

Accessibility Bits

*Specific requirements pertaining
to accessibility in accordance with
the Americans with Disabilities
Act Accessibility Guidelines*

- **doorways**
- **entrances**
- **parking**
- **toilet stalls**
- **lavatories**
- **urinals**
- **drinking fountains**
- **signage**
- **ramps**



This packet contains reprints of columns by Marilyn Sydow, the facilities planner with the Ohio Rehabilitation Services Commission (RSC). RSC is the state agency which assists people with disabilities to become employed. These columns appeared in NewsNet, the official publication of RSC, from November 1992 to October 1994. For information on RSC, call toll free in Ohio 1-800-282-4536 voice/TTY.

**Ohio Rehabilitation
Services Commission
400 E. Campus View Blvd.
Columbus, OH 43235-4604**

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How to determine the accessibility of a door

By Marilyn Sydow, facilities planner,
Ohio Rehabilitation Services Commission

Just getting in the door can be a problem for many people with disabilities. To assure that doors provide an accessible passage, several criteria must be considered.

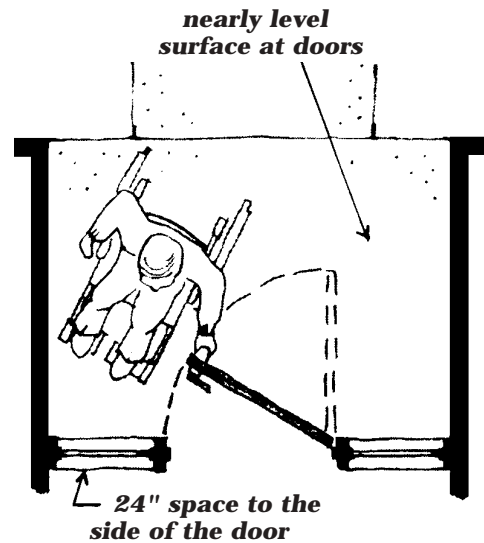
First, the door will have hardware that is easily operated with one hand and does not require twisting or turning for persons who have trouble using their hands or arms. Round knob hardware is unusable by many persons. Lever handles, U-shaped handles or horizontal push bar mechanisms require less movement to operate, and can be manipulated with other body parts, if needed.

The door opening force (pounds pull) for pushing or pulling a door open cannot be greater than five pounds for interior hinged doors, and sliding or folding doors. Pounds pull can be measured with a door pressure gauge – a spring-loaded device about the size of a pencil. To measure pounds pull, place the device perpendicular to the door at the pull or latch and gradually apply force to open the door. The amount of force required can be read on the gauge's calibrated scale.

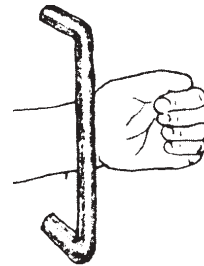
Additionally, there must be adequate clearance on the latch side of the door – at least 18" (but preferably 24") on the *pull* side and 12" on the *push* side. These clearances enable persons in wheelchairs to pull up into the side space, grasp the door hardware and pull the door open without being in the door's path. Clear width of the door opening must be at least 32", with the door open 90 degrees. This clear opening gives wheelchair users adequate room for hands and elbows, so that they are not scraped and bumped. A 32" wide door, however, does not provide a 32" clear width because the depth of the door (about 2") intrudes into the space with the door open. Since a 34" wide door is not a commonly stocked size, the best solution is to utilize a 36" wide door.

If door closers are utilized, the closers must have a delayed action mechanism; this feature gives a person additional time to maneuver through doorways.

Lastly, the door's threshold cannot be raised more than 1/2" in height (3/4" for exterior sliding doors) and threshold edges must be beveled, with a slope no greater than 1:2, to facilitate easy movement for people who use wheelchairs.



Maneuvering space is needed at doors.



**U-shaped handle
(above) and lever
handle handle (below)**



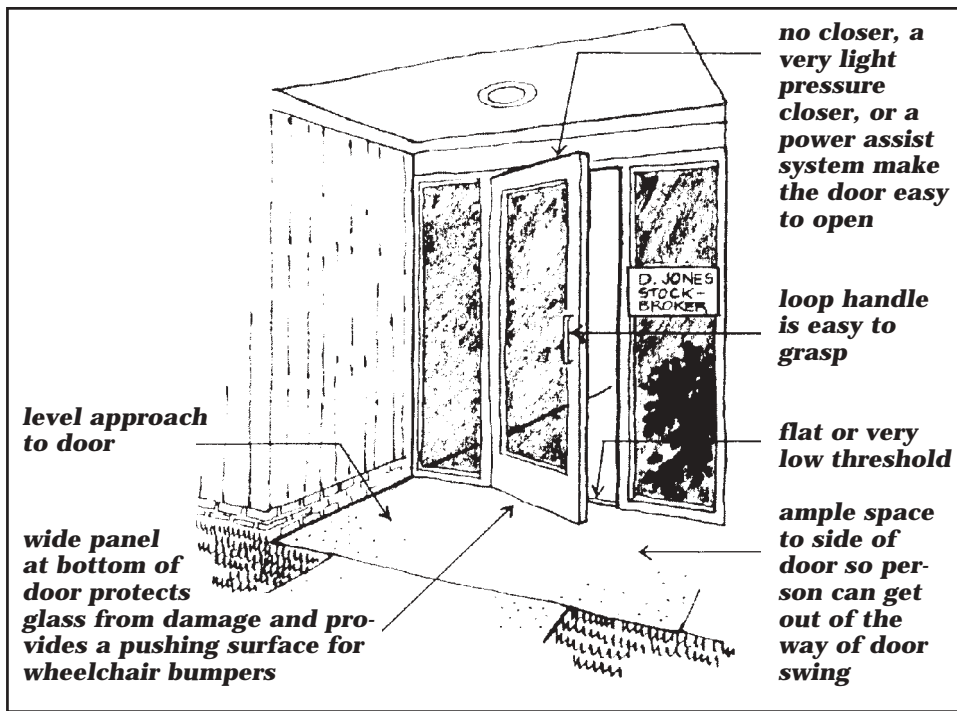
How to provide an accessible entrance

By Marilyn Sydow, facilities planner,
Ohio Rehabilitation Services Commission

In the debut article for this column (Nov./Dec. 1992 **NewsNet**), door accessibility in general was discussed. This month, the column will broaden its focus to accessible entrances and factors such as the approach landing, the floor surface, and the method and direction of opening the door(s).

Entrance doors must comply with interior door requirements as described in the previous **NewsNet**, in addition to entrance requirements, with one exception – the door opening force (pounds pull). The ADA Accessibility Guidelines (ADAAG) reserve a decision on pounds pull for exterior doors, but in ANSI A117.1 - 1986 (*American National Standard for Buildings and Facilities - Providing Accessibility and Usability for Physically Handicapped People*, referenced in the Ohio Basic Building Code) the maximum door opening force is 8.5 pounds. If the pounds pull cannot be reduced to this amount by adjusting or changing the closer mechanism or because the door is very heavy, an automatic door operator should be utilized.

Automatic operators can be activated with push buttons, or by motion, infrared or door displacement sensors. Most swinging doors with auto-operators can also be opened manually. The automatic feature, which can be used on swinging or sliding doors, benefits everyone – it's especially handy when carrying large bulky items.



An accessible entrance door.

