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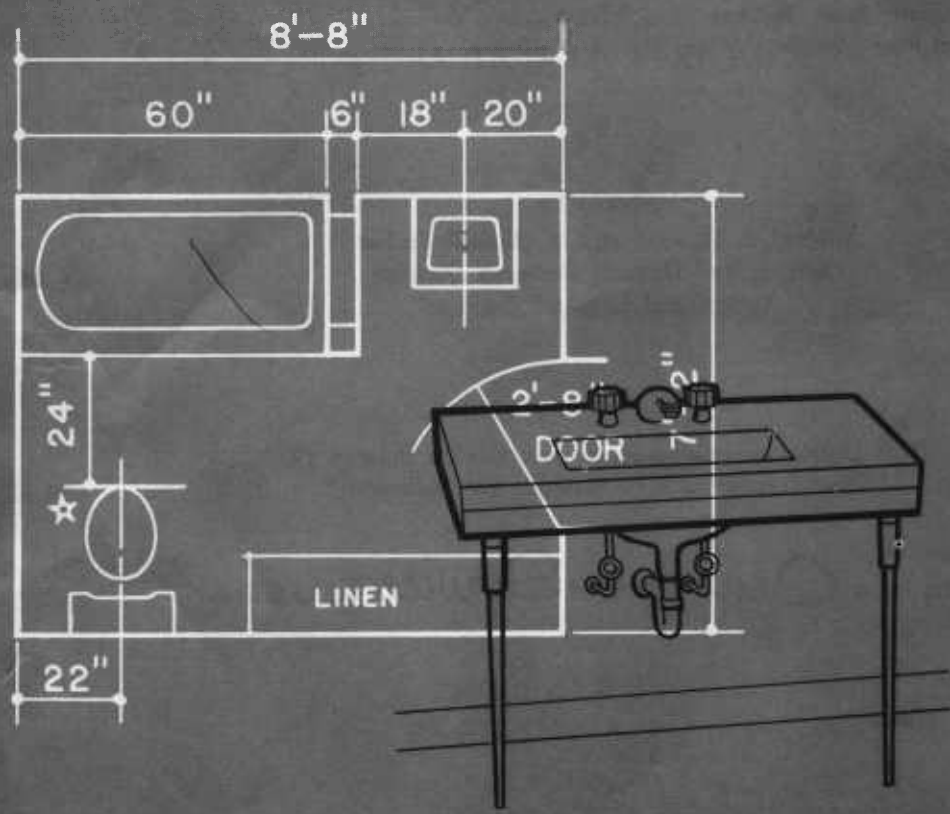
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CURRENT SERIAL RECORDS

# Planning BATHROOMS

■ *for Today's Homes*



Home and Garden Bulletin No. 99  
UNITED STATES DEPARTMENT OF AGRICULTURE

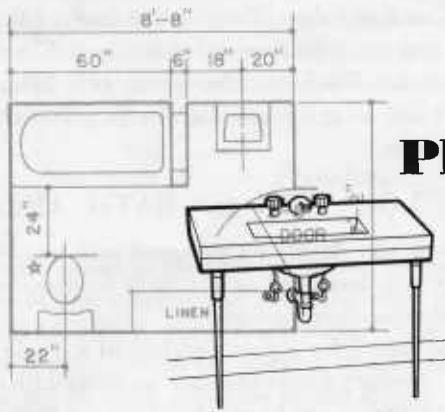
## CONTENTS

	Page
Suggested bath arrangements . . . . .	4
Location of bath areas . . . . .	4
Choice of fixtures . . . . .	8
Showers and fittings . . . . .	8
Bathtubs . . . . .	9
Lavatories . . . . .	10
Water closets . . . . .	11
Care of fixtures . . . . .	12
During finishing and installation . . . . .	12
After installation . . . . .	12
Storage and accessories . . . . .	12
Toiletry cabinets . . . . .	12
Towel cabinets . . . . .	13
Utility cabinets . . . . .	13
Small accessories . . . . .	14
Ventilation, lighting, and heating . . . . .	15
Ventilation . . . . .	15
Lighting . . . . .	15
Heating . . . . .	15
Wall finishes . . . . .	15
Floor finishes . . . . .	16
Nonresilient floor finishes . . . . .	17
Resilient floor coverings . . . . .	17

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Agricultural Research Service

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"Your Farmhouse . . . Planning the Bathroom."

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## Planning BATHROOMS

### *for Today's Homes*

You can have bathroom areas in your new or remodeled home that provide maximum family convenience and give satisfactory service for many years. They can be practical and pretty, too. It's all possible if you—

- Plan carefully.
- Insist on good workmanship.
- Use the best materials you can afford.

The right kind of bath areas add greatly to the livability of a home. Prospective homeowners give high priority to conveniently located, nicely equipped, and attractively decorated bathrooms. Adding a bathroom or converting existing space into a bath area is a remodeling project undertaken by many families.

Whether you are building or remodeling, it is a good idea to plan the decorating scheme for your bath areas early—before you order bathroom fixtures. This is particularly true if you are using color fixtures.

Bathroom fixtures, counters, cabinets, and floor coverings are costly. You want these permanent furnishings to be as pleasing in 5, 10, or even 20 years, as they are now. So take plenty of time and shop widely before you make your final selections. You can vary the decorative effect of a bathroom inexpensively from time to time by changing wall color, curtains, and accessories.

Begin your overall planning by considering all the ways a bath area will be used. The family bathroom, in particular, deserves careful study.

The answers you make to the following questions will help to determine the size, location, and arrangement of the family bathroom. You may decide you need a second bathroom or a separate wash-up area.

Will the family bathroom be used—

- As a wash-up area?

In the small house the family bathroom also serves as a wash-up area for men coming in from outdoor chores or sports and by children coming in from play. Locate it so it can be reached from the rear entrance without going through other rooms of the house.

- For the care of infants and small children?

If the bathroom is to be used for the care of infants and small children, make it spacious enough for the extra equipment needed. If you use a folding bath table to bathe and dress a baby, keep in mind that such a table is approximately 3 feet long and 20 inches wide.

A large lavatory with swing-away faucets or a small kitchen sink set in a counter will be more convenient for bathing a baby than a regular-sized lavatory. An adjoining counter can be used for dressing the baby. A storage cabinet for baby clothes and supplies is an added convenience. Use sliding doors or eliminate the doors on the cabinets above the lavatory and counter for safety and convenience.

- By several persons getting ready for school or work at the same time?

The large family with a number of individuals getting ready for school or work at the same time may want to consider the convenience of additional fixtures—an extra lavatory or water closet—a stall shower in addition to the tub.

- For the care of family members who are ill or feeble and need assistance?

If your household includes elderly or ill persons who need assistance in the bathroom, plan sufficient space for the person who is to help. If a family member is confined to a wheel chair, see that the door to the bathroom is wide enough so the wheel chair can be

## IF YOU ARE INSTALLING A BATHROOM—

- Comply with plumbing codes, regulations, and guides that will insure a safe and satisfactory installation.
- Choose an experienced person to install your bathroom.
- Have an agreement in writing with whoever is installing your plumbing fixtures. This agreement should include price, general descriptions of fixtures and materials to be furnished, and a statement that places the liability for an unsatisfactory installation or damaged fixtures on the installer.

pushed through. The bathroom should be large enough to accommodate the wheel chair and to permit someone to help the invalid from the chair.

