INTERIORS
BATHS

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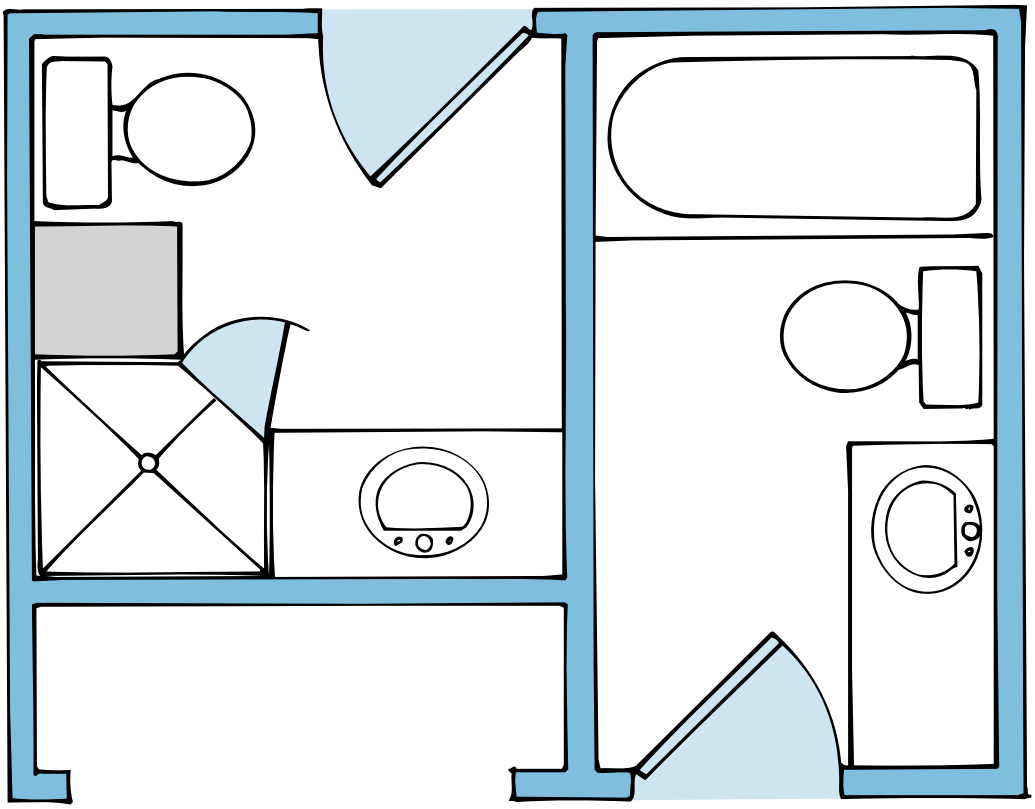
BATHROOM DESIGN

Designing a bathroom, particularly when working with existing spaces on a remodeling job, is often a matter of making the most from as little room as possible. A standard layout can be a good starting point (see **Small Bathroom Layouts**, page 6), but may need to be adapted to fit a particular space. For any layout, follow the guidelines in this section for eliminating obstacles and integrating fixtures for maximum usability and efficiency.

Entrances and walkways. Start with a clear walkway at least 32 in. wide at all entrances to the bathroom (**Figure A**).

FIGURE A: BATHROOM DOORS



Draw the swing of all doors — entrance, closet, shower, and cabinet — on plans to ensure that there are no conflicts. Optimally, entrance doors should be at least 32 in. wide.

On plans, draw the swing of all doors to ensure that none of them intersect with each other.

Lighting is critical in bathrooms — both general lighting and task lighting. General recommendations are presented in **Figure B.**

FIGURE B: BATHROOM LIGHTING RULES OF THUMB

Application	Guidelines
General Lighting	For surface-mounted fixtures, 1 watt of incandescent or ⅓ to ½ watt of fluorescent light per sq. ft.; for recessed fixtures, 2½ or 4 watts incandescent or ½ watt of fluorescent per sq. ft.
Small Mirrors	One 75-watt incandescent or 20-watt warm-white fluorescent on each side of mirror, about 30 in. apart.
Large Mirrors (36 in. or wider)	Along the top of mirror, three or four 60-watt incandescents in a fixture at least 22 in. wide; or a 36- to 48-in. fluorescent. For a theatrical look, 15- to 25-watt G bulbs along the top and sides.
Shower	60-watt incandescent in a wet-location ceiling fixture (check local code)

Electrical. Specify ground-fault circuit interrupters (GFCIs) on all receptacles. No switches should be within 60 in. of any water source. All light fixtures above tub/shower units should be special-purpose, moisture-proof fixtures.

Heating. Provide adequate heating in the bathroom. For comfort, this may require temperatures 3°F to 5°F warmer than the rest of the house. A quick-response auxiliary heat source may be helpful.

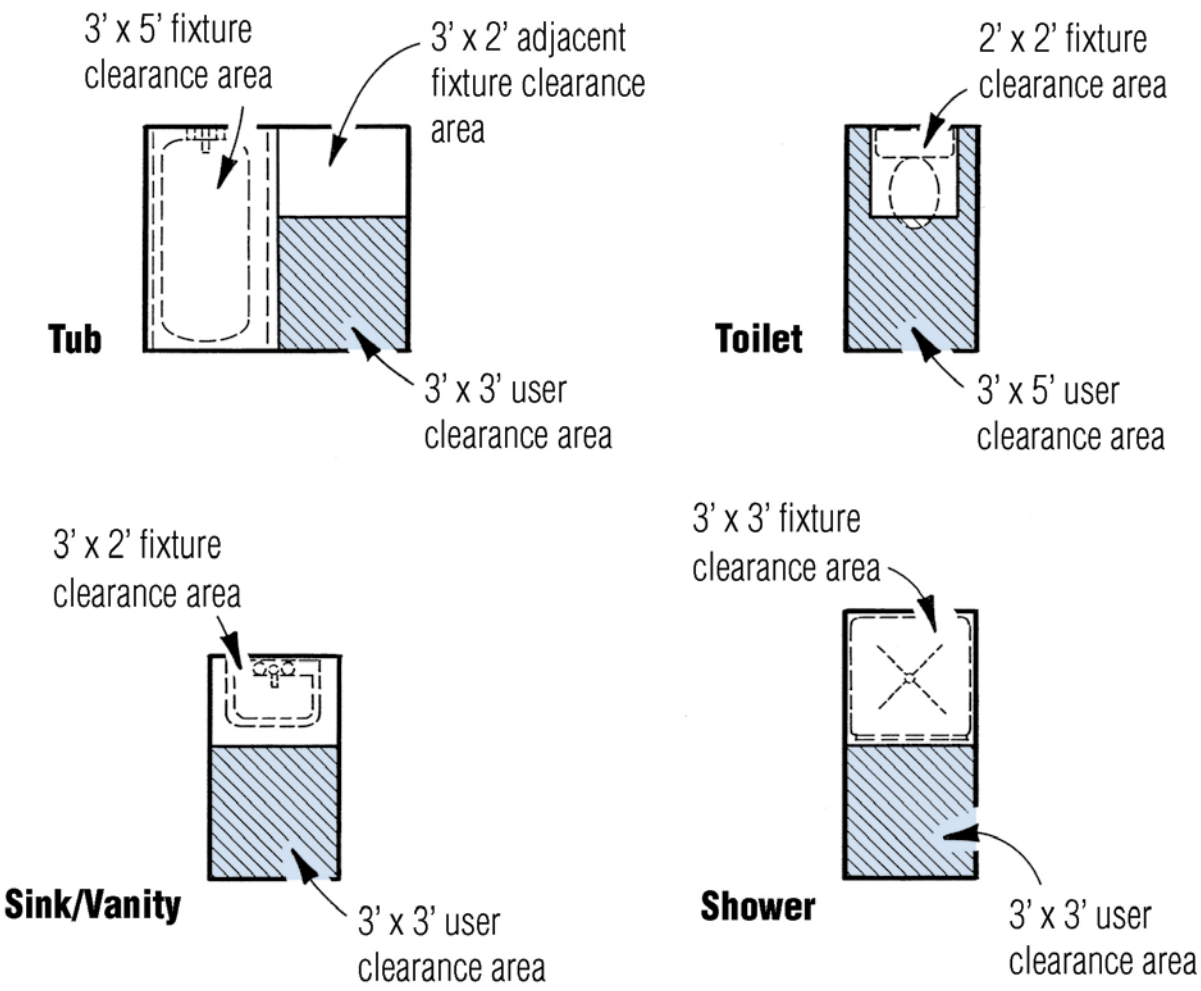
Ventilation. Provide mechanical ventilation in every bathroom, with a minimum of eight (8) air changes per hour when operating (more for jetted tubs, spas, etc.). Choose a fan with a noise rating of 3 sones or less at high speed.