To be accessible, an entrance must also be "approachable." The doorway approach landing must be level, with a flat or beveled threshold of 1/2" maximum height. An accessible entrance must have an approach landing with a minimum 60" depth for out-swinging doors or 48" for in-swinging doors.

As with interior doors, a minimum 18" (but preferably 24") maneuvering clearance should be available at the latch side of the door. If the minimum maneuvering clearance does not exist, an automatic door operator should be installed. Additionally, door hardware should be easily operated and not re-

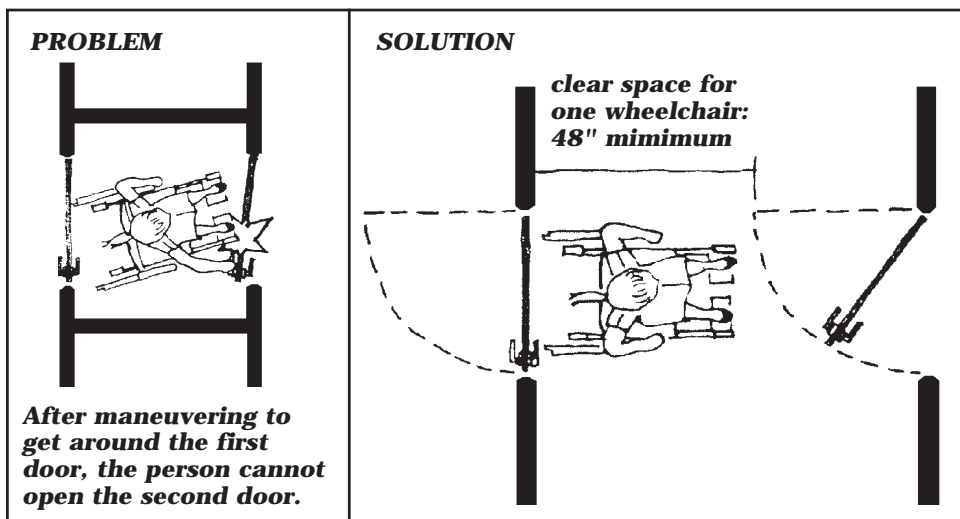
quire twisting or turning of the wrist.

Vestibules, which are commonly found in commercial buildings (especially in northern climates), can also cause problems. To be accessible, two hinged or pivoted doors in series must provide a minimum 4' depth clearance (for wheelchairs) *plus* the width of any door swinging into the space. To calculate the necessary clearance in a vestibule, the direction the door swings must be taken into account. For example, the minimum depth of the vestibule would be 4' if both doors swing out, but would be 7' (4' + 3' for the door) if both doors are hinged on the same side and swing in the same direction.

The floor of the vestibule should provide a firm, skid-resistant surface for people who are ambulatory. Coverings such as walk-off mats should be firmly attached or not used at all, as they could cause persons who shuffle or are unsteady when walking to trip. Shiny surfaces such as polished marble or granite are quite dangerous to people with or without mobility impairments, especially when wet and should be avoided.

A skid-resistant floor made of materials with a coefficient of friction of .6 or better is recommended in the ADAAG. Good choices are tile floors with abrasive grains, or textured or honed finishes, and rubber floors with varying types of raised patterns.

Revolving doors can also be made accessible under certain circumstances.



Vestibules with doors that are too close together can trap a person in a wheelchair. A vestibule may not have enough room for the first door to close before the person tries to open the second door. Vestibule doors should have plenty of space between them or both swing in the same direction or both swing out. (see ANSI 4.13.7).

Correct accessible parking is a necessity

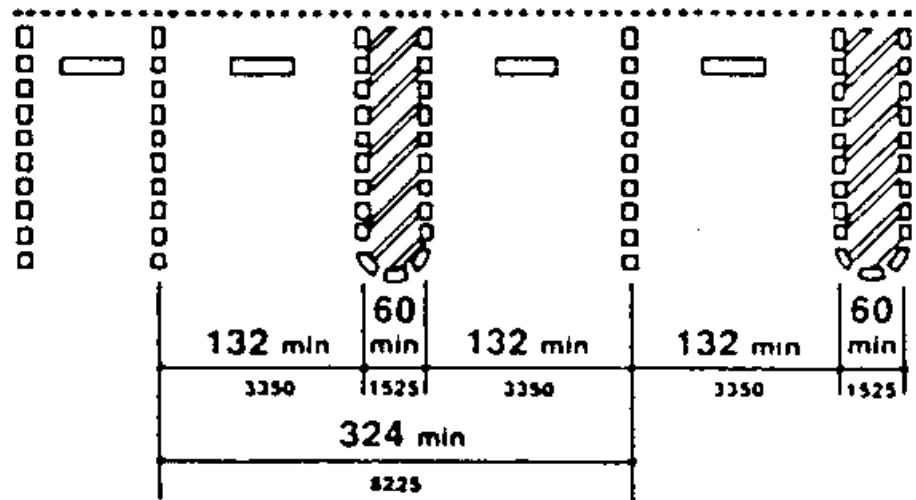
By Marilyn Sydow, facilities planner,
Ohio Rehabilitation Services Commission

Many people with disabilities drive their own cars or vans, but run into problems after the vehicle is parked. Persons who use wheelchairs or mobility aids need adequate space to move between cars and to exit and enter their vehicles. The Americans with Disabilities Act Accessibility Guidelines (ADAAG) designate three types of accessible parking spaces.

The standard accessible parking space must be a minimum of 8' wide with a surface slope not exceeding a 1:50 ratio in all directions. There must be a 5' minimum width access aisle adjacent to the parking space. This provides space for a car door to be opened fully so that a person with a disability will have space to get in or out with his/her wheelchair or mobility aid. Two accessible spaces can share a single access aisle.

The access aisle *must* be completely level with the parking space(s), so that a person using a vehicle lift or ramp can successfully maneuver in the space.

The access aisle is part of an accessible route to the building entrance or facility. If there is a level change from the access aisle to the accessible route, a curb ramp must be provided. The accessible route will be at least 36" wide (minimum clear width for a wheelchair) and be smooth and level. Parked cars along the route must not be allowed to reduce this minimum width; strategically-placed parking



A Universal Parking Space design.

blocks at adjacent parking spaces will prevent overhang problems.

The accessible parking, if serving a particular building, will be located to provide the *shortest* accessible route of travel from the parking area to an accessible entrance. If the building has multiple accessible entrances, the required number of accessible parking spaces should be distributed to provide accessible parking near *each* entrance. Signs reserving each parking space must show the international access symbol and be located so that they cannot be obscured by a vehicle parked in the space.