- For a dressing room?

Counter areas, generous mirrors, good lighting, and ample storage space are desirable appointments in the bathroom that is also used as a dressing center.

- For hand or machine laundering?

In the small home without a basement or separate workroom the most convenient location for laundry equipment may be in the bathroom.

## SUGGESTED BATH ARRANGEMENTS

For help in planning a family bathroom or any bath area, study the arrangements on pages 5 and 6. The space allowances around fixtures in these plans are based on research<sup>1</sup> in which both the use and the cleaning of the bathroom were considered.

Dimensioned plans for each arrangement of family bathrooms give a choice of two sizes. The limited arrangements show one location where a mother can stand comfortably and help a child, or one adult can help another adult; the liberal arrangements show two such locations. In the one-person baths, clearance between, to the side of, and in front of fixtures, is held to a minimum.

In all family bathroom plans, doors are 2 feet 8 inches wide. Doors in the one-person or minimum baths are 2 feet 4 inches wide.

Five arrangements for compartmented baths are shown on page 6. Three of these areas have four fixtures; two of them have five fixtures. Three differ-

ent arrangements of bathrooms with water closet, lavatory, and shower stall are also shown on page 6.

To plan bathroom arrangements other than those suggested, use the cutouts on the back of this publication and the recommended clearances shown on pages 5 and 6. Wash-up areas with two fixtures—water closet and lavatory—should also be planned with these clearances.

## LOCATION OF BATH AREAS

Once you decide on the kind and number of bath areas you need, the next step is to consider the best possible location for each.

See page 7 for a good location of a single bathroom in a one-story house that has no other toilet facilities. The bathroom can be reached from the back door without going through the work area of the kitchen and from the kitchen without going through the living room. It is located next to the utility room for a compact, economical plumbing arrangement that requires a short run of supply and waste pipes. The bathroom is accessible from all rooms through the hall. Another desirable feature is that the bathroom door is not visible from the living room or the front entrance.

Usually in a 1½- or 2-story house the bathroom is located on the second floor. But you might consider locating it on the first floor near the stairway for daytime convenience if there is no other wash-up area on the first floor.

For safety, avoid placing an upstairs bathroom at the head of the stairs or next to the stairs. If, however, this is the only possible location for the bathroom, install night lighting on the stairway, or a gate at the top of the stairs.

When more than one complete bathroom is planned for a home, the second frequently opens from the master bedroom. Such a bathroom can be located to serve a dual purpose. The sketch on page 7 illustrates an arrangement in which the master bathroom, located conveniently near the rear entrance, is also the wash-up area. Note how the family bathroom, master bathroom, and laundry area are grouped together for an economical installation of plumbing.

Compartmented baths are popular with families with growing children. The addition of one or two fixtures and the multiple use of others add convenience and flexibility. In remodeling, a compartmented bath often makes the best use of space, particularly if a large area is being converted into a bathroom.

A single lavatory installed in a bedroom is one way to add convenience at a nominal cost. The lavatory can be enclosed or shielded by a screen. See page 7.

<sup>1</sup> For further information, see: Monroe, M. M. BATHROOM WORKING SPACES. Maine Agr. Expt. Sta. Misc. Rept. 82. 1959.

# BATHROOM ARRANGEMENTS

FAMILY BATHROOMS		ONE PERSON MINIMUM BATHROOMS
LIMITED*	LIBERAL**	
<b>THREE FIXTURES</b>		

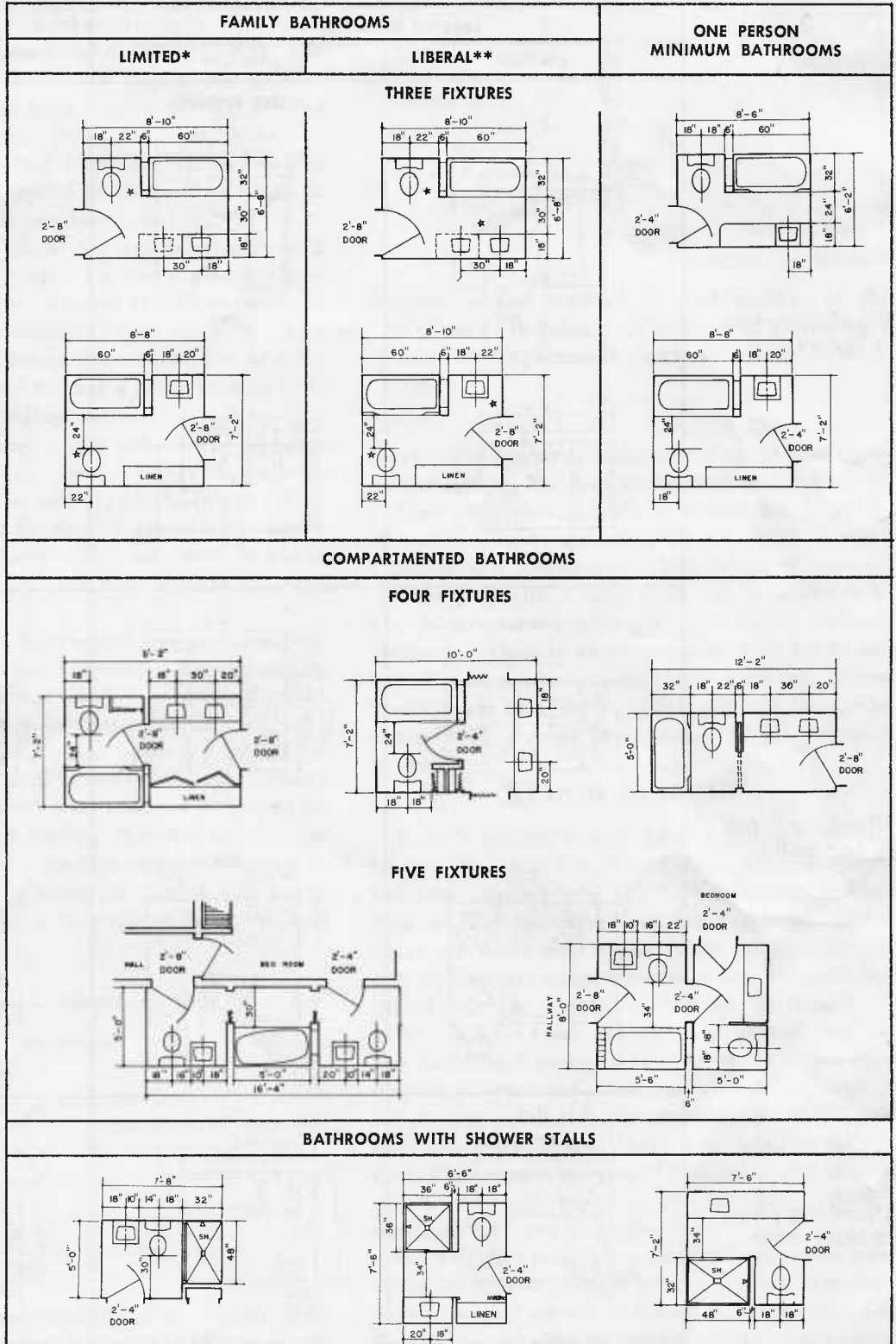
Plumbing pipes  
in one wall

Plumbing pipes  
in two walls

Plumbing pipes  
in three walls

\*Space provided at one location for adult to stand to help young child or elderly person.  
 \*\*Space provided at two locations for adult to stand to help young child or elderly person.