Flooring. Specify all flooring with slip-resistant materials.

Paddle-type ceiling fans will not exhaust humid air, but they may be desirable in a high-ceilinged bathroom.

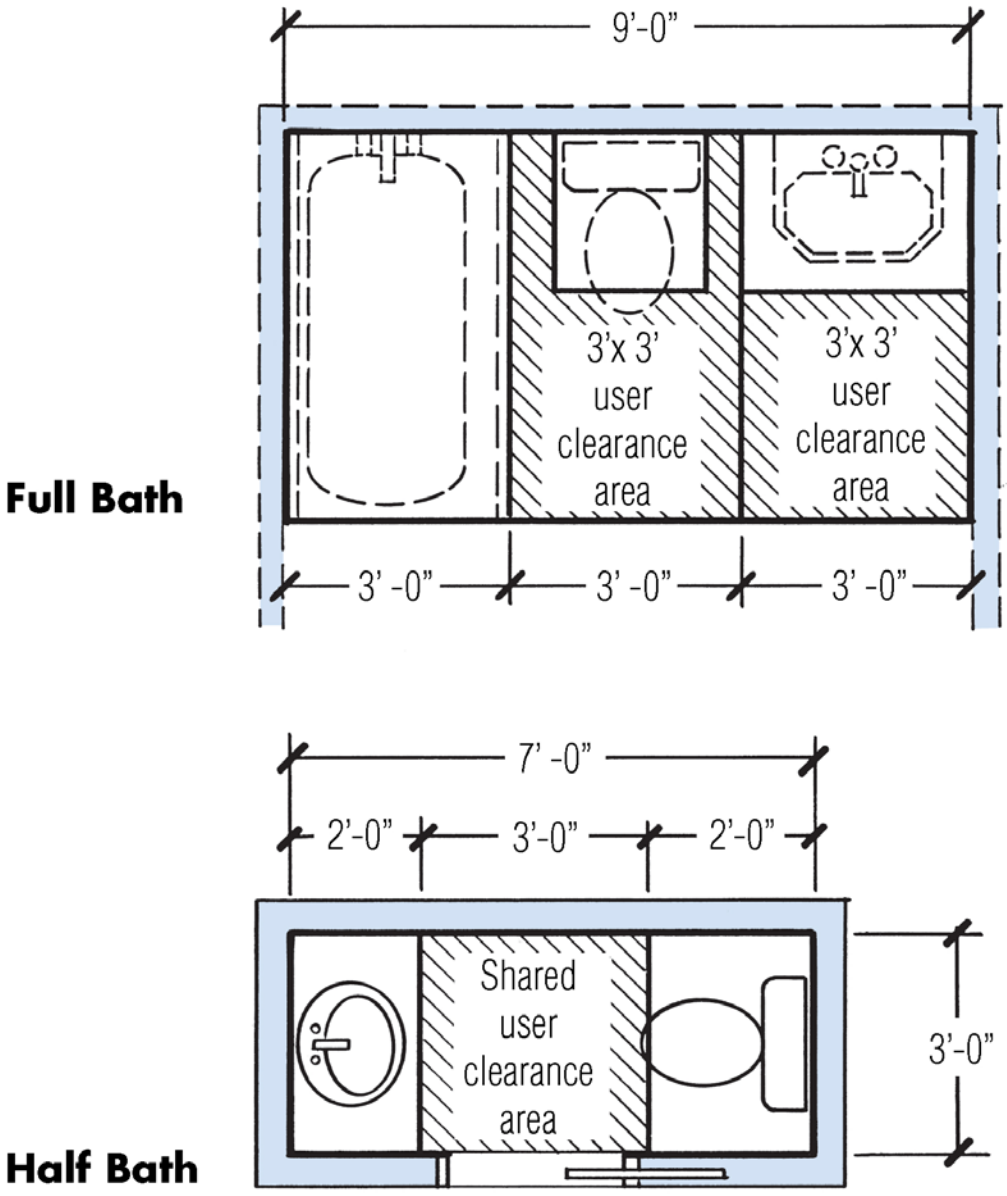
Fixtures. Basic bathroom clearances generally fall into two categories: fixture clearance (enough space for the fixture itself) and user clearance (enough space for the person using the fixture). Basic fixture and user clearances for individual fixtures are shown in **Figure C.** These serve as a good baseline for defining a bathroom layout (**Figure D**). When fixtures are ganged together in a bathroom, these basic clearances can sometimes be shared (**Figure E**), serving as the starting point for the small bathroom layouts shown in **Figures G** to **J**.