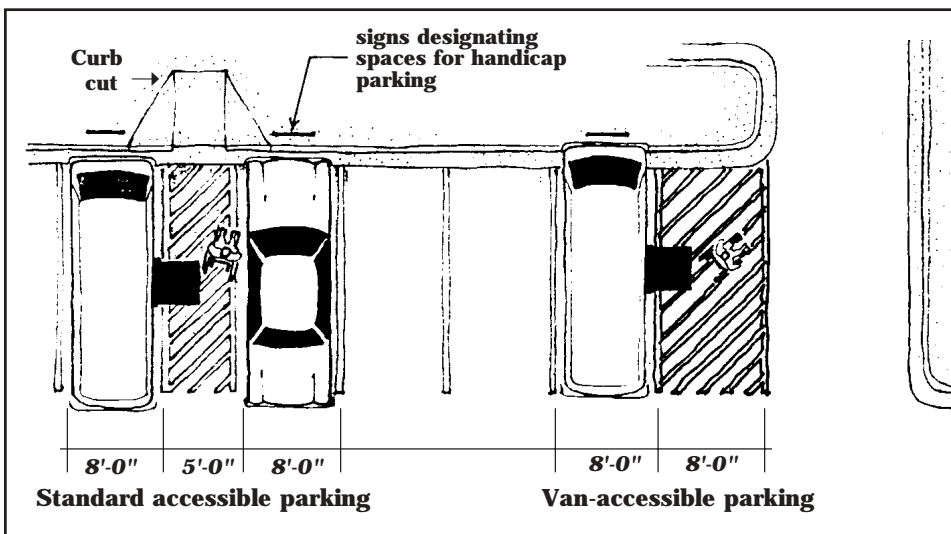
In addition to the standard accessible space, the ADAAG designate two alternative parking designs. There is an increasing use of vans with side-mounted lifts or ramps; wider access aisles provide additional space to allow

individuals to enter or exit their vehicles using such equipment.

The van-accessible parking space is 8' wide with an 8' access aisle, and can be utilized at the end of a row of parking spaces (see diagram below). The ADAAG require that 1 of every 8 parking spaces be van accessible. If only one accessible space is required, it *must* be van accessible.

An alternative to the provision of a percentage of spaces requiring a wide aisle is the Universal Parking Space, which is 11' wide plus a 5' access aisle. It is usable by all vehicles, regardless of size.

Providing accessible parking and necessary curb cuts is considered "barrier removal" and will qualify for federal tax incentives. For small businesses, there is a tax credit; for large businesses, a tax deduction.



Parking spaces and access aisles.

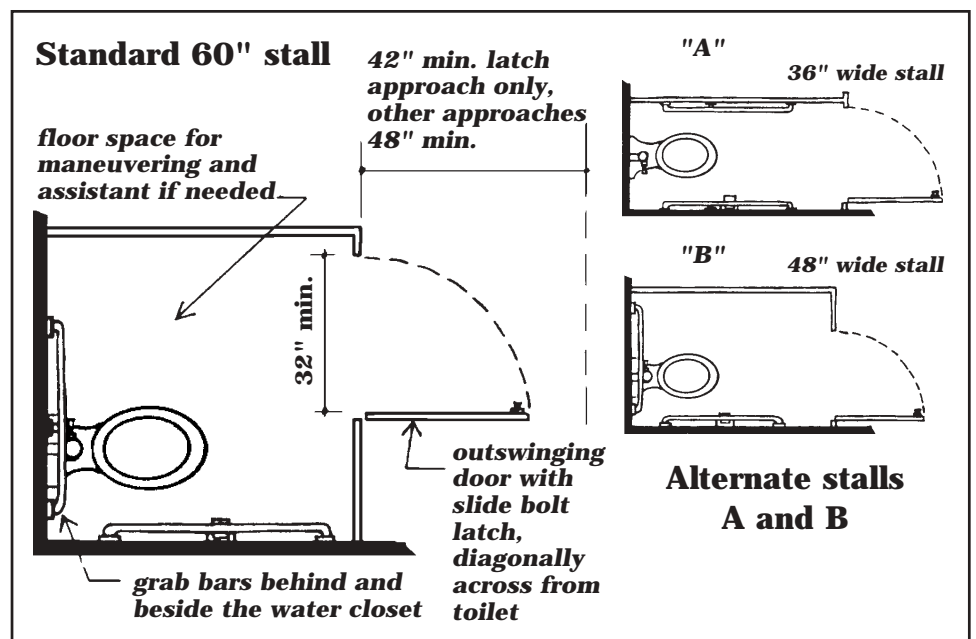
Accessible toilet stalls critical to participation

By Marilyn Sydow, facilities planner,
Ohio Rehabilitation Services Commission

Access to toilet rooms is critical to employment and community participation. If restrooms are not accessible, otherwise accessible buildings and facilities cannot be fully utilized by people with disabilities. Accessible fixtures, controls and accessories, proper door clearances and clear floor and knee space must be provided so that persons with mobility impairments, including but not limited to persons in wheelchairs, can enter and utilize restrooms.

An integral part of the accessible restroom is an accessible toilet stall. The 60" wide stall with a minimum 56" depth (for wall mount toilet) is the standard toilet stall mandated in the ADA Accessibility Guidelines (ADAAG) for all new construction. The extra floor space included in this stall allows persons in wheelchairs to maneuver to the best position for them to transfer onto the toilet. It also provides space for an attendant to assist the person if needed. Grab bars positioned at right angle with the user to make either a left or right-handed transfer.

The stall door should be located diagonally from the toilet and swing out to provide at least a 32" clear space with the door open. A 32" wide door, however, does not provide 32" clear, since the depth of the door intrudes into the space when the door is open. Stall doors are typically 1" thick, so a minimum 33" door is needed. The door hardware must be the sliding type (not turning) to avoid tight grasping,



The 60" standard stall is required by ADAAG for all new construction. Alternate stall specifications are allowed in remodeling when the standard stall is infeasible.

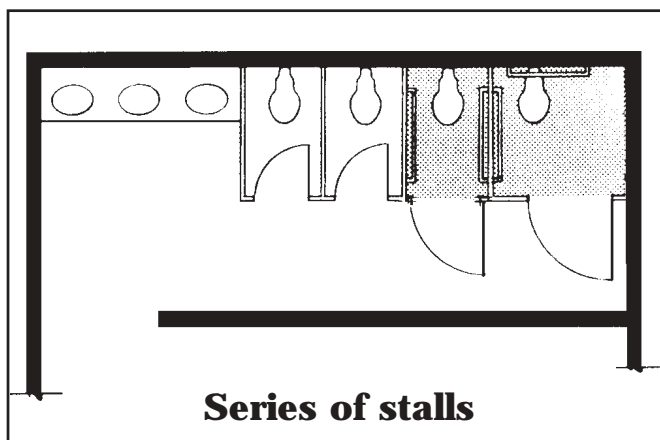
ing, pinching or twisting of the wrist.

A minimum 42" clear width must be provided in the approach area adjacent to the toilet stall. This clearance allows persons in wheelchairs to easily negotiate a turn into the stall. If the standard stall is located at the end of a row of stalls, it is possible to have the stall door swing into the stall, **if** an additional 36" is added to the length of the stall.

The toilet in the accessible stall can be either wall-hung or floor mounted, but it must have a seat height of 17" to 19" from the floor, and be mounted 1'6" on center from the side wall. The rear grab bar must have a minimum 36" length, the side grab bar a minimum 42" length. Grab bar diameters

must be 1 1/4" to 1 1/2", spaced 1 1/2" from the wall; a textured finish is desirable for greater slip resistance. Grab bars should be mounted 33" to 36" on center from the floor and blocking should be provided inside walls for proper securement. Toilet paper holders must provide uncontrolled delivery and be mounted no farther than 36" from the back wall, at least 19" on center from the floor. For safety, the coat hook should be mounted on a side wall, 48" on center from the floor and **not** on the stall door.