# BATHROOM ARRANGEMENTS



Plumbing pipes  
in three walls

Two lavatories,  
one tub, and  
one water closet

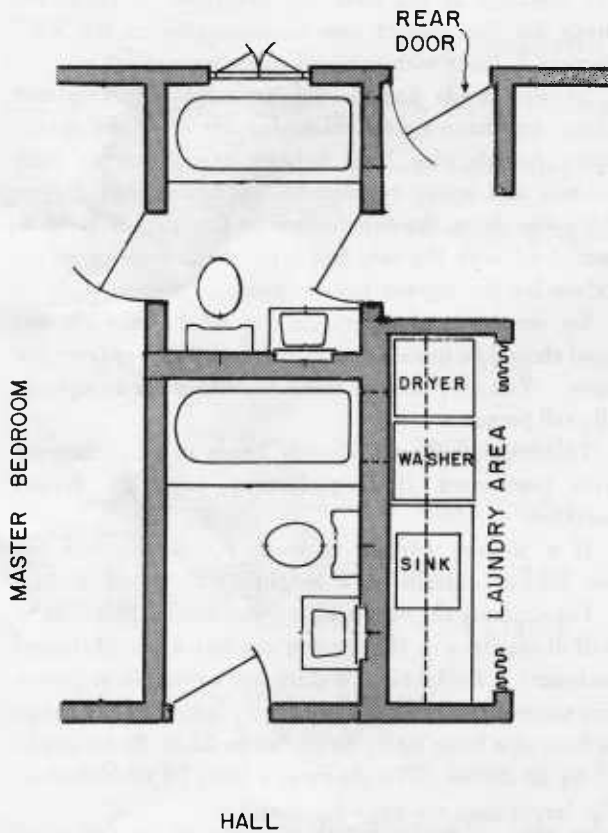
Two lavatories,  
two water  
closets, and  
one tub

Water closet,  
lavatory, and  
shower stall

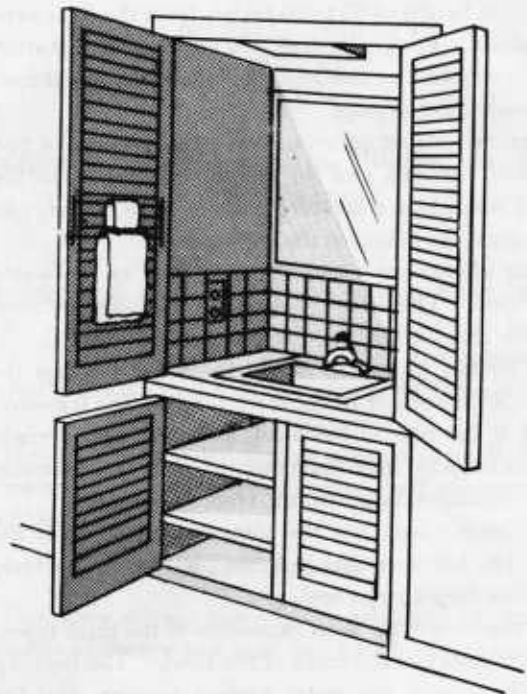
\*Space provided at one location for adult to stand to help young child or elderly person.  
\*\*Space provided at two locations for adult to stand to help young child or elderly person.



Single bathroom location in one-story house.



Master bedroom bath arrangement.



Extra lavatory in bedroom.

## CHOICE OF FIXTURES

Bathroom fixtures are available at different price levels. The price depends on the material of which the fixture is made, and the size, color, and styling of the fixture.

Vitreous china is always used for water closets, and may be used for lavatories. Porcelain enameled cast iron and pressed steel are used for tubs and lavatories. Other fixture materials include stainless steel for lavatories and reinforced plastic for lavatories, tubs, and shower stalls. All white and color china and porcelain enameled fixtures now on the market are acid resisting.

Plumbing fixtures are heavy. If remodeling, have joists checked by an experienced builder to make sure they will support heavy fixtures, such as bathtubs and shower receptors. *Built-in bathtubs* should be installed so they are partially supported by the studs to prevent their pulling away from the wall. This can be done either by hanging them on a 2- by 4-inch wood support secured to the studs or by using special tub hangers.

*Wall-hung lavatories* are supported by special brackets or hangers. China or metal legs can be added to some designs (see example on p. 10). Some legs have a degree of adjustability, but it is wise to find out whether legs can be adjusted enough to fit the desired heights of your lavatories before purchasing them.

Whatever type of lavatory you choose, be sure to install it at a comfortable height for the adults of the family. A height of 33 to 36 inches from the floor suits most adults. For youngsters, you can provide a sturdy, portable stepstool or one built into the lavatory cabinet. See sketch on this page.

*Lavatory cabinet combinations* usually come in two heights—31 inches and 34 inches. If you want the counter surface on a lavatory cabinet to be higher, you can increase the height of the toe space.

*Water closets* are classified according to the water action used. The three types most commonly installed in homes are: Siphon jet, reverse trap, and washdown.

The *siphon jet* is the most expensive, and has the quietest action of any of the three types. The trapway, located at the rear of the bowl, and the water surface are extra large for maximum cleanliness. A deep water seal gives maximum protection from sewer gases.

The *reverse trap* has the same water action as the siphon jet, but a smaller trapway, less water surface, and not as deep a water seal.

The *washdown*, the least expensive of the three types, has the trapway at the front of the bowl. The flushing action is noisier, the water surface smaller, and the water seal not as deep as in the other two types.

Sketches and brief descriptions of the various types



Stepstool for children.

of bathtubs, lavatories, and water closets follow. Details of size, style, and color need to be checked with your local dealer.

## Showers and Fittings

The most economical way to provide a shower is to add a shower head over the tub. If the shower fittings are installed at the time the bathroom is built, the pipes for the shower can be concealed in the wall. Shower fixtures with exposed pipes are available.

Shower heads are usually made of chrome-plated brass, and have swivel joints for directing the spray. Some models also have volume regulators, or both volume and spray regulators. A fitting that diverts the water from the tub faucets to the shower head is combined with the tub, but separate faucets or mixer valves for the shower can be used.

To insure head clearance for adults, the shower head should be installed at least 6 feet 2 inches from the floor. You may need to make allowance for exceptionally tall persons.

Tubs equipped with shower heads can be enclosed with permanent rigid enclosures, or with shower curtains.