FIGURE C: FIXTURE AND USER CLEARANCES



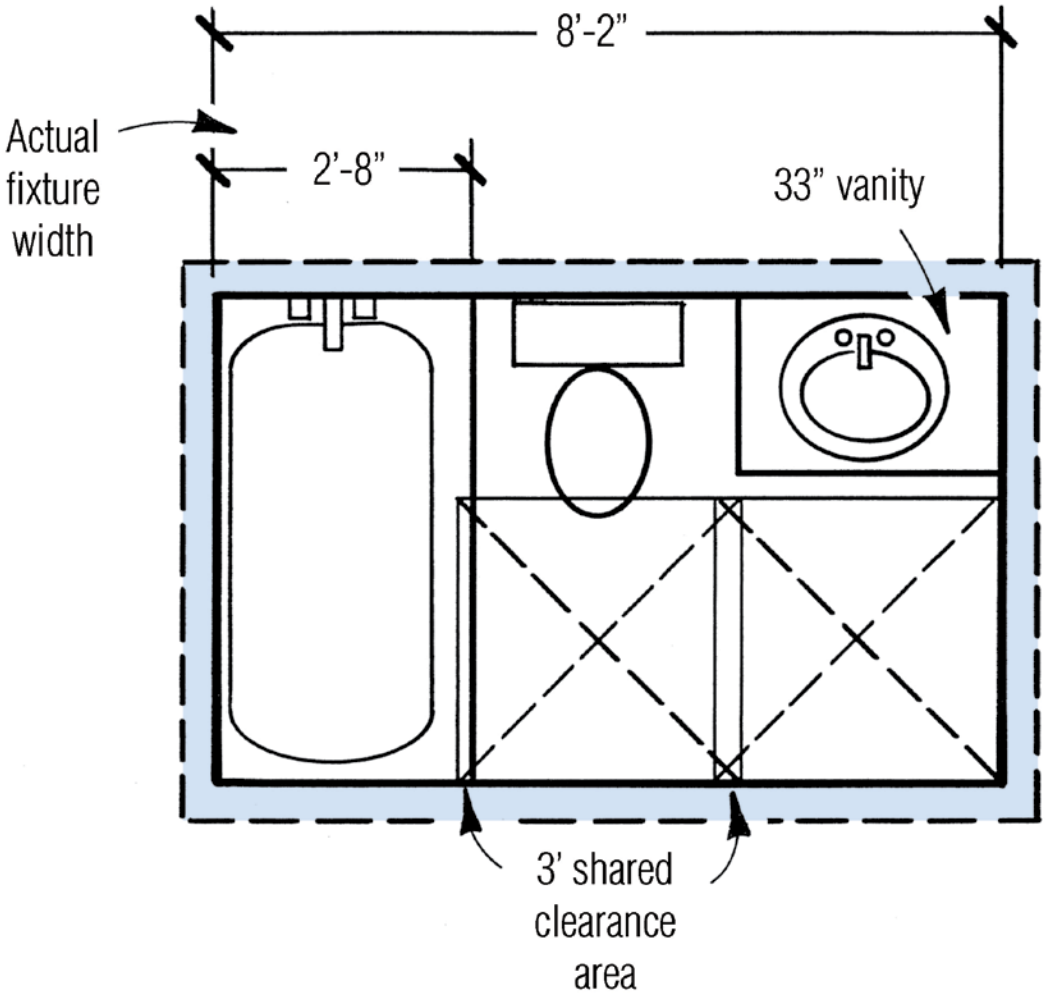
When laying out a bathroom, allow space for the fixture as well as for the person using it. As a rule of thumb, all clearances are either 2, 3, or 5 ft. (this is sometimes called the 2-3-5 rule).

FIGURE D: BASIC FIXTURE LAYOUT



When fixtures are ganged together, the 2-3-5 rule results in basic layout for a full bath (top) and half bath (above). The space allowances shown here — all multiples of 2, 3, or 5 ft. — provide a good starting point for working out the layout of a bathroom floorplan.

FIGURE E: SHARED CLEARANCES



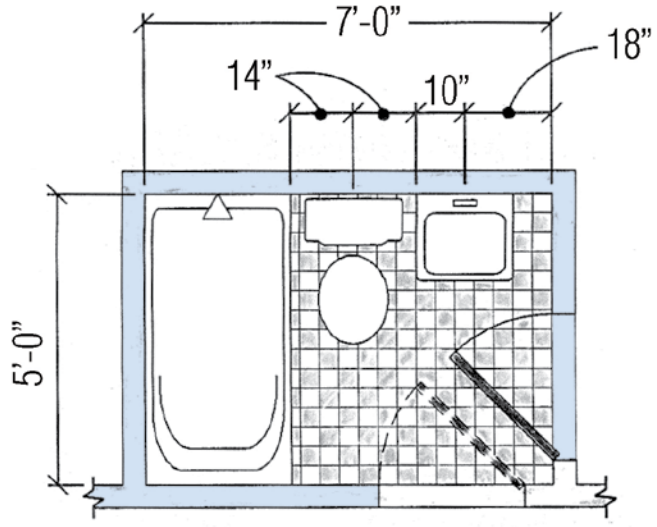
Elbow room from one clearance area may be shared with that of another area, reducing the overall clearance values. Clearances may vary, depending on the physical size of the occupants, available space, and client preferences.

SMALL BATHROOM LAYOUTS

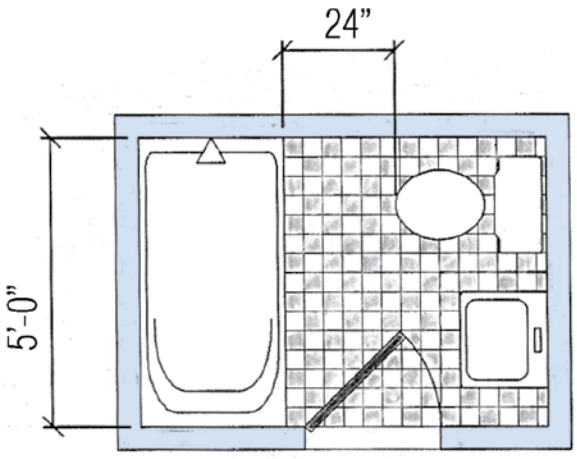
When fitting a bathroom into a tight space, departures can be made from the 2-3-5 rule. The layouts shown below illustrate a few functional bathroom layouts that can be adapted when floor space is limited.

Classic 5x7 bath. This is a classic small-space layout dictated by the length of a standard tub (5 ft.) and the minimum distance between tub, toilet, and lavatory (7 ft.). Two versions of this minimum bath are shown in **Figure F.**

FIGURE F: CLASSIC 5 X 7 BATHROOMS



- 35 square feet
- 30 x 60 tub
- Small freestanding sink
- Optional door placement



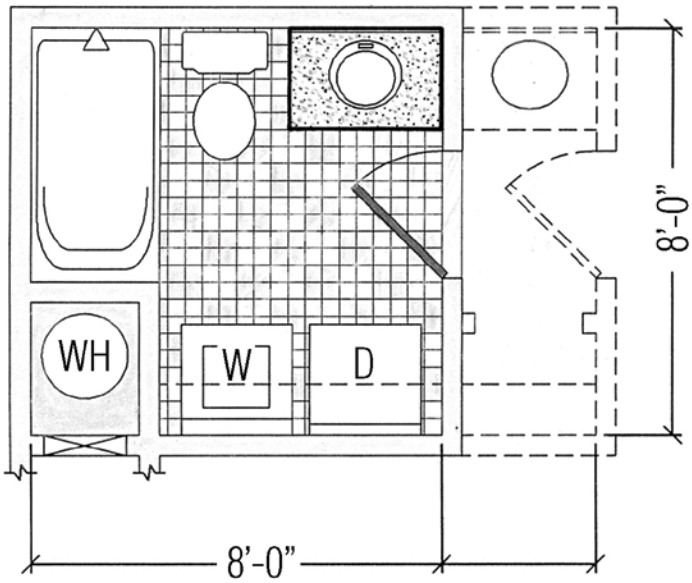
- 35 square feet
- 30 x 60 tub
- Room for 24" sink cabinet
- 2'-4" max. door

The rectangular shape of the room shown at top makes this bath easy to fit into many floor plans. The door is shown on the end of the rectangle, but it can just as easily be put on the side (shown by dotted line). The second 5x7 bath (above) offers a little more room for a sink or 24-in. vanity, but at the expense of space in front of the toilet and with a minimal door (2'-4"). The only place to locate storage space in these baths is over the toilet, using open shelves or a mirrored upper cabinet.

