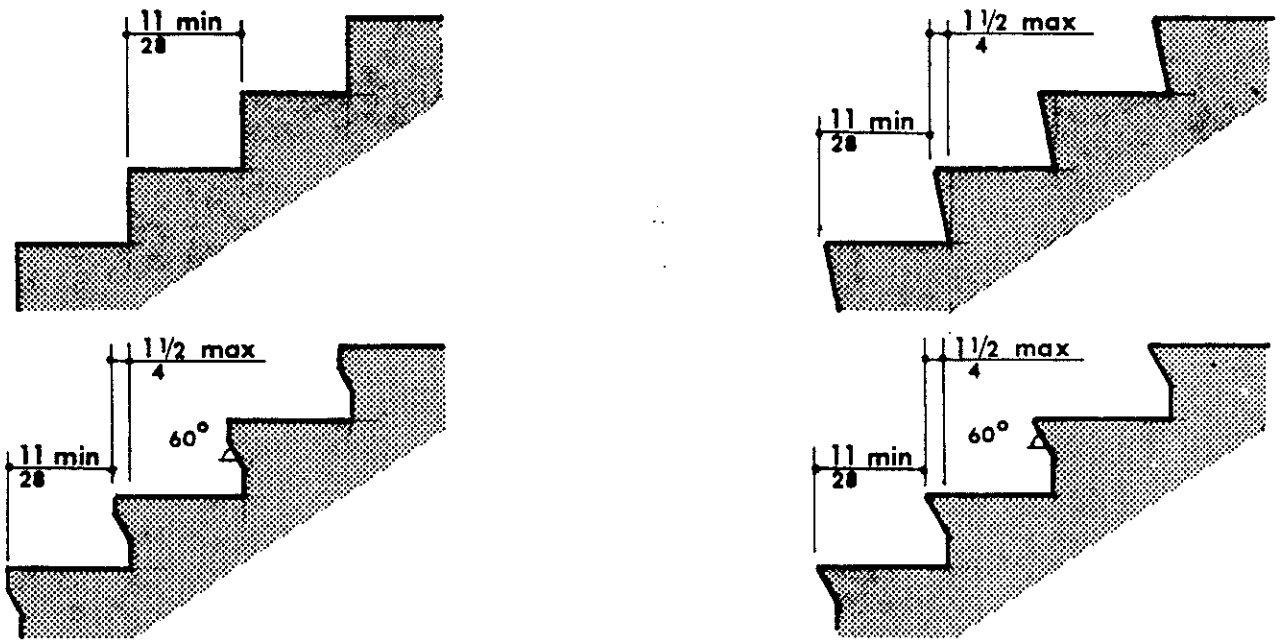


FIGURE (p) 1

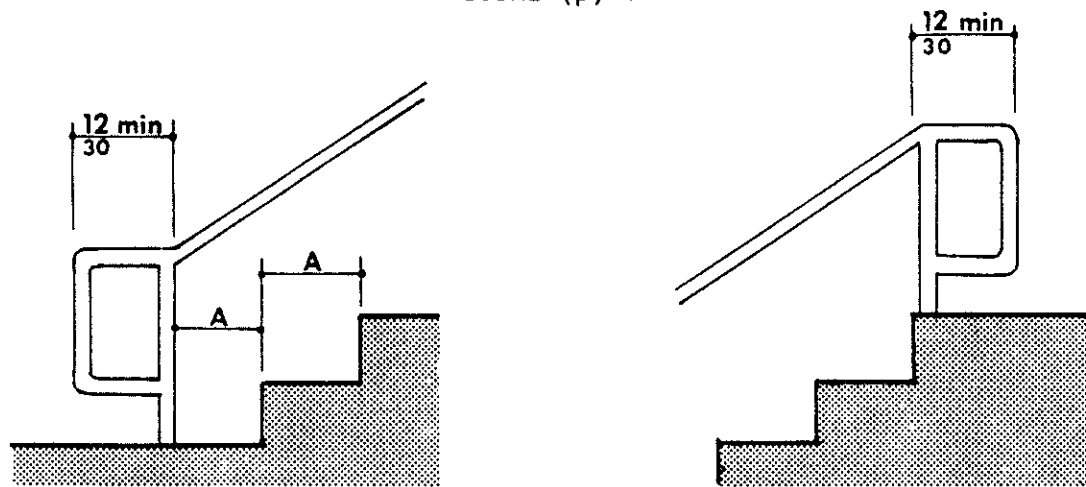


FIGURE (p) 2