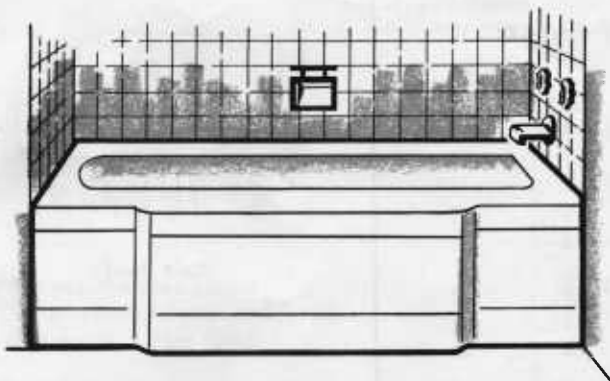
If a shower curtain is used, install the rod for the shower curtain at a height of 6 feet 6 inches.

For separate shower facilities, you can build a shower stall of masonry or tile, or you can buy a prefabricated enclosure. Prefabricated stalls are available in porcelain enameled steel and reinforced plastic. They range in floor size from 30 by 30 inches to 36 by 36 inches to 34 by 48 inches. Height ranges from 74 to 80 inches. The larger ones are more comfortable.

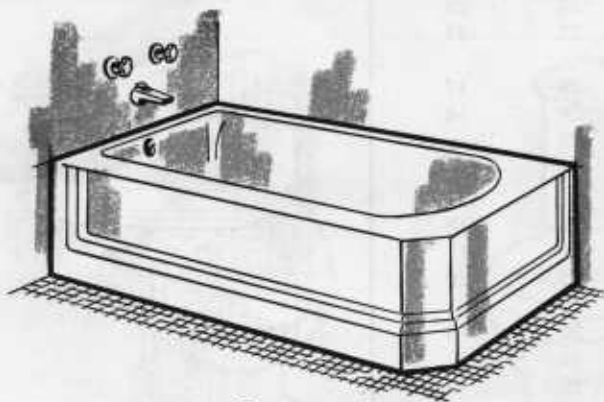
Prefabricated bases or receptors are also available in sizes ranging from 32 by 32 inches to 32 by 48 inches.



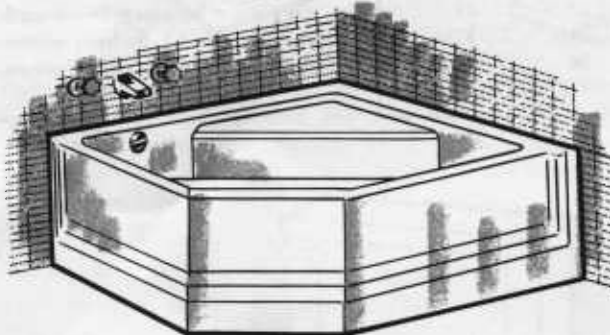
## BATHTUBS



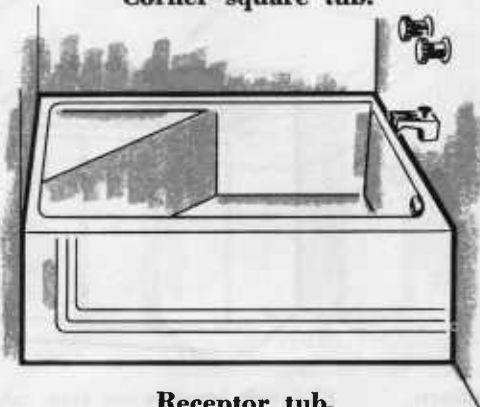
**Recess tub.**



**Corner tub.**



**Corner square tub.**



**Receptor tub.**

Tubs for recess (fit flush between two walls) or for corner installation are 4, 4½, 5, or 5½ feet long. The 5-foot tub is the most used length. Tubs with widened rims are usually 32 or 33 inches wide; tubs with straight fronts, 30 or 31 inches wide.

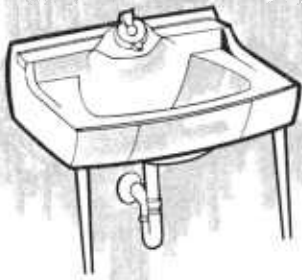
Square tubs are about 4 feet by 3½ or 4 feet, and are available for either recess or corner installation. Some styles have one built-in seat, others two. A square tub is heavier than a rectangular tub and may require additional framing for support.

Receptor tubs are approximately 36 to 38 inches long, 39 to 42 inches wide, and 12 inches high. They are most suitable for shower installations, but, because of lower height, are also convenient for bathing children and others who need assistance.

# LAVATORIES

## TYPICAL SIZES OF LAVATORIES

	Width (inches)	Front to back (inches)
Wall-hung:		
Ledge back.....	19 24	17 20
Splash back.....	19 20 24	17 18 20
Slab.....	20 24 27	18 20 22
Shelf back.....	19 20 22	17 14 18 or 19
Set in or on cabinets:		
Rolled rim.....	20 21 27	18 17 20
Flat rim.....	20 24 19½	18 20 15¼
Lavatory on cabinet.	27 21½ 36	21 17¾ 18



Ledge back.



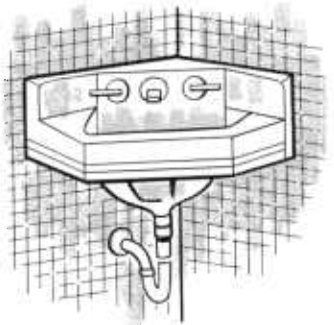
Splash back.



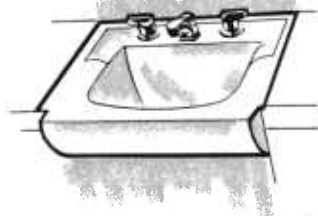
Slab with china leg.



Shelf back.



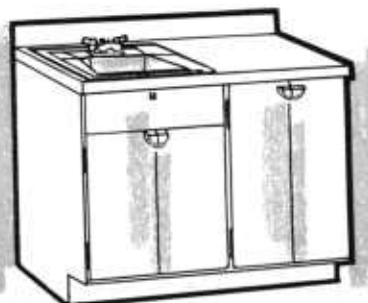
Corner. A typical size for a corner lavatory is—length along wall, 17 inches; extension from wall, 19½ inches.



Lavatory-counter top with rolled rim basin.



Lavatory-counter top set on cabinet.



Flat rim lavatory set into cabinet.

# WATER CLOSETS

*Approximate Dimensions for Water Closets*

	Tank		Extension of fixture into room (inches)
	Height (inches)	Width (inches)	
One-piece water closet . . . . .	18½ to 25 . . . . .	26¾ to 29¼ . . . . .	26¾ to 29¼.
Close coupled tank and bowl . . . . .	28½ to 30¾ . . . . .	20⅝ to 22¼ . . . . .	27½ to 31¾.
Wall-hung water closet . . . . .	27 to 29½ . . . . .	21 to 22¼ . . . . .	26 to 27½ (con- cealed tank 22).
Wall-hung tank . . . . .	32 to 38 . . . . .	17¾ to 22 . . . . .	26½ to 29½.
Corner water closet . . . . .	28¾ . . . . .	19¼ . . . . .	31.



**ONE-PIECE.**

One-piece water closets are neat in appearance and easily cleaned, but are more expensive than two-piece models.



**CLOSE-COUPLED TANK AND BOWL**

The tank, a separate unit, is attached to the bowl.