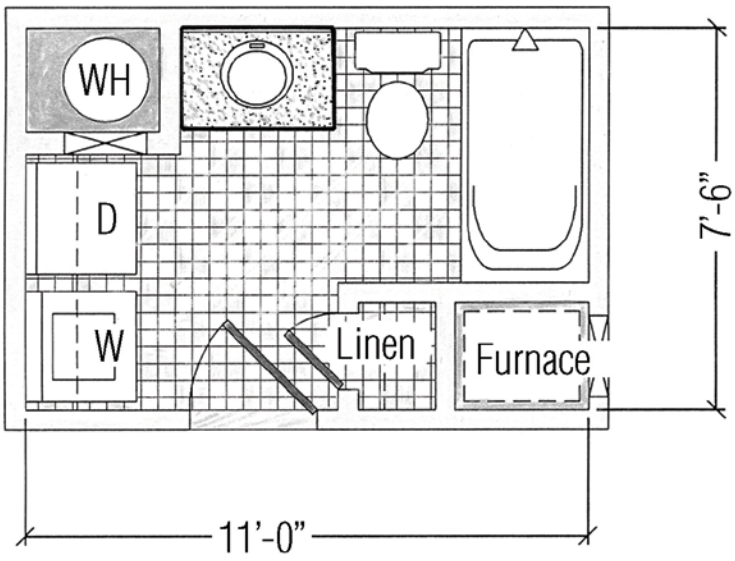
Small baths with utilities. To reduce plumbing costs and save space, the core plumbing and heating utilities, as well as the washer and dryer, often are included near the bathroom. Two layouts are shown in **Figure G**.

Small Bathroom Layouts

FIGURE G: SMALL BATHS WITH UTILITIES



- 64 square feet
- 30" x 60" tub
- 24" x 36" sink cabinet
- Washer/dryer with shelf or cabinet above



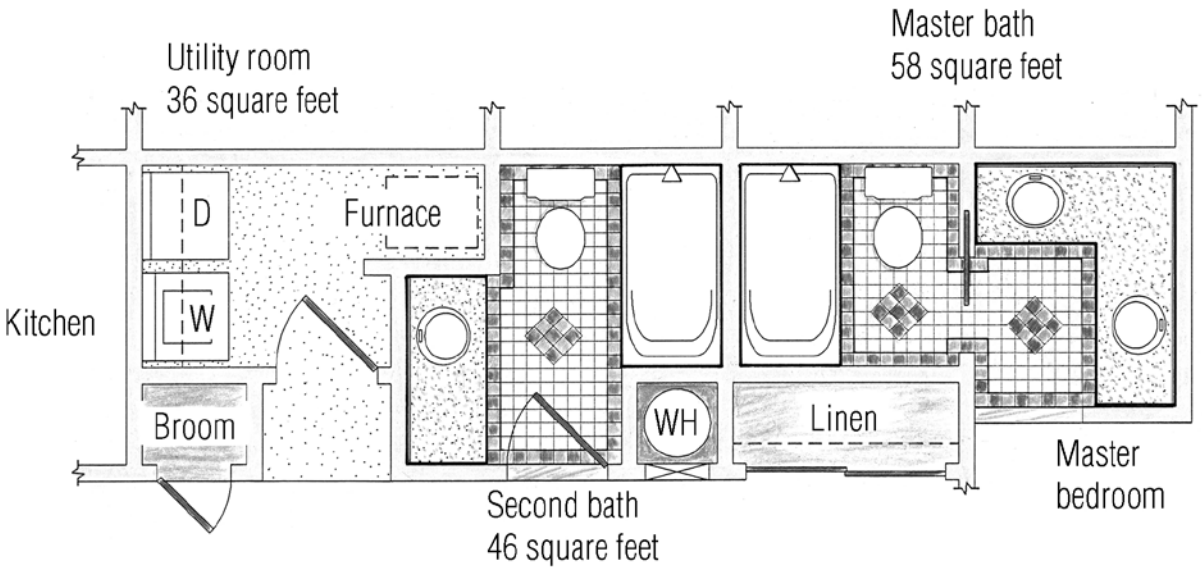
- 82 square feet
- 30" x 60" tub
- 24" x 36" sink cabinet
- Washer/dryer with shelf or cabinet above
- Linen closet
- Furnace

This bath can be designed as either a long version or a short version. The short version includes the washer/dryer and water heater, with space for cabinets over the washer/dryer and shelving over the toilet (top). Lengthening the room stretches the vanity and allows for a floor-to-ceiling linen closet on the opposite wall. The other bath/utility core design (above) incorporates washer/dryer, water heater, and furnace, with a full bath that includes a linen closet.

Small Bathroom Layouts

Duplex townhouses or other narrow lot designs often require a narrow room layout. **Figure H** shows one solution for incorporating two baths and a utility room, keeping all the plumbing tightly arranged.

FIGURE H: NARROW BATHS WITH UTILITIES

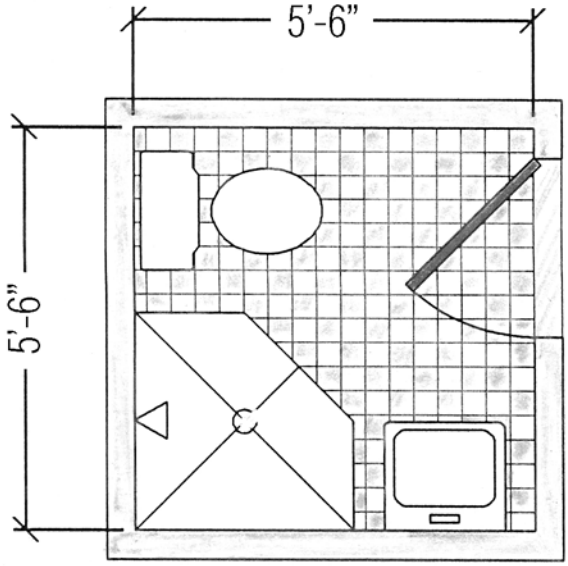


A duplex on a narrow lot may require a linear layout. This design keeps all the plumbing tightly arranged for an efficient rough-in.

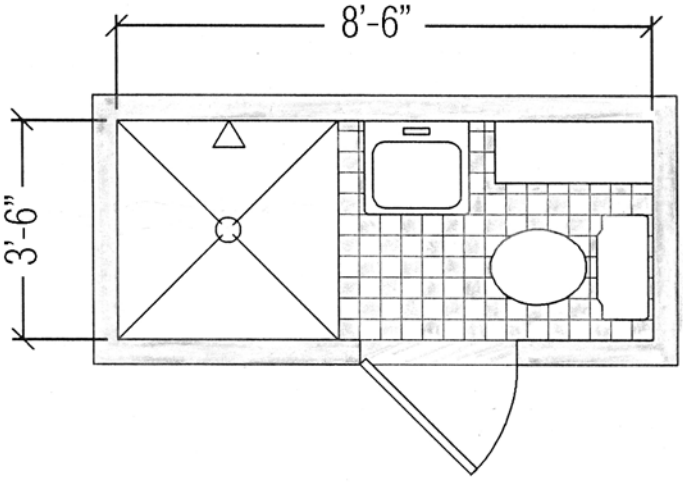
Tight baths. In tight spots, a shower with a curtain makes it possible to trim off square footage to get the bathroom down to just 30 sq. ft. (**Figure I**).