The ADAAG allows two other alternate stall configurations (see diagram top right). Either can be used in lieu of the standard stall in alteration work where provision of a standard stall is technically infeasible or where plumbing code requirements prevent combining of existing stalls to provide space. Alternate stall "A" is 36" wide with a minimum 66" depth (wall mount toilet). Alternate stall "B" is a minimum 48" wide and minimum 66" depth. Stall "A" is a configuration best for walking persons with mobility impairments who have difficulty sitting down and getting back up. The ADAAG recommends that in restrooms containing six or more toilet stalls, alternate stall "A" be provided **in addition to** the required standard stall. The alternate stall would be the same length as the adjacent stalls, but the stall door would swing outward to ensure space for crutches and walkers.



One wide and one narrow stall in a toilet room is best for all users.

Lavatory specifications can be easily met

By Marilyn Sydow, facilities planner, Ohio Rehabilitation Services Commission

Building upon the May/June column on accessible restrooms, this column will focus on lavatories.

To provide an accessible lavatory, it is not necessary to utilize the "wheelchair" lavatory, an elongated model (27" depth) widely sold by plumbing manufacturers that includes hardware consisting of wristblade handles and a gooseneck faucet.

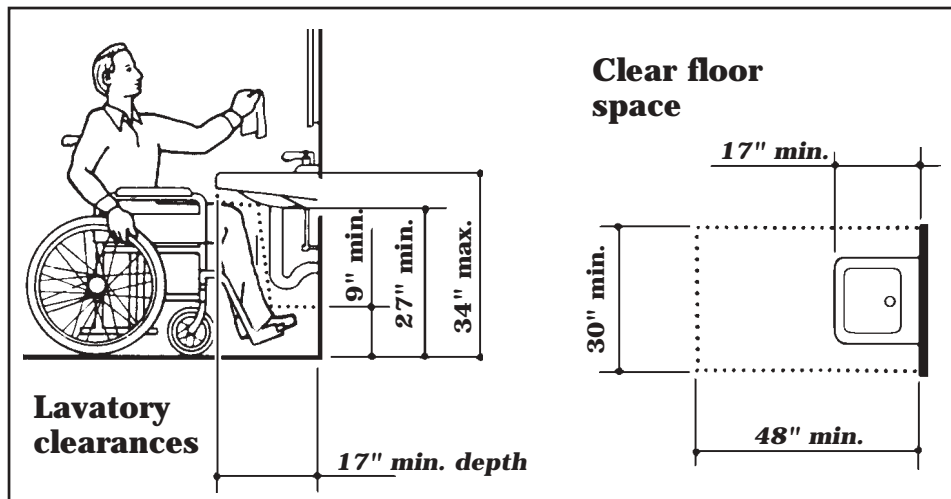
There are many reasons *not* to use this model: it is much more costly; it is cantilevered so far from the wall there is a risk of breakage; and it takes up additional space in the restroom that may create clearance problems. This model promotes the idea of a special product for people with disabilities when in fact, none is needed.

Standard lavatories can be used as long as they comply with the ADA Accessibility Guidelines (ADAAG). They must be mounted no higher than 34" from the floor to the rim or counter surface and 27" minimum knee clearance must be available from the floor to the underside of the bowl. If a countertop is used, the valance must also provide 27" minimum clear.

The lavatory must have a minimum depth of 17" from the front edge to the back wall. A clear floor space of 30" width and 48" depth should be provided in front of the lavatory, to allow a forward approach for people who use wheelchairs. If the lavatory bowl is placed in a countertop, it should be located as close to the front edge of the counter as possible so that a seated person can lean over it.

Lavatory traps must be insulated or otherwise configured to protect against contact so that a person in a wheelchair who has no feeling in the lower extremities will not be scalded on the drainpipe.

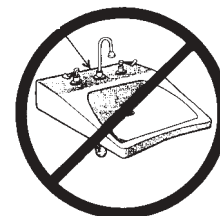
The ADAAG requires faucet controls to be operable with one hand without tight grasping, pinching or twisting of the wrist. This requirement can be met by a variety of styles of faucet hardware—it does not have to rely on wristblade handles and gooseneck faucets. Wristblades are more likely to break than other styles and



Lavatories can be standard fixtures and the counters or cabinets can be of ordinary construction so long as they provide the clearances required.

the substantial torque created within the handle when shutting off wears out washers prematurely.

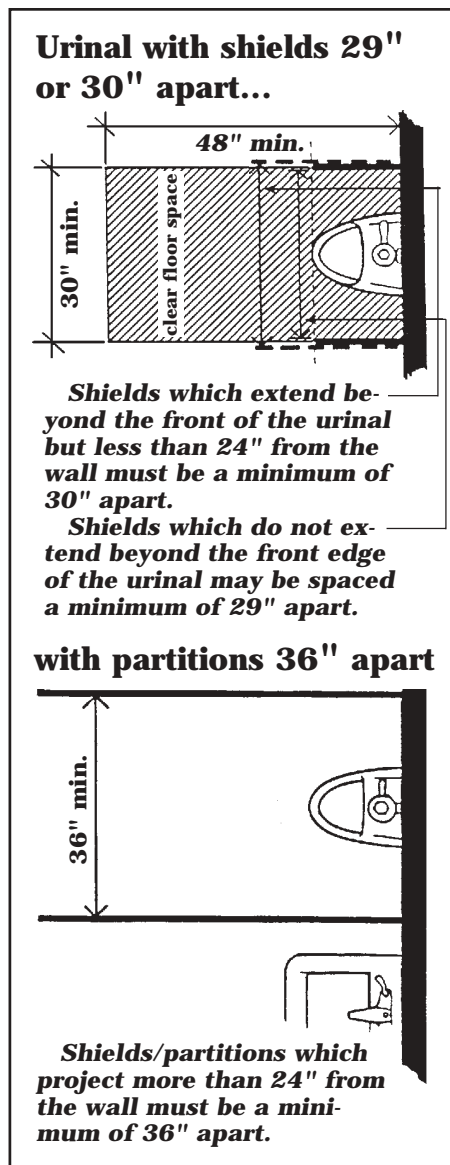
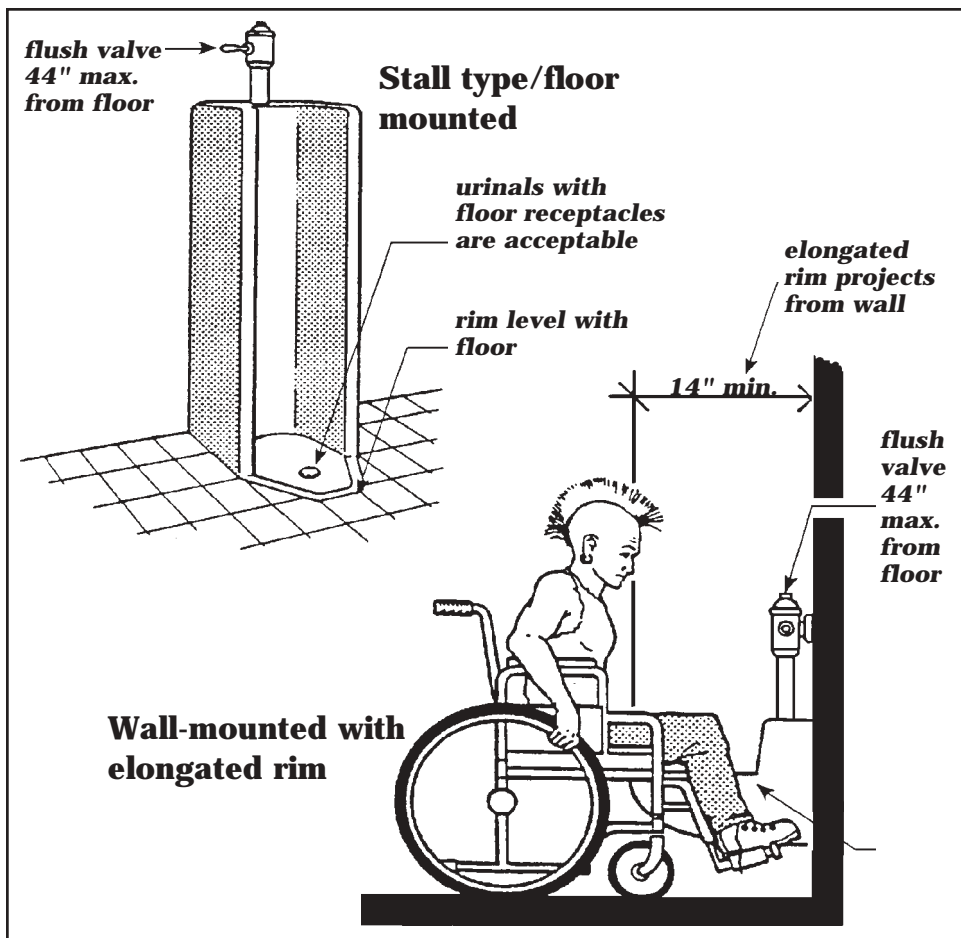
The guidelines state that lever operated, push-type and electronically controlled mechanisms are acceptable. A good test for faucet accessibility is to operate the device with a closed fist. If the faucet can be made to function, it probably meets or exceeds requirements.