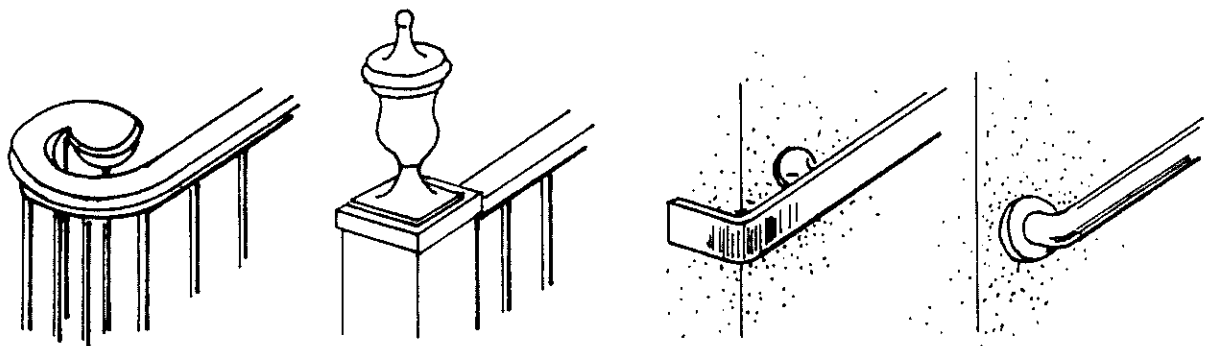


FIGURE (p) 3

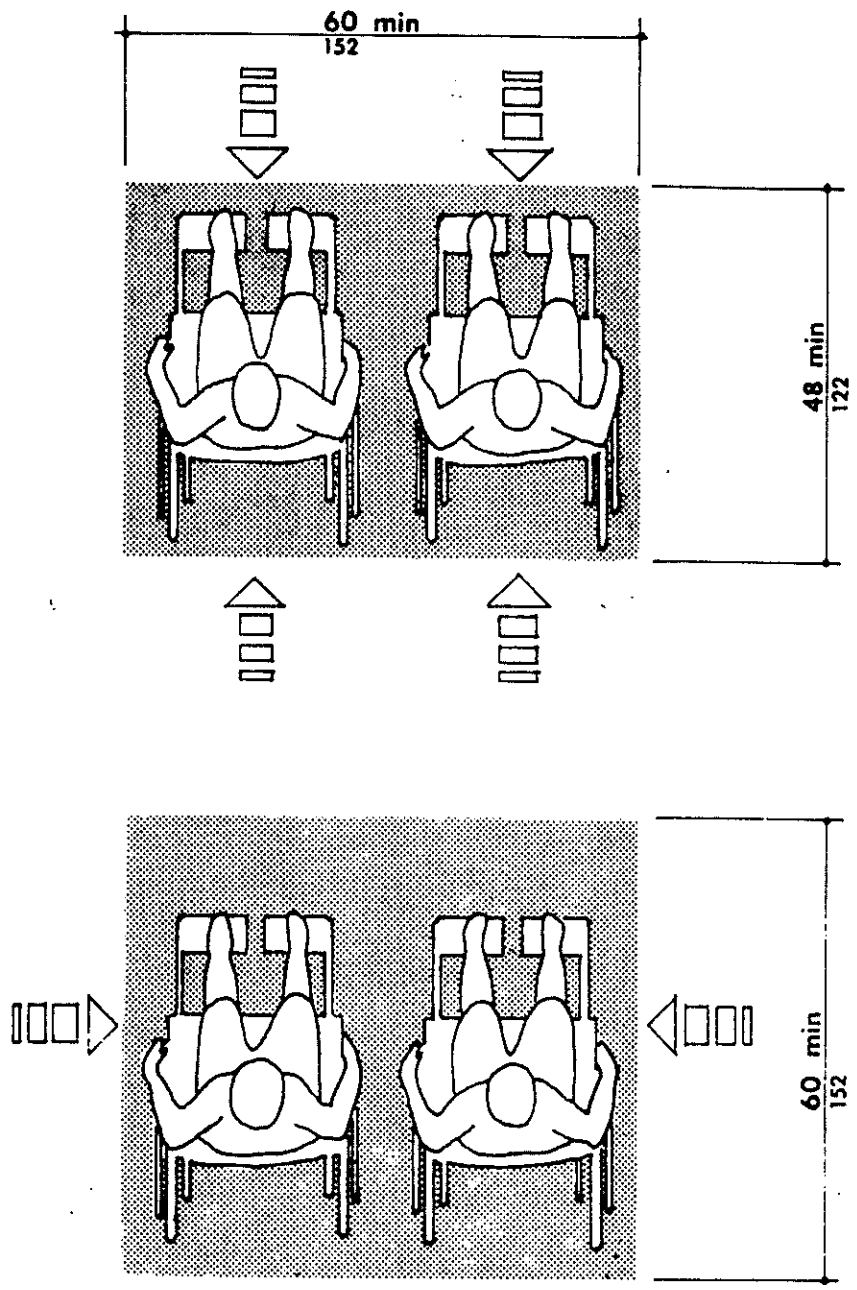


FIGURE (g) 1