Small Bathroom Layouts

FIGURE I: MINIMAL BATH VARIATIONS



- 30 square feet
- 36" x 36" corner shower
- Small freestanding sink
- 2'-6" max. door



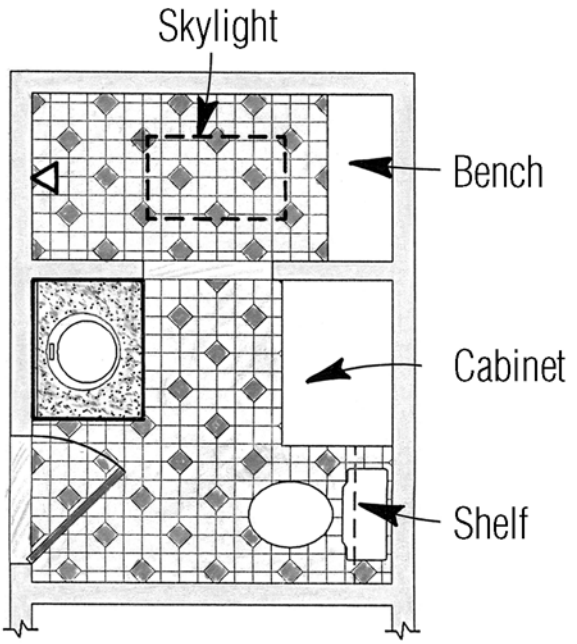
- 30 square feet
- 36" x 42" shower with curtain only
- Small freestanding sink
- Outswing door
- Room for shelves

Although the design is an efficient square, the bath at top uses a 36-in. corner shower unit and requires a wall-hung sink. The bath at bottom is a series of compromises. A wall-hung sink is all that fits in this bath, and it requires an outswing door but includes room for shelving next to the toilet.

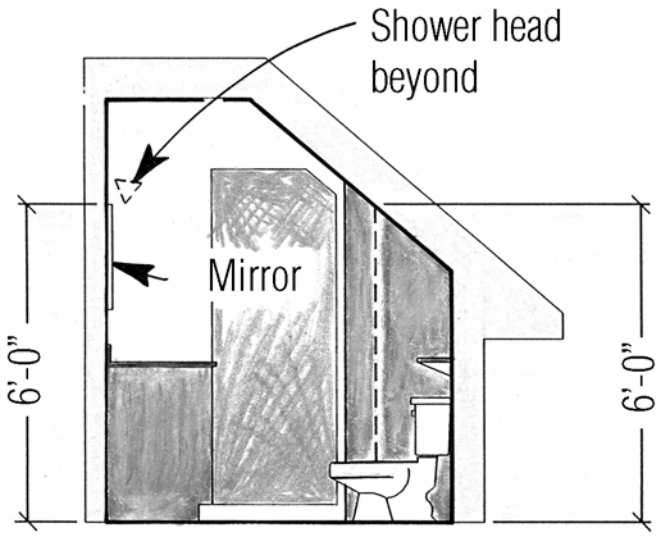
In a Cape or attic apartment, where headroom might be limited, a bath is possible if there's space along one side for a mirror as well as room for a shower head 6 ft. off the floor (**Figure J**).

Small Bathroom Layouts

FIGURE J: ATTIC BATH



- Shower with curtain only
- Optional skylight
- Floor to ceiling cabinet for extra storage
- Shelf behind toilet
- Optional bench in shower



Height Clearances

- Top of mirror - 6 ft. min.
- Bottom of shower head - 6 ft.
- Center of toilet - 6 ft.

A bathroom with limited headroom is possible if the floor-to-ceiling height above the midpoint of the toilet, the top of a mirror, and the lowest wall in a shower are all at least 6 ft. high.

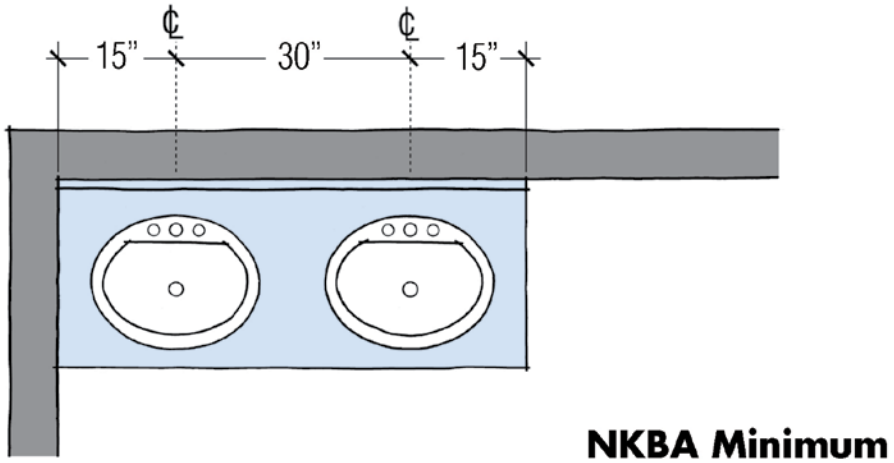
DESIGNING TO ACCOMMODATE FIXTURES

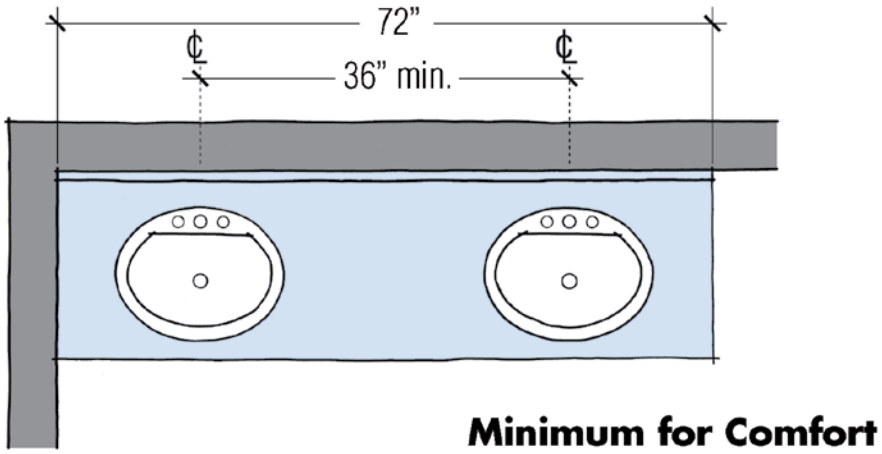
Lavatory. Provide a clear walkway of at least 21 in. (30 in. recommended) in front of a lavatory.

Lavatory clearance. Provide at least 12 in. (18 in. recommended) from the centerline of the lavatory to any side wall.

Double lavatory. Provide a minimum of 30 in. (36 in. recommended) between multiple lavatories, measured centerline to centerline. If space allows, a wider separation between lavs will be much more comfortable for users (**Figure K**).