A generic "handicapped" lavatory.



The accessible design of Kohler's Invitation™ lavatory features a rim that overhangs the edge of the countertop to bring the basin closer to the user.



Urinal requirements: a goal to aim for

By Marilyn Sydow, facilities planner, Ohio Rehabilitation Services Commission

Progressing to yet another fixture in our continuing discussion of accessible restrooms, this month's column focuses on urinals and flush valves. The ADA Accessibility Guidelines (ADAAG) Section 4.22.5 requires that if urinals are provided in commercial construction, *at least one* shall be accessible.

The only allowable exception for not having an accessible urinal according to the ADAAG is in restrooms that are structurally impracticable to renovate. In these situations, substitution of a unisex restroom consisting of a toilet and lavatory can be made and must be located in the same toilet facilities area.

Accessible urinals must be either stall-type/floor mounted or wall-mounted with an elongated rim. The ADAAG requires that the wall-mounted version's rim be no higher than 17" from the floor to the lip, 7" lower than the standard 24" mounting height. Although "elongated" is not defined in the ADAAG, ANSI A117.1-1986 (American National Standard for Buildings and Facilities—Providing Accessibility and Usability for Physically

Handicapped People), referenced in the Ohio Basic Building Code, requires a minimum 14" urinal depth. The lower rim height allows people using wheelchairs to pull in close, with the leading edge of their chair seat over the top of the rim, while the elongated depth permits the user's legs to straddle the fixture. Floor-mounted urinals should have rims level with the floor to allow a close approach by wheelchair users.

As with lavatories, the ADAAG specifies that a clear floor space of 30"x48" be provided in front of urinals to provide a forward approach. However, if urinal shields/partitions do not extend beyond the front edge of the urinal, they may be spaced a minimum of 29" apart. If partitions extend *beyond the front of the urinal*, but less than 24", they must be a minimum of 30" apart. Partitions extending *beyond 24"* from the wall must be spaced a minimum of 36" apart to provide maneuvering space for people who use wheelchairs.

Although not required in the ADAAG, some states' building codes mandate the installation of vertical grab bars on both sides of the urinal. The 24" long grab bars are to be utilized as auxiliary support for people

with mobility impairments who may use crutches, leg braces or walkers, and for wheelchair users who prefer to stand with support.

Flush valve controls for urinals and toilets can be electronic or manual. Electronic controls employ an infrared sensor beam device. Blocking the beam with the body activates the electrical circuit; movement away from the sensor initiates a second signal which starts flushing action.

Manual controls include push button valves and the standard lever handle. Push button controls have the advantage of greater flexibility of wall location and less effort is required to use them. Both types of manual controls must be mounted no higher than 44" above the floor, and as with lavatory controls, should be operable with one hand without tight grasping, pinching or twisting of the wrist. The force required to activate control valves must be no greater than five pounds.

Drinking fountains must provide access, not hazard

By Marilyn Sydow, facilities planner,
Ohio Rehabilitation Services Commission

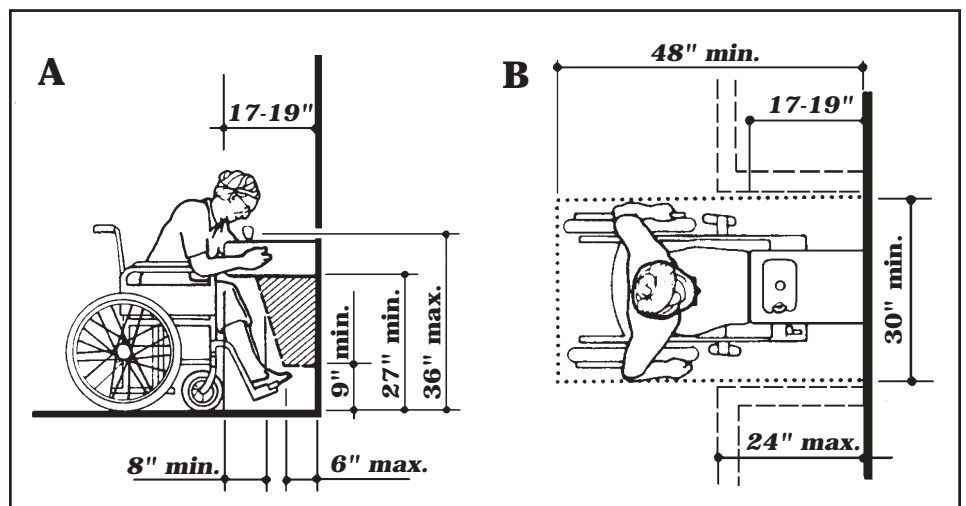
Drinking fountains are required plumbing fixtures commonly found in public areas of commercial buildings. They should be usable for a variety of sizes of people, such as adults who are tall, children and people who use wheelchairs.

The ADA Accessibility Guidelines (ADAAG) mandate that where only one drinking fountain is provided on a floor, "there shall be a drinking fountain which is accessible to individuals who use wheelchairs in accordance with 4.15 Drinking Fountains and Water Coolers and one accessible to those who have difficulty bending or stooping." The ADAAG also states that where more than one drinking fountain or water cooler exists per floor, 50 percent of those provided shall comply with ADA standards and shall be on an accessible route.

The basic design of an accessible drinking fountain begins with controls that are front or side mounted and do not require tight grasping, pinching or twisting of the wrist. Accessible controls can be touch pads, push buttons, electronic sensors or lever handles. The spout outlet should be located at the front edge of the unit and must direct the water flow in a trajectory parallel or nearly parallel to the front edge



Coolers having more than 27" clear knee space are not detectable by many people who are blind and may interfere with pedestrian traffic.