**TWO-PIECE WITH WALL-HUNG TANK.**



**WALL-HUNG.**

Completely wall-hung closets make it possible to clean the floor under and around the closet.



**CORNER.**

The corner water closet is a space saver. Note the triangular tank.

## CARE OF FIXTURES

Bathroom fixtures that get proper care before, during, and after installation usually give satisfactory service for the lifetime of the house.

### During Finishing and Installation

A careful workman protects bathroom fixtures from blows, scratches, falls, and other damage during delivery, room finishing, and installation. He sees that fixtures are well covered with suitable materials and that plaster, paints, and acids do not get on them.

The damaged surface of a porcelain fixture cannot be restored. The fixture will stain easily and be difficult to keep clean.

Here are some tips on fixture care during finishing and installation:

- Uncrate fixtures carefully. Leave protective wrappings on.
- If fixtures are not covered when delivered, cover them with several layers of strong wrapping paper held in place with tape; or cover them with corrugated board, or with one of the special coverings available from plumbing supply firms. Several satisfactory coatings that can be brushed or sprayed on are also on the market.
- Do not use newspaper or dyed paper next to enamel; they may leave permanent stains. Newspapers can be used for added protection if fixture is first covered with unprinted paper or plastic.
- Avoid using paste made with flour to attach covering. Do not use sawdust as a protective filler. Flour paste and sawdust ferment when wet and produce an acid which etches the enamel.
- Keep fixtures clear of tools, scrap lumber, wet paper or burlap, and other debris.
- Remove carefully any plaster or cement on a fixture with water or a nongritty cleaning compound.
- Soften paint drips with the recommended solvent and remove carefully.

### After Installation

You can keep your new fixtures smooth and gleaming if you are careful in your choice of cleansers and do not abuse the fixtures in any way.

Harsh, gritty cleansers soon scratch and mar the surface of a fixture, regardless of the material of which a fixture is made. To test the abrasiveness of a cleanser, put a small amount between two pieces of glass and rub them together. If the glass is scratched, the cleanser is too harsh to use on fixtures.

Other precautions to observe in fixture care:

- Do not use bathtubs or lavatories for washing venetian blinds or sharp-edged articles. If it is necessary to stand in the bathtub or to place a stepladder in it when washing walls and windows, cover the bottom of the tub with a rug or mat with a nonskid backing.
- Do not develop photographic film in lavatories or bathtubs. Photo solutions are harmful to enamel surfaces.
- Do not allow strong solutions, including household and hair bleaches and vinegar to stand in porcelain enameled fixtures. If left for any length of time, these products will etch the enamel. Even acid-resisting enamel will be damaged by strong acids or by continued contact with any acid. Cosmetic lotions, hair tints, and medicines can also stain the lavatory. Take the precaution of rinsing the lavatory after using such preparations.
- Do not allow faucets to drip constantly—the minerals in some water discolor and stain enameled surfaces.
- Do not leave wet non-slip mats in tub. Some of them make permanent stains. Hang them to dry after each use before replacing in the tub.

## STORAGE AND ACCESSORIES

Well-appointed bathrooms have convenient storage and functional accessories.

In planning any bath area, add storage units, either built-in or free-standing, whenever possible.

### Toiletry Cabinets

Toiletries, such as toothpaste and shaving supplies, are conveniently stored in a cabinet above or within reach of the lavatory.

The toiletry cabinet is frequently called the medicine cabinet, but it is not wise to combine the storage of medicine and cosmetics. Preferably, medicine should be stored in a special place by itself so there is no danger of confusing it with other supplies.

In households where there are small children, provide a separate cabinet—one that can be locked—for medicines. Install it out of reach of the persons you wish to protect.

Toiletry cabinets can be wall hung (the least expensive type) or recessed. Recessed cabinets can be purchased ready for installation, or made on the job. Readymade cabinets usually have mirror doors.

Adjustable shelves permit the best use of cabinet space. Shelving should be made of plastic, glass, or

enameled metal that is not damaged by moisture or spilled cosmetics.

Place the toiletry cabinet at a convenient height for family needs. The top of the mirror is usually placed 69 to 74 inches from the floor. If you measure from the bottom of the mirror, a distance of 48 to 54 inches from the floor is satisfactory for the person of medium height.

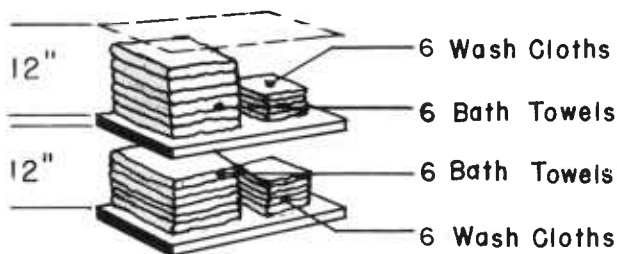
### Towel Cabinets

You can save steps by storing some bath linens in the bathroom.

Regular-sized bath towels folded in thirds lengthwise fit on a shelf that is 12 inches deep; folded in half they fit on a shelf 16 inches deep.

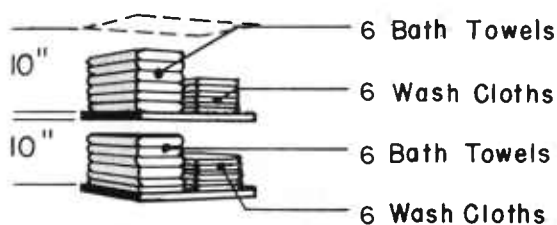
Space dimensions for storing 12 washcloths and 12 bath towels and for storing 18 bath towels, 18 washcloths, and 8 hand towels are given on this page. If available space is deeper than 16 inches, drawers or pullout shelves are more satisfactory than fixed shelves.

The only available space for a towel cabinet in a minimum-sized bath may be above the water closet.



LIMITED SUPPLY  
2 SHELVES

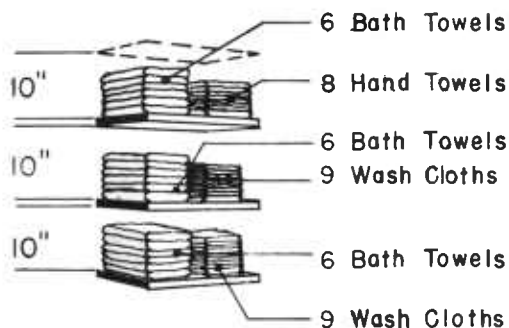
12" DEEP 18" WIDE



LIMITED SUPPLY  
2 SHELVES

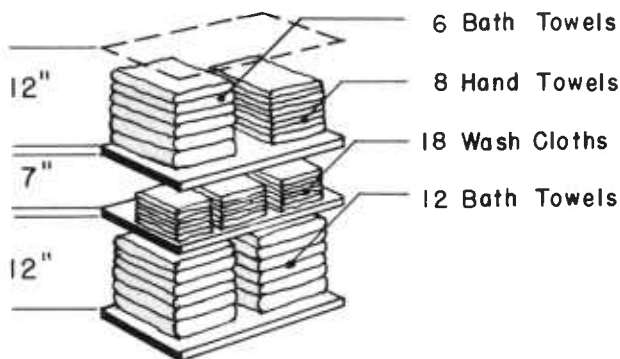
16" DEEP 18" WIDE

**Suggested shelf storage for limited supply of bath linens.**



LIBERAL SUPPLY  
3 SHELVES

16" DEEP 18" WIDE



LIBERAL SUPPLY  
3 SHELVES

12" DEEP 26" WIDE

**Suggested shelf storage for liberal supply of bath linens.**

If you put a cabinet there, be sure to leave enough space between the top of the tank and the bottom of the cabinet for servicing the tank. The cabinet can be built into the stud space to provide additional depth if the location of the soil stack permits.