FIGURE K: LAVATORY CLEARANCES





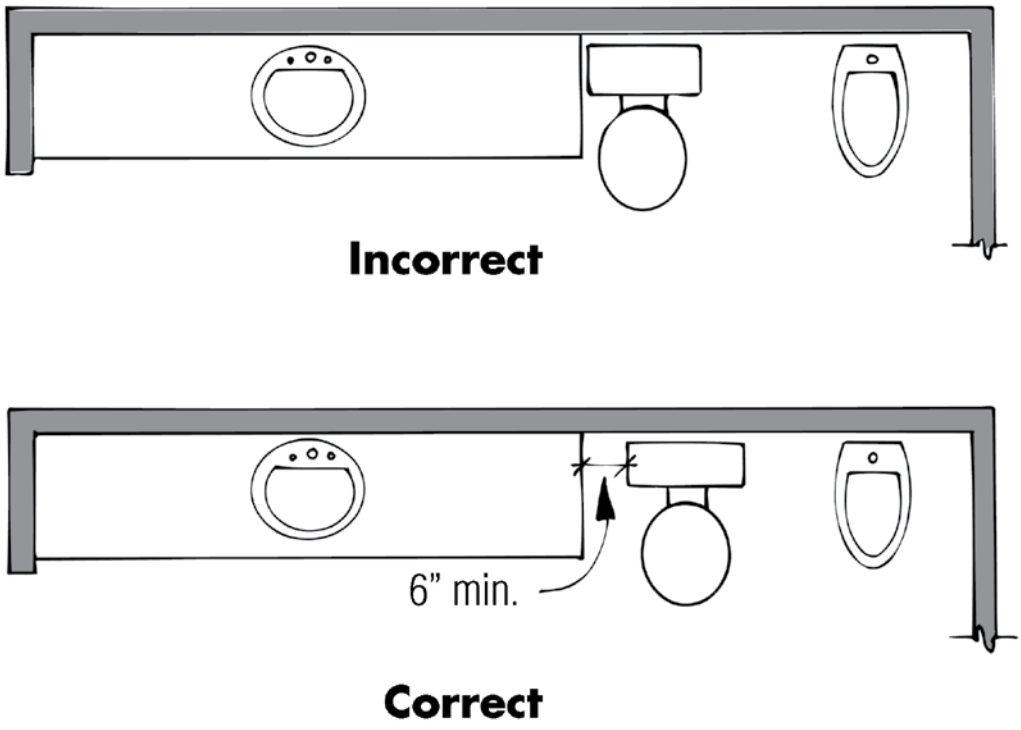
For baseline, minimum access, locate the centerline of a lav at least 15 in. from a side wall and space double lavs a minimum of 30 in. from center to center. For more comfortable use, allow at least 3 ft. of wall space per user and 42 in. for a single vanity width.

Toilets and bidets. Provide a clear walkway space of at least 21 in. (30 in. recommended) in front of a toilet or bidet.

Clearance. Provide at least 15 in. clearance (18 in. recommended) from the center of the toilet to any obstruction, fixture, or equipment on either side.

Where floor space allows, provide at least 6 in. of floor space between fixtures to allow for cleaning (**Figure L**).

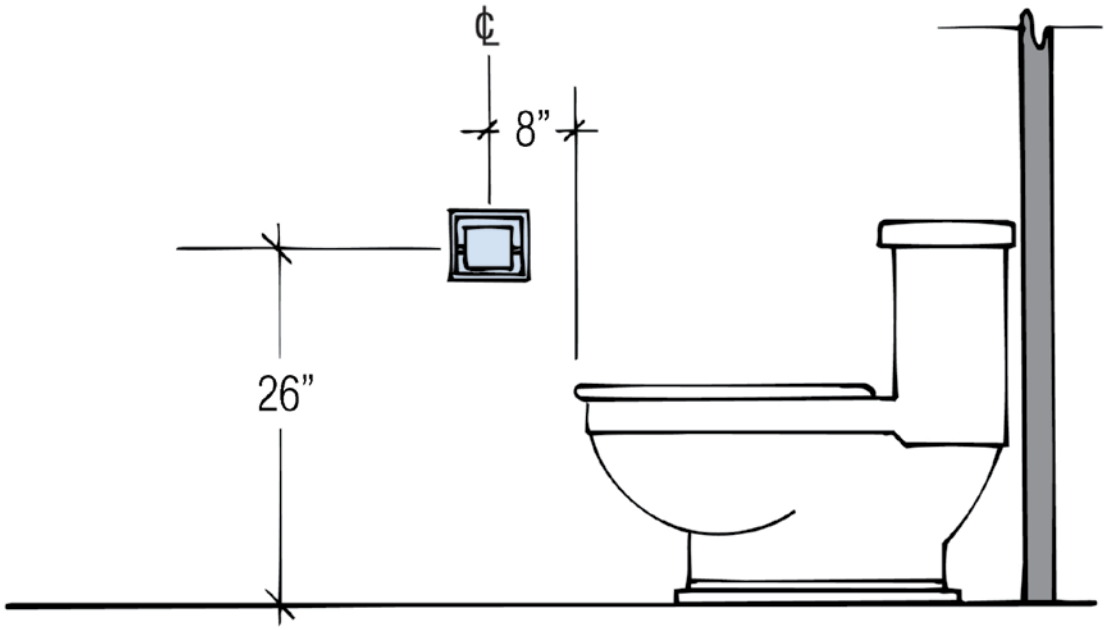
FIGURE L: CLEANING ACCESS



At least 6 in. of cleaning space between fixtures is recommended.

Toilet paper holder. Install the toilet paper holder within reach of a seated user. The ideal location is slightly in front of the toilet bowl, and centered 26 in. above the finished floor (**Figure M**).