Wall-hung drinking fountains must be installed with an accessible spout height and appropriate knee clearance (see Figure A, equipment is permitted in shaded area). Wall-hung drinking fountains which do not have equipment underneath detectable by a cane must be placed in an alcove or have wing walls at the sides.

of the unit. The flow of water must be at least 4" high to allow the insertion of a cup under the flow; the maximum height of the spout must be no more than 36" from the floor.

Wall-mounted cantilevered drinking fountains must provide a 27" minimum of knee space—measured from the floor to the underside of the unit—and a minimum of 9" of toe space (see Figure A). This fountain should have a minimum 17" to 19" depth to provide an adequate frontal approach for people using wheelchairs.

As with lavatory and urinal fixtures, there should be a minimum 30" wide by 48" deep clear floor space in front of and underneath the unit. Freestanding or built-in units with no knee clearance *must* have the 30" by 48" clear floor space *in front* of the fountain to allow a side approach by a wheelchair user.

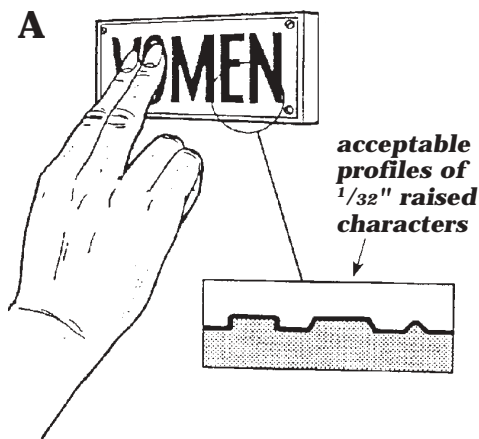
Dual-height drinking fountains with a standard height spout of 40" and an adjacent unit with a spout height of 34-36" are a preferable combination: the higher fountain accommodates people who are tall and ambulatory persons having difficulty with deep bending; the shorter can be used by children, people who are short of stature or those using wheelchairs.

Proper building location of drinking fountains is also critical, because the fixtures can be a hazard if they protrude into a lane of pedestrian traffic. A cantilevered accessible drinking fountain can be a menace to a person with blindness who uses a cane to

travel, since the unit cannot be detected within the "cane sweep." To be detected, the lower edge of the drinking fountain must be 27" or less above the floor. Many manufacturers have designed certain models that meet this criterion and can be detected by cane users.

Accessible models which do not meet the 27" or less measurement must be recessed into alcoves or have "wing walls" installed on both sides to provide protection in hallways. The maximum depth of an alcove or wing wall is 24", the minimum width is 30".

Because of plumbing considerations, drinking fountains are typically located close to restrooms, especially in small offices having one set of restrooms. A successful restroom entrance/drinking fountain location is carefully designed so that both meet all accessibility requirements.



Tactile signs can be deciphered by people with visual impairments. Letter, characters and symbols must be raised 1/32" minimum.

Signage important in the built environment

By Marilyn Sydow, facilities planner, Ohio Rehabilitation Services Commission

Signage which provides directional and service information plays an important role in buildings and facilities. A well-designed signage system will save time and increase convenience for all people, particularly those with speech, cognitive or hearing impairments who may have difficulty asking for or understanding directions, and for people with visual impairments.

It is possible to design signs which are easily interpreted both tactilely and visually. Words, numbers, pictographs, logos and other graphic images such as maps and floor plans of complex facilities may appear in a sign. Content and length of messages, use of color, lighting and logical placement within the facility will also contribute to the usability of a signage system.

Permanent room signage

The ADA Accessibility Guidelines (ADAAG) require that building signage



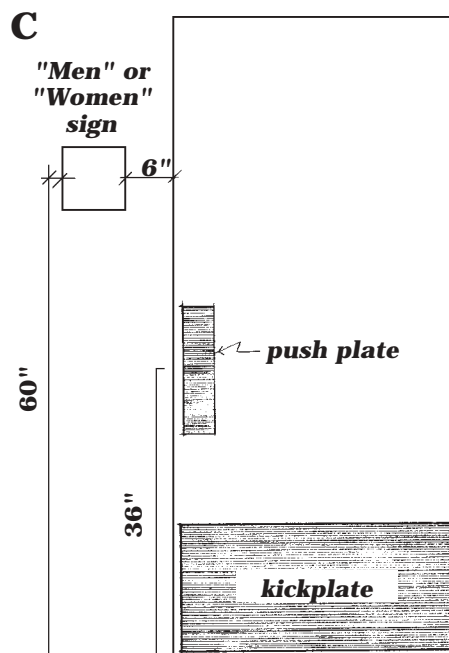
Contrast between characters and background makes signage easier to read. Research has indicated that light characters on dark backgrounds are easier to read because the potential for glare is reduced.

comply with certain specifications. Signs that designate *permanent* rooms are required to have upper case letters and numerals raised 1/32" (see figure A), type must be sans serif or simple serif and be accompanied by Grade 2 Braille. Research has determined that raised characters, especially in smaller sizes, are easier to read than incised ones. Further, the letters must be at least 5/8" high, but no higher than 2".

Pictorial symbols (pictograms) such as those typically found on restroom signage, must be accompanied by the equivalent verbal description placed directly below the pictogram. The dimension of the pictogram, from top to bottom edge, must be 6" in height.

Permanent signs must also have an eggshell, matte or non-glare finish, and the characters/symbols must contrast with their background. Research indicates that at least a 70 percent contrast is needed for signs to be legible for people with low vision. The greatest readability is achieved by using light-color characters or symbols on a dark background (see figure B).

Finally, permanent signage must be installed on the wall adjacent to the latch side of the door, 60" above the finish floor to the centerline of the sign (see figure C). When there is no wall space to the latch side of the door, including double leaf doors, the signs must be placed on the nearest adja-



Permanent room signage should be 60" on center from the finish floor on the latch side of the door.

cent wall. The intent of the specified signage location is to enable people to approach within 3" of the sign without encountering protruding objects or without standing within the swing area of a door.