Metal-pole-supported shelves are easily installed over a water closet and provide some shelf storage at a nominal cost.

### Utility Cabinets

Plan some storage space in the bathroom for reserve supplies of tissues and soap and for cleaning tools and cleansers.

In a limited size bathroom make use of the space under the lavatory for storage.

## Small Accessories

### *Towel rod*

Each family member needs rod space for a towel and washcloth. In addition, you will want some extra space for guest use. To hang a bath towel and washcloth folded once lengthwise requires 21 inches. If the washcloth is hung unfolded for quick drying, the washcloth and towel take up 28 inches of rod space.

Towel rods on the sides of the lavatory are a convenient height for small children. A towel pole provides for extra towels in a minimum of space.

### *Paper holder*

Paper holders of china or metal can be recessed in the wall or fastened to the wall.

Place the paper holder so that its bar is about 30 inches from the floor, and if on a sidewall, about 6 to 8 inches beyond the front edge of the water closet.

### *Grab bar*

Grab bars installed by the tub and shower are important safety features. A little time and money spent in buying and installing grab bars could prevent a costly and painful accident to a member of your family. Select sturdy metal bars. Make certain that they are firmly anchored.

An angled grab bar is shown in the shower-tub arrangement on this page. Straight bars are available in various lengths and can be installed vertically, horizontally, or at an angle.

### *Soap holders and clothes hooks*

Soap holders for the tub and shower are usually recessed. Vitreous china and metal are commonly used materials. For tub use, place the soap holder at about the middle of the wall beside the tub and within easy reach from a sitting position in the tub.

In the shower stall, the soap holder is usually placed about shoulder height, and far enough forward so the shower spray does not reach it. Or, if you prefer, you can install a corner shelf in the shower stall for soaps, shampoos, and rinses.

Nonrusting hooks for hanging bathrobes and other clothing add convenience. Place the hooks from 5 feet 5 inches to 6 feet from the floor. They should be above eye level for safety.

### *Toothbrush and tumbler holder*

These accessories are often combined, but can be bought separately. Those made of vitreous china are set into the tile wall. Metal holders may be recessed or wall mounted. Some of these accessories are stationary, others revolve and close flush with the wall.



**Angled grab bar for tub and shower.**

Revolving combination units hold soap, tumbler, and toothbrushes.

### *Drying lines and racks*

If clothes—especially those made of drip-dry and wash-and-wear fabrics—are to be dried in the bathroom, it is best to make special provision for the job, rather than depending on towel rods for hanging space.

Here are suggested ways to provide bathroom drying:

- Place hooks in the walls at each end of the built-in tub for attaching clotheslines across the tub when needed.
- Put a telescope rod with rubber suction cups over a recessed tub. This rod may be left in place permanently or stored after each use.
- Mount a drying rack on which to hang hangers on the wall at one end or on the side of the tub. The rack will fold flat against the wall when not in use.
- Install a clothesline reel with retractable plastic line over the bathtub. Line is hooked to opposite wall for use.

# VENTILATION, LIGHTING, AND HEATING

## Ventilation

Every bathroom or wash-up area should be ventilated either by a window or an exhaust fan. Natural or forced ventilation is necessary to comply with local building codes and to meet requirements of lending agencies.

If your bathroom is ventilated by a window, avoid, if possible, locating the tub under the window. If there is no other location for the tub, a window that opens with a crank is easier to operate than a double-hung window.

To help prevent excessive humidity in the house, exhaust fans vented to the outside can be installed in all bathrooms whether or not they have windows. Fans are particularly necessary in humid climates. Exhaust fans in combination with lights and heater are good choices for small bathrooms. Lights and exhaust fans can be installed with one wall switch, but separate switches are preferred if such an installation is permitted by codes and ordinances.

## Lighting

The well-lighted bathroom has good, glare-free, general illumination and properly placed area lights at the lavatory or dressing counters. The lights at the lavatory or dressing counter should be located so the light shines on the face, not on the mirror.

If proper fixtures are used in the small bathroom, the lights at the lavatory generally give enough illumination for the entire area. To provide good lighting for grooming at the mirror over the lavatory, place one light in the ceiling and one light on each side of the mirror.

Place the lavatory side lights 30 inches apart with the center of the light bulb 60 inches above the floor. Center the ceiling light above the front edge of the lavatory.

In a large bathroom general illumination will be needed in addition to area lights. You may need extra light in your shower. Select a vapor-proof fixture.

Because it is easy to touch water and metal while switching on lights in the bathroom, make certain that lights are controlled by wall switches out of reach of anyone in the bathtub or shower, or anyone using a water faucet. Defective wiring and frayed cords on electrical equipment can result in severe electrical shock. Locate a grounded convenience outlet near the lavatory

at a comfortable height for electrical appliances used in the bathroom.

## Heating

Remember to plan for heat in your bathroom. If you do not have a central heating system, you will need to install either gas or electric wall space heaters. Plan the location of these carefully. Place the wall heater where there is no possibility of a person being burned on it or of towels or curtains catching fire from it.

Make certain that an electric heater is properly grounded and equipped with a thermostat, and that a gas heater is vented and has safety pilot shut-off features.

Portable heaters are not recommended as the general source of heat for the bathroom. For small areas, ceiling radiant heaters combined with a light or a fan or both are often used for general or for auxiliary heat.

## WALL FINISHES

The varied materials used to finish bathroom walls today are pleasing to the eye, remarkably practical, and easily cleaned. Some of these decorative wall materials will last many years, others will need to be renewed from time to time.

You have a choice of paint, ceramic or plastic tile, plastic-coated hardboards, plastic laminates, wallpapers, or fabric-backed wall coverings. The kind of wall finish you select will depend on how much money you want to spend, your personal taste, and the way the bath area is used.

If you decide to *paint* the walls, choose a paint that is recommended for bathroom use—one that withstands moisture, is resistant to mildew, and is easy to clean. Gloss or semigloss enamel is usually recommended. Follow application directions carefully. Painted surfaces are not recommended for the interior of shower stalls because they do not withstand the constant wetting (for long periods) and are subject to wrinkling, blistering, and discoloration.

You may want to consider rigid wall coverings, such as *plastic-coated hardboards*. These are available in a nice assortment of colors, may have a plain finish or be scored to resemble tile. Rigid *plastic laminates*, familiar as counter coverings, are increasingly popular as bathroom wall coverings. *Sheet vinyl* with a moisture-resistant backing can also be used for bathroom walls and counters.