FIGURE M: TOILET PAPER HOLDER

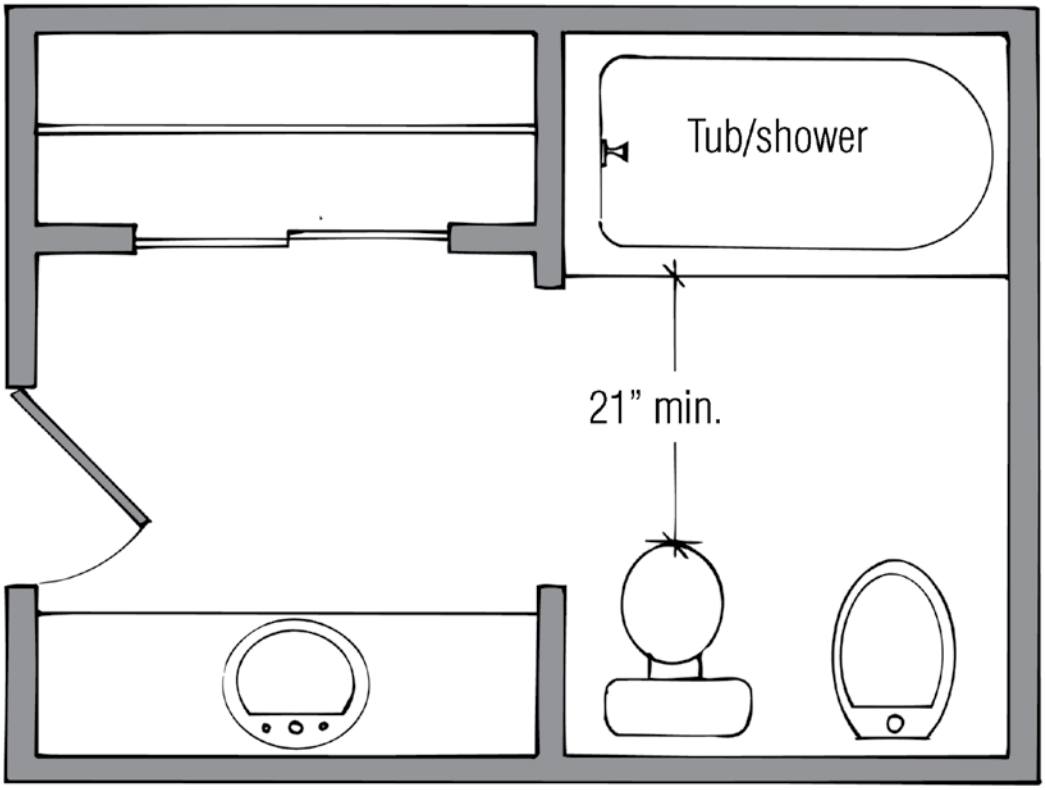


Keep the toilet paper roll in front of the toilet. It is commonly placed in the corner or on the tank wall, but this forces a user to twist, which can actually cause injury.

Storage near bidet. Install soap and towel storage within reach of a person seated on the bidet.

Tub/shower. Provide a clear walkway of at least 21 in. (30 in. recommended) in front of a tub/shower (**Figure N**).

FIGURE N: WALKWAY IN FONT OF TUB/SHOWER



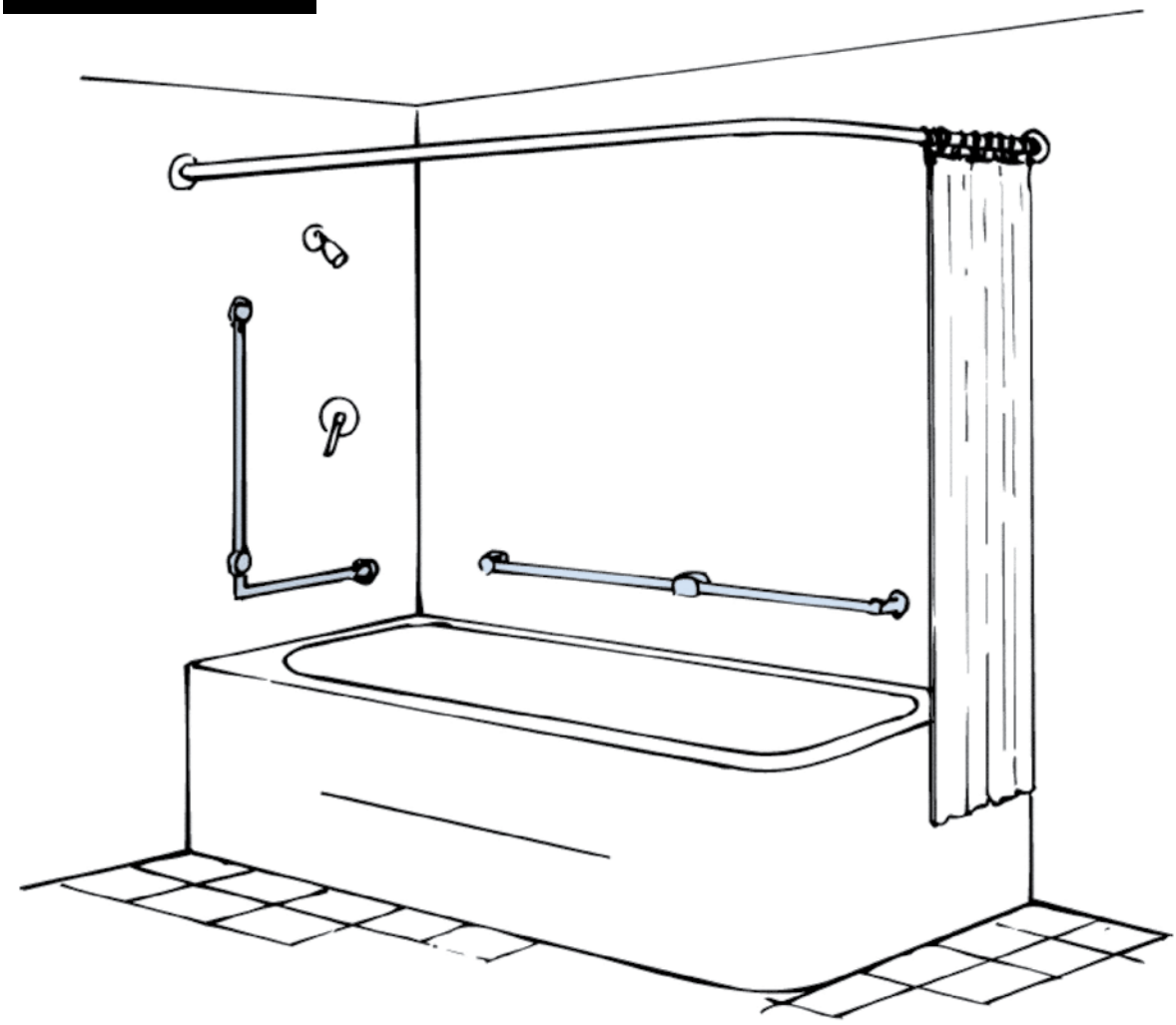
In front of a tub/shower, provide a clear walkway of at least 21 in. (30 in. is recommended).

Faucet. The bathtub faucet should be accessible to an adult standing outside the tub.

Grab bars. Install at least one grab bar in a bathtub or shower (**Figure O**). Some recommended locations include:

- *Stall showers* (one horizontal bar on the service wall to facilitate movement within the enclosure).
- *Tub/shower units* (one horizontal bar centered on the service wall and a vertical bar near the outside edge where bathers enter and exit).

FIGURE O: GRAB BAR LOCATIONS



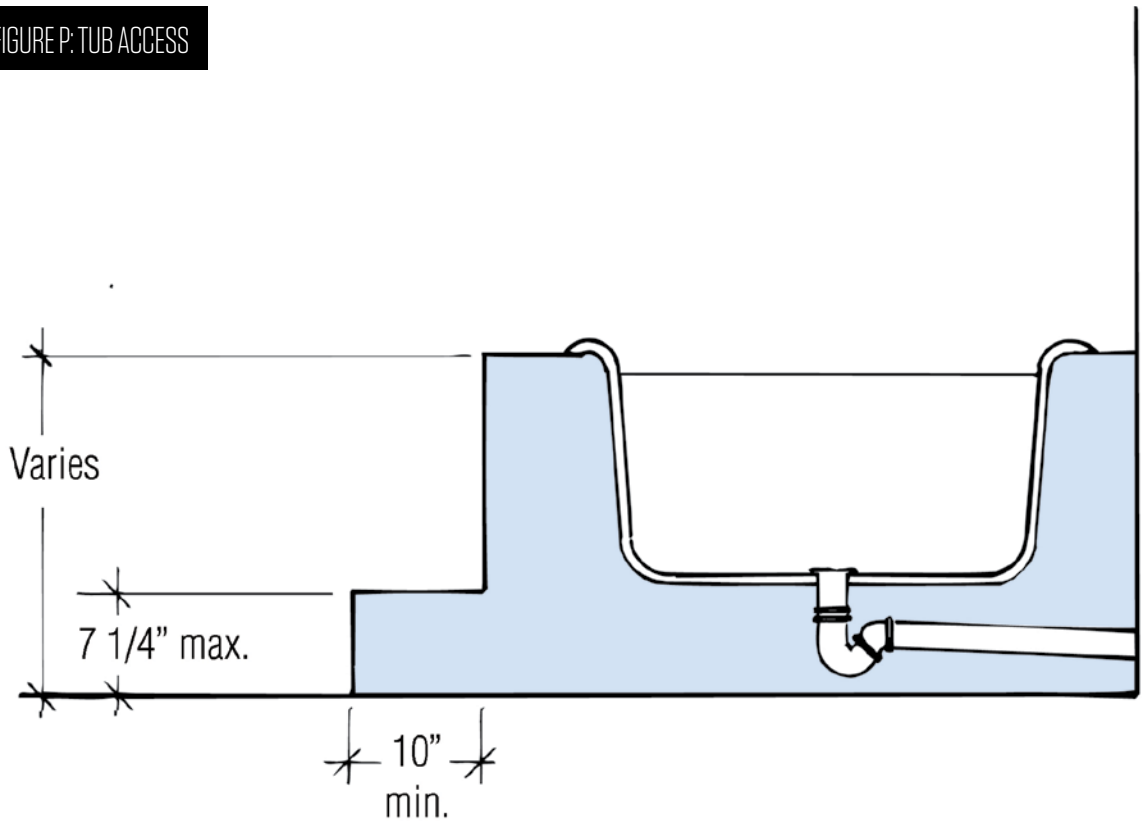
Every tub and shower enclosure needs at least one grab bar to aid access into and out of the unit.

Shower stalls. Make the interior of a shower stall at least 32x32 in. The preferred size for a typical adult is 36x42 in., which allows space for the user to step out of the stream of water. A fixed showerhead should be roughed in at 72 to 78 in. high.

Consider installing a bench or footrest within the shower enclosure. A 6x6x6-in. triangle in the corner can serve as a footrest. A built-in seat, 16 to 18 in. high by 12 to 20 in. deep, is ideal.

Jetted tubs. In homes with small children, raised tubs are generally safer than sunken tubs. However, no more than one step should lead to a tub platform (**Figure P**). The step must be at least 10 in. deep and no more than 71/4 in. high. With a raised tub, grab bars are essential to help people move into and out of the tub and to prevent slips.

FIGURE P: TUB ACCESS



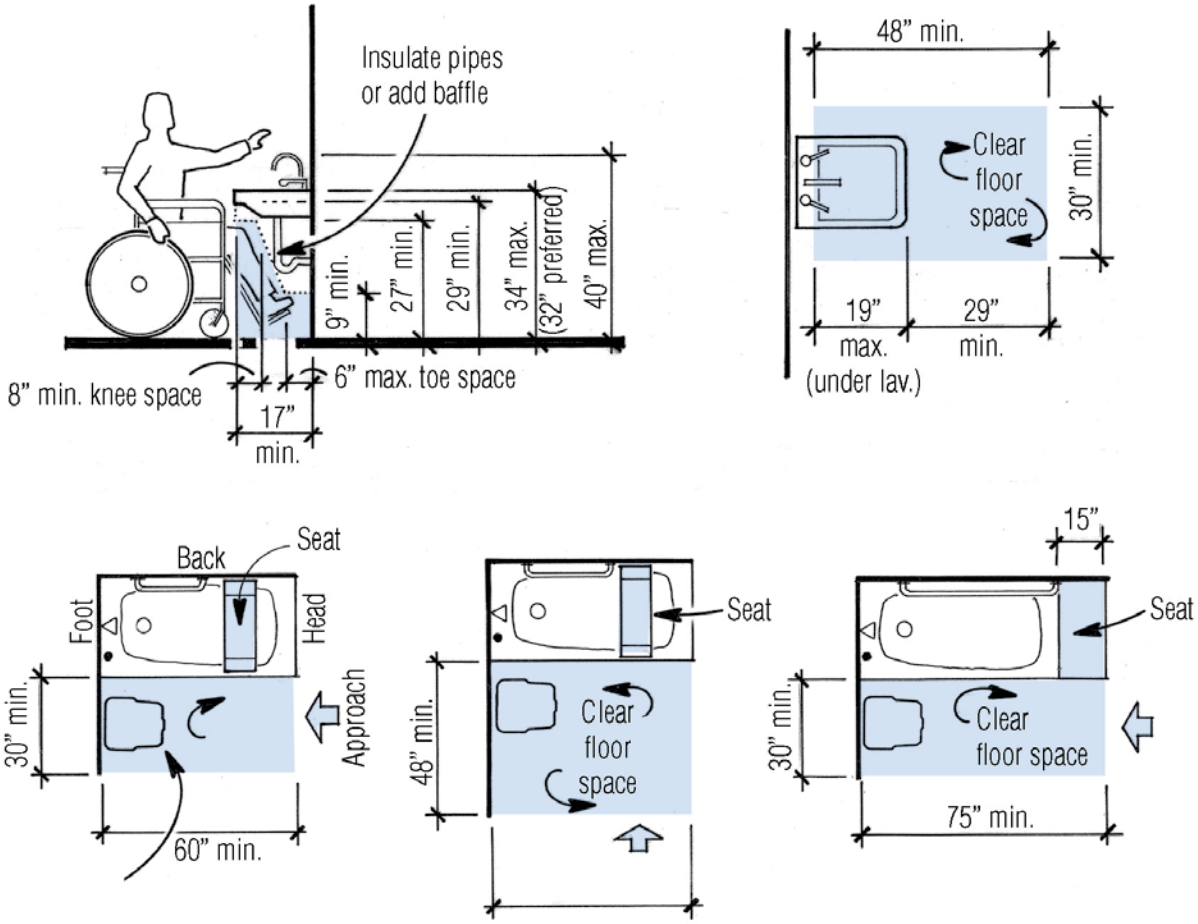
In homes with small children, a raised tub is safer than a sunken tub. But to limit the potential for slipping, there should be no more than one step up to the tub platform.

Jetted tubs must be installed in such a way as to have access to the pump motor for maintenance and repair.

ACCESSIBLE BATHROOMS

In order for a bathroom to accommodate all users — both those with a full range of abilities and those with a limited range — it must include increased floor space and open space beneath lavs (**Figure Q**).

FIGURE Q: SPACE REQUIREMENTS FOR ACCESSIBLE BATHROOMS



Symbol Key

- Shower controls
- Shower head
- Drain

Accessible Bathrooms

In addition, bathrooms should include a full range of grab bars at each fixture to improve access for all users (**Figure R**).

FIGURE R: GRAB BAR REQUIREMENTS FOR ACCESSIBLE BATHROOMS