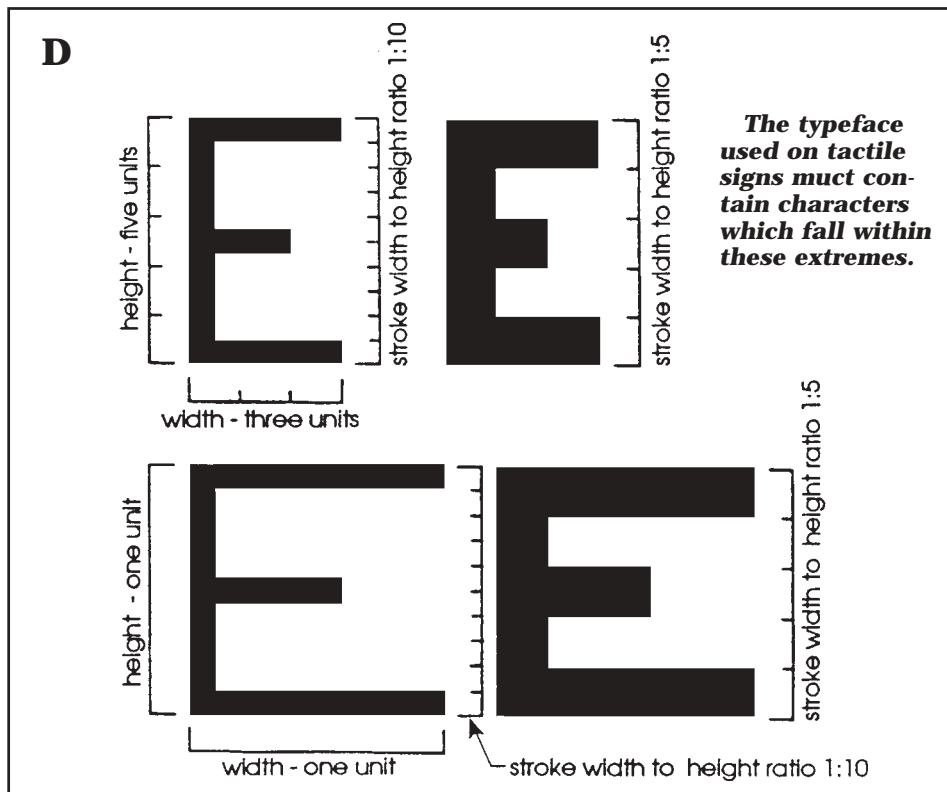
Non-permanent/movable signage

Other types of signage that provide *direction to or information about* functional spaces of the building must provide character proportion that is easily readable—very condensed or extended characters or extremely bold or light type faces are prohibited. The width-to-height ratio for letters and numbers must be between 3:5 and 1:1 and the stroke-width-to-height ratio between 1:5 and 1:10 (see figure D). Direction and information signage must be sized according to the viewing dis-

tance from which it is to be read.

Signs that are suspended from the ceiling or projected from a side wall overhead must have minimum 80" clearance from the floor; minimum character height must be 3" and lower case characters are permitted. As with permanent signs, direction and information signage must have a non-glare finish and contrasting background.

Some people with disabilities have limited head movement and/or reduced peripheral vision. Therefore, signage positioned perpendicular to the path of travel is the easiest for them to notice. It has been found that people can generally distinguish signage within an angle of 30 degrees to either side of the centerlines of their faces without moving their heads.



Illustrated are characters which depict extremes of allowable height to width ratios for characters and height to width ratio of character stroke.

Many companies offer beauty in design choices

By Marilyn Sydow, facilities planner,
Ohio Rehabilitation Services Commission

Until recently, products available to the public that provided accessibility were institutional looking – plain metal grab bars (or worse, towel racks utilized as grab bars), “wheelchair” lavatories, various and sundry accessories available only in white to be used with tubs and toilets, etc.

Manufacturers are now realizing the potential demand for barrier-free products. The intent in today’s market is to “take away the stigma of the institutional-looking bathroom and offer consumers beautiful design choices.” It should be noted that two of the three products featured here originated in Denmark and Germany. Western European manufacturers in general have been quicker to do research and design for the barrier-free product market.

Kohler’s Assure™ Wheelchair Accessible Kitchen Sink was designed specifically for wheelchair users. The ADA Accessibility Guidelines state that to be accessible a sink shall have a maximum depth of 6¹/₂”, provide at least 27” knee clearance, be at least 19” deep and be mounted with the counter or rim no higher than 34” above the finish floor. The double-basin Assure kitchen sink goes beyond minimal requirements and provides a curved front apron to bring the basins closer to the seated user and a wide front edge that users can grasp to pull themselves toward the sink or use as an armrest while working.

One basin is large, with a 6¹/₄” depth; the other basin is small at 4¹/₂” deep. The faucet deck has been brought forward for easier reach. A Coralais™ faucet with pull-out sprayhead brings the spout to the user. Optional accessories include a polyethylene cutting board, colander and drainboard.

The enameled cast iron sink has an overall measurement of 36” wide by 24” deep. A polystyrene shield covers the drain and disposal, and protects the user’s legs from contact with hot pipes.

Hewi (pronounced Hay-vee) produces a wide range of bathroom and cabinet accessories, door hardware,



People who use wheelchairs, have mobility impairments or who live in a household with very short or tall individuals could benefit from Barclay's adjustable track system for mounting bathroom fixtures. The track allows sinks and accessories to adjust up, down and side to side for custom accessibility.

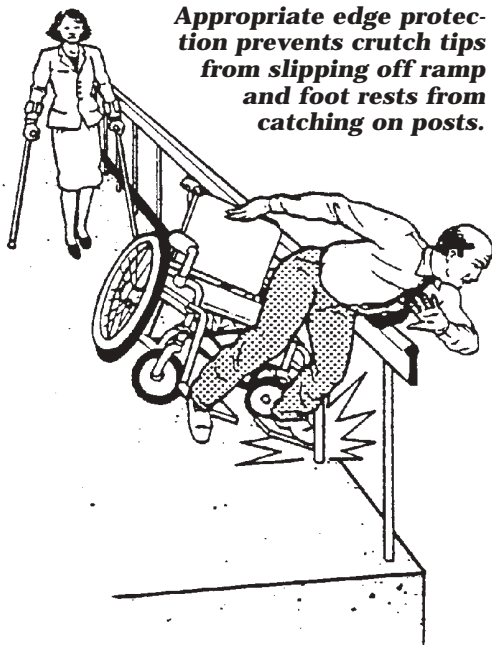
railing systems, etc. Accessible items, such as grab bars and shower seats, have been incorporated into the regular product line. Constructed of nylon reinforced with stainless steel and zinc galvanized components, products have a non-slip surface that maintains an even temperature despite wide variations of heat and cold. Available in 13 colors, these accessories have a decidedly non-institutional look. Different grab bar/rail configurations in the tub/shower area are available – a corner soapdish, shower curtain rail and wall-mounted fold-up shower seat with self-locking mechanism are examples. Adequate wall blocking is required for grab bars or shower seats.

A wide variety of items are available in Barclay's new line of Pressalit Rehab bathroom products for both home and commercial use. A track system for both lateral and/or vertical adjustment is at the heart of the Multi System bathroom. Support arms, lavatories, shower seats and multi seats are attached to vertical or horizontal tracks (or, as shown in the photo above, a combination of the two tracks). The track attachment allows the various accessories to be easily clipped on, moved or taken off; or if

desired, mounted directly to the wall in a fixed non-moving position. All parts are fabricated of plastic and anodized aluminum.

The Multi Support Arm, (shown in the photo above on both sides of the toilet) has a rounded contour with end grips. Utilizing a vertical track, arms can be adjustable from 6” to 18”, depending on the length of the track. Since the vertical track is itself mounted on a horizontal track, arms also move from side to side. Available in red or white, the arm folds up against the wall and is automatically locked in position when needed. The toilet paper holder may be added as an accessory and affixed to the end of one of the support arms.

The lavatory is shown on a vertical Multi Bracket for up to a 12” manual adjustment and is also attached to the horizontal Multi track. To accommodate an adjustable lavatory, the trap and water inlets must be made of flexible tubing which allows the plumbing to move up and down and/or side to side with the sink. Multi tracks are available in lengths from 35¹/₂” to 82¹/₂”. Blocking must be provided in the wall for all tracks.



Appropriate edge protection prevents crutch tips from slipping off ramp and foot rests from catching on posts.

Proper ramp design important for safety

By Marilyn Sydow, facilities planner, Ohio Rehabilitation Services Commission

Ramps provide a non-mechanical means of vertical access for people who use wheelchairs or other wheeled vehicles, and also may be used by pedestrians who have difficulty climbing steps. The Americans with Disabilities Act Accessibility Guidelines (ADAAG) defines a ramp as "a walking surface which has a running slope greater than 1:20."