*Washable wallpaper* is practical for the bathroom and, if applied with a moisture-resistant or waterproof adhesive as recommended by the manufacturer, can be used successfully even on the wall around the tub. A satisfactory job of hanging paper can usually be done

by the home workman. However, it is wise to test a sample of the paper to make certain that the colors are fast and that it can be cleaned satisfactorily.

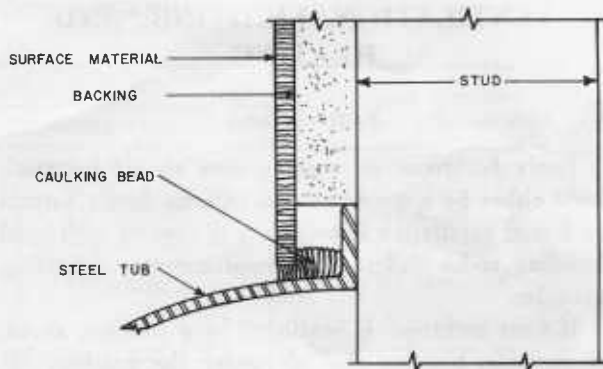
*Coated fabric wall coverings* are well suited to bathrooms. They are colorful and easy to apply. One type is made of paper stock bonded to rugged woven cloth, coated with a vinyl resin, and printed in various patterns and colors. Still others are fabrics to which pure vinyl has been applied by heat and pressure, or several coats of enamel have been baked on.

*Ceramic tile* and *plastic tile* are in wide demand as bathroom wall coverings. Ceramic tile is made from clay that has been fired; it comes glazed and unglazed. Glazed tile, the type commonly used for walls, has a white body with a vitreous glaze of the desired color on the face. Unglazed tile has a dense vitreous body and is the same color throughout.

Ceramic wall tiles come in a wide variety of colors and a number of sizes; a commonly used size for bathroom walls is approximately  $4\frac{1}{4}$  by  $4\frac{1}{4}$  inches. They can be ordered from the factory assembled in blocks on mesh or paper sheets. Tiles assembled in blocks can be installed in less time than it takes to install individual tiles.

Plastic wall tile is inexpensive, and comparatively easy for a home workman to install. Like ceramic tile, plastic tile is available in multiple colors that can be coordinated nicely into a decorating scheme.

The performance of any wall finish depends on the care with which it is installed and maintained. *Always follow the manufacturer's recommendations exactly for type of adhesive and backing material, and for the method of installation.* Backing material around tubs and showers should be thoroughly sealed with waterproofing materials prior to application of the wall



**Recommended method of construction of the wall and tub joint. (Courtesy of Texas Agricultural Experiment Station, College Station, Tex.)**

finish. For recommended construction of base joints around showers and tubs, see sketches on this page.

After installation, protect the beauty and durability of wall finishes by cleaning only with mild detergent solutions and nonabrasive cleaners. With periodic care—wiping with a damp cloth—all finishes can be kept in acceptable condition without the use of harsh cleansers. Abrasive cleansers cause color fading and loss of gloss, particularly on plastic materials. Grout lines between tiles tend to darken with age, but can be cleaned with a small brush and a slightly abrasive cleanser.

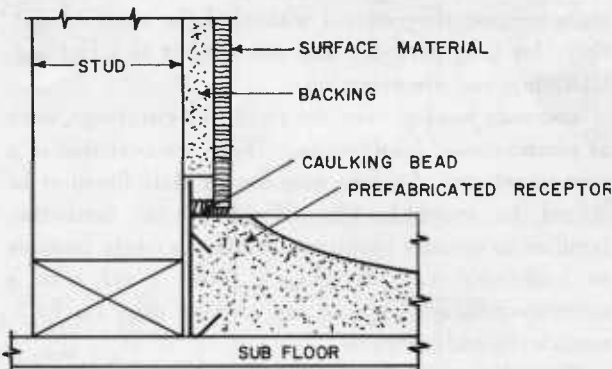
## FLOOR FINISHES

Today's bathroom floor finishes are of two main types—(1) nonresilient floor finishes, such as ceramic tile and concrete, and (2) smooth-surface resilient floorings, such as linoleum, asphalt, and vinyl. Wood floors are rarely seen in bathrooms now. They will give satisfactory service, however, if they are refinished periodically with a water-resistant seal or varnish.

No one floor finish has all the properties desirable in a bathroom flooring; it is up to you to decide what properties you want most and choose accordingly. Necessarily, installation requirements and cost will help determine your choice. Other considerations include durability, appearance, ease of installation and upkeep, resistance to soil, moisture, and indentation, dimensional stability, and quietness.

Some flooring materials, including linoleum and cork, cannot be used on grade or below grade in a basement; others, such as asphalt and vinyl asbestos, can. Get the flooring and adhesive recommended for such installations.

If you plan to install the floor finish yourself, your



**Recommended construction of a shower stall joint using a precast receptor. (Courtesy of Texas Agricultural Experiment Station, College Station, Tex.)**



choice of materials may be limited by the skill required for a satisfactory job. Many flooring problems can be traced to faulty installation. *It is extremely important to follow the manufacturer's installation instructions and recommendations in working with any type of floor finish.* If a specific adhesive is recommended, use it; do not substitute.

## Nonresilient Floor Finishes

### Concrete

Concrete floors can be used for bathrooms and wash-up areas on or below grade, and are satisfactory if the concrete surface is hard, dense, and smooth. They can be made more attractive by the addition of color to the concrete or by painting with one of the special concrete-floor paints.

### Ceramic tile

This widely used and popular finish for bathroom floors comes glazed or unglazed—with a bright or dull finish—and in multiple colors and shapes. Most ceramic tile sold today is factory assembled on paper or mesh. The traditional method of setting ceramic tile is in cement mortar. However, organic adhesives are extensively used today.

Ceramic tile floors are easy to keep clean. Washing with mild soap, powdered cleanser, or a synthetic detergent solution is usually sufficient. In areas where the water is hard, soap is less satisfactory than synthetic detergent or cleaning powder because of the insoluble film that forms from the reaction of the soap with salts in the water. If necessary, scouring powder can be used on heavily soiled areas. Ceramic floors should not be waxed.

## Resilient Floor Coverings

Smooth-surface resilient floor coverings suitable for bathrooms include: Asphalt, homogeneous vinyl, and vinyl asbestos tiles; linoleum, backed vinyl, and rubber, in either sheet or tile form. Some companies also offer homogeneous vinyl in sheet form.

Inexpensive enameled or printed floor coverings are also available in sheet form. Some of these floorings now have a top layer of vinyl. The wear life of most printed and enameled floorings is limited, however. For this reason they are not recommended as a permanent installation in heavily used areas.

The home workman can usually do a more acceptable job of floor installation with tiles than with sheet goods. Sheet material has the advantage of fewer seams, however.

The 9- by 9-inch square is the most commonly used size of resilient tile, but tiles 6 by 6 inches and 12 by 12 inches are available in some materials. Oblong and diagonal tiles are also made by some manufacturers.

Backed vinyl or linoleum in sheet form is usually 6 feet wide; rubber, 36 or 45 inches wide; and homogeneous vinyl, 45 inches wide.

The thickness or gage of flooring materials varies. Linoleum is usually  $\frac{1}{16}$ - or  $\frac{1}{8}$ -inch thick. Asphalt and rubber tiles are  $\frac{1}{8}$ -inch and  $\frac{3}{16}$ -inch thick; vinyl floorings,  $\frac{3}{32}$ -,  $\frac{1}{8}$ -, and .080-inch thick. Feature strips, insets, and moldings are available for all these floorings.

### Description

Following are descriptions of the various types of resilient floor coverings. Each description is in two parts—(1) basic material and (2) characteristics and use.

**LINOLEUM.**—(1) Ground cork or wood flour and linseed oil; pigment and binder pressed in burlap or felt backing. Tile or sheet form.

(2) Excellent resistance to grease; good recovery from indentation. Needs protection from continued dampness because backing may mold or rot. Not recommended for use on floors either below or on grade.

**ASPHALT.**—(1) Asbestos or other fibers, fillers, binder, and pigment formed under pressure. Little asphalt in any but dark tiles. Comes in regular and grease-proof types. Tiles only.

(2) Regular type has poor resistance to grease; both types have excellent resistance to surface alkali; fair recovery from indentation. Can be used anywhere. Some change in color with wear; dark colors change more than light.

**RUBBER.**—(1) Vulcanized rubber compound binder with reinforcing fibers, pigments, and fillers. Sheet or tile form.

(2) Good resistance to grease; good resistance to surface alkali; excellent recovery from indentation; quiet.

**VINYL (homogeneous-unbacked).**—(1) Vinyl resins, plasticizers, pigment, and fillers formed under pressure while hot. Usually in tile form, limited amount of sheet goods available.

(2) Excellent resistance to grease and surface alkali; excellent recovery from indentation. Use on or below grade if recommended by the manufacturer of the product selected.

**VINYL (backed).**—(1) Same formula as unbacked vinyls but applied to a backing of felt, cork, degraded

vinyl, or special alkali-resistant material. In tile or sheet form.

(2) Excellent resistance to grease and to surface alkali; good recovery from indentation. Sheet vinyl with felt or cork backing can be used only above grade; with alkali-resistant backing can be used on and below grade.

VINYL ASBESTOS.—(1) Asbestos added to vinyl formula, formed under pressure while hot. No backing. Tiles only.

(2) Excellent resistance to grease and to surface alkali; fair recovery from indentation. Can be used anywhere.

#### **Wax to use**

On linoleum, use either water-emulsion or solvent-type wax (needs buffing) or water-emulsion resins. Waxing improves the wearing quality of linoleum.

On asphalt and rubber, use only water-emulsion wax or resin.

On vinyl (homogeneous-unbacked), vinyl (backed), and vinyl asbestos, use water-emulsion or solvent-type waxes, or resins.

CAUTION.—Read the label on wax container. Confine use to floor covering indicated . . . . Water-emulsion resins do not adhere well to waxed surfaces. They give a hard tough coating with a high gloss, which tends to scratch rather than scuff, making this finish unsuitable for areas subjected to traffic associated with sand or gritty soil.

#### **General care**

Remove loose dirt with a dry mop (oil softens wax), soft broom, or a vacuum cleaner. If the floor covering

is protected by a good wax coating it can be satisfactorily spot cleaned. Buff after spot cleaning. Buffing helps to keep the finish in good condition and reduces the number of times a floor needs washing and waxing.

*Wet clean* only with mild soap or synthetic detergent solutions or a cleanser specifically recommended for the type of resilient floor covering. Avoid too frequent wet mopping or excessive use of water and cleaning solutions which may penetrate seams and cause a loosening of the adhesive. Floor should be rinsed well with clear water because any residue of soap, detergent, or cleanser prevents a satisfactory wax finish.

#### **Periodic cleaning**

Remove old wax once or twice a year. Then re wax. This helps keep resilient surface clean and colors bright. Use only special cleaner for stripping wax from flooring. Abrasive cleansers should not be used on resilient floorings except cautiously on deep-seated stains. Avoid strong alkalies because they may make the floor brittle, rough, or faded.

Protect clean resilient floorings with a suitable wax coating or water-emulsion resin finish to make cleaning easier, improve appearance, and prevent the damaging effects of abrasive soil. *Do not wax heavily* even in areas where a high gloss is desired. Two or even three thin coats are preferred to one heavy coat. Buff when dry for a higher gloss.

*Do not use* varnish, shellac, lacquer, or plastic finishes on resilient floor coverings. Solvents required for removing these finishes cannot be used on rubber or asphalt flooring and should be used only sparingly on other resilient materials.

### **MORE INFORMATION**

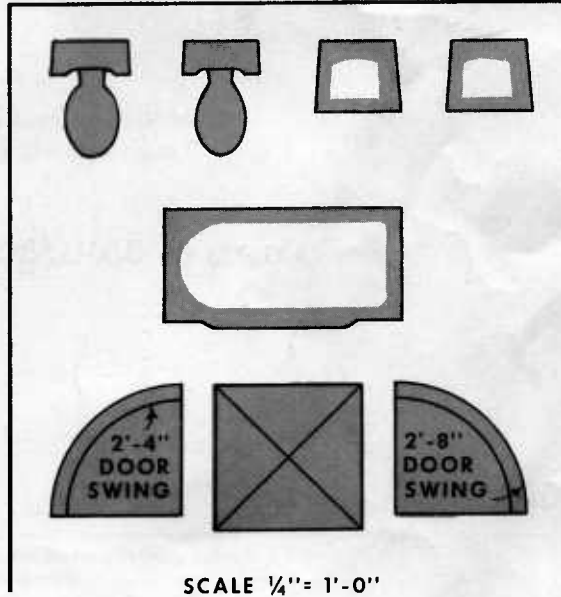
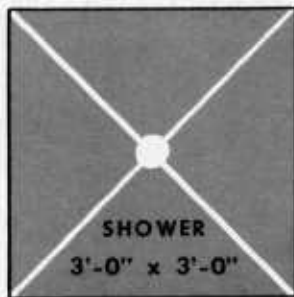
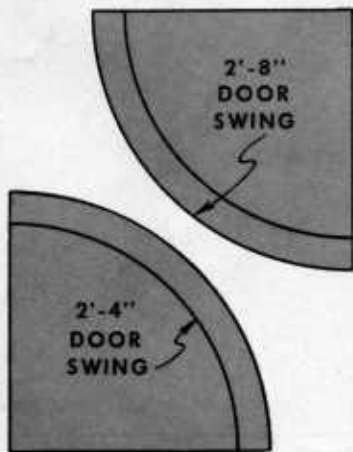
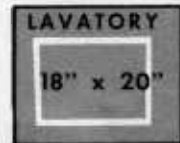
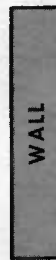
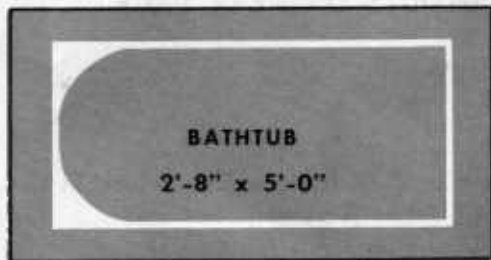