Criteria have been established so that people who use wheelchairs do not become exhausted climbing a lengthy ramp or lose control while coming down. The ADAAG states that: the least possible slope be used for any ramp; a maximum slope of 1:12 (one foot of run for every inch of rise) is allowed for ramps in new construction; and a maximum rise for any ramp run is 30".

If the entire length of the ramp exceeds 30 feet (or 40 feet, depending on slope), intermittent landings must be included in the ramp run to provide level resting areas. These landings are in addition to prescribed landings at the bottom and top of each run.

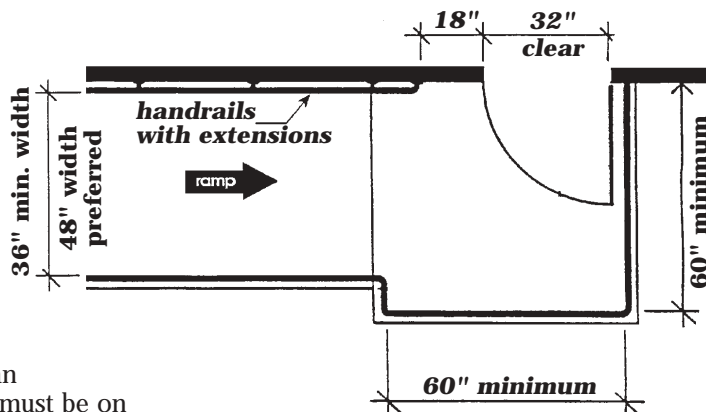
All landings must be a minimum 60" in length. If ramps change direction at landings, the minimum landing size must 60"x60". If a doorway is located at a landing, sufficient maneuvering clearances must be provided at the front and latch side of the door. (See drawing at right.)

The ramp run itself must have a minimum clear width of 36". This

width works well for residential ramps, but commercial ramps should be made wider, at least 48" or 60" wide, to accommodate two-way traffic.

Handrails are required if a ramp has a rise greater than 6", or a horizontal projection greater than 72". These handrails must be on both sides of the ramp with the inside rail continuous on "dogleg" or switchback ramps. The top of the handrail gripping surface must be mounted between 34" to 38" above the ramp surface and the handrails must be 1¹/₄" to 1¹/₂" in diameter with a clear space of 1¹/₂" between the handrail and the wall. Handrails must provide a continuous gripping surface and not rotate in their fittings. They must extend at least 12" beyond the top and bottom of the ramp segment, be parallel with floor or ground, and have ends rounded and returned smoothly to the floor, wall or post.

Ramps without appropriate edge protection are hazards for wheelchair, crutch and cane users. (See drawing top left.) Edge protection is required on ramps and landings with drop-offs. A minimum 2" high curb, wall, railing or projecting surface must be installed to prevent people from slipping off the ramp or to keep an extended leg from jamming against the upright posts. A slight cross slope on ramps and landings can prevent puddling and facili-

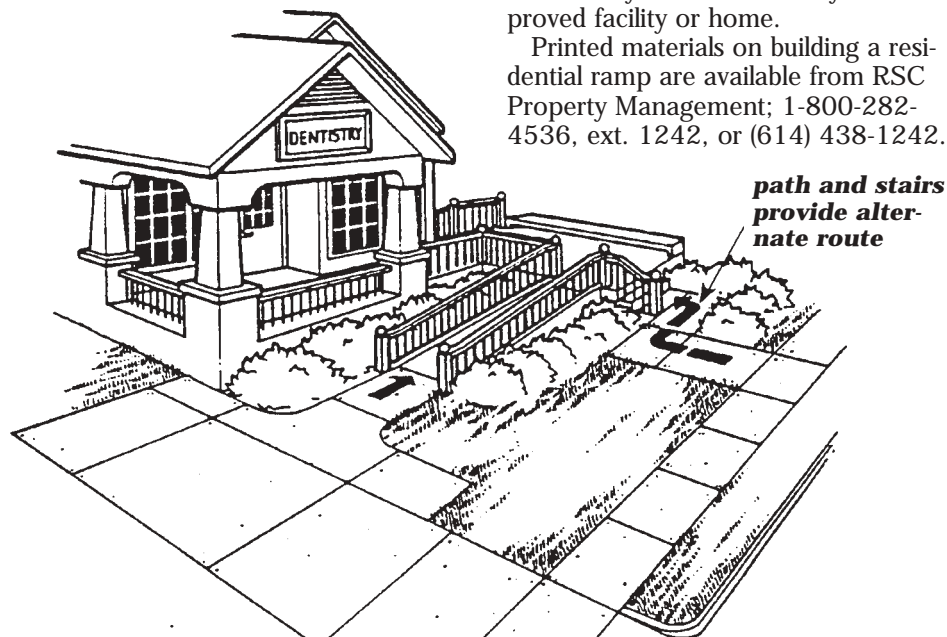


tates drying of surfaces after a rain. However, the cross slope of ramp surfaces must be no greater than 1:50.

Ramps for individual residences do not need to comply with the ADAAG. However, it is still a good idea to follow most, if not all, of the requirements for safety. Since most residential ramps are constructed of wood, which can be slick in wet weather, it is a good idea to apply a skid-resistant finish to the ramp surface. Most commercial ramps are constructed of concrete and/or brick and have surfaces that are inherently durable and skid-resistant.

Ramps for home or commercial use should be designed and built so that their location and construction materials are well-integrated with the site and the building. For example, a residential ramp would have materials chosen to be compatible with the style of the house and be painted or stained to match. The result of proper landscaping and coordination of ramp design with other elements of the site is a functionally- and aesthetically-improved facility or home.

Printed materials on building a residential ramp are available from RSC Property Management; 1-800-282-4536, ext. 1242, or (614) 438-1242.



An example of a ramp integrated into landscaping and other site features.

Sources for more information

FEDERAL

Architectural and Transportation Barriers Compliance Board (Access Board)	1-800-872-2253 voice 1-800-993-2822 TTY
Great Lakes Disability and Business Technical Assistance Center	1-800-949-4ADA voice/TTY
Paralyzed Veterans of America	1-800-424-8200 voice/TTY

STATE OF OHIO

ADA OHIO	1-800-ADA-OHIO voice 1-800-ADA-ADA1 TTY
Governor's Council on People with Disabilities	1-800-282-4536, ext. 1391 v/TTY

LOCAL

The Ability Center of Greater Toledo, Sylvania	(419) 885-5733 voice/TTY
Access Center for Independent Living, Dayton	(937) 341-5202 voice (937) 341-5215 TTY
The Center for Independent Living Options, Inc., Cincinnati	(513) 241-2600 voice (513) 241-7170 TTY
Coshocton Handicapped Society, Inc., Coshocton	(740) 623-8001
Fairfield Center for Disabilities, Lancaster	(740) 653-5501
Society for Equal Access, New Philadelphia	1-888-213-4452 voice/TTY
Independent Living Center of North Central Ohio, Mansfield	(419) 526-6770
Linking Employment, Abilities and Potential, Cleveland	(216) 696-2716 voice (216) 696-8331 voice/TTY
Mid-Ohio Board for Independent Living Environment, Reynoldsburg (Columbus area)	(614) 443-5936 voice (614) 443-5957 TTY
Services for Independent Living, Inc., Euclid	(216) 731-1529 voice/TTY
Tri-County Independent Living Center, Inc., Akron	(330) 762-0007 voice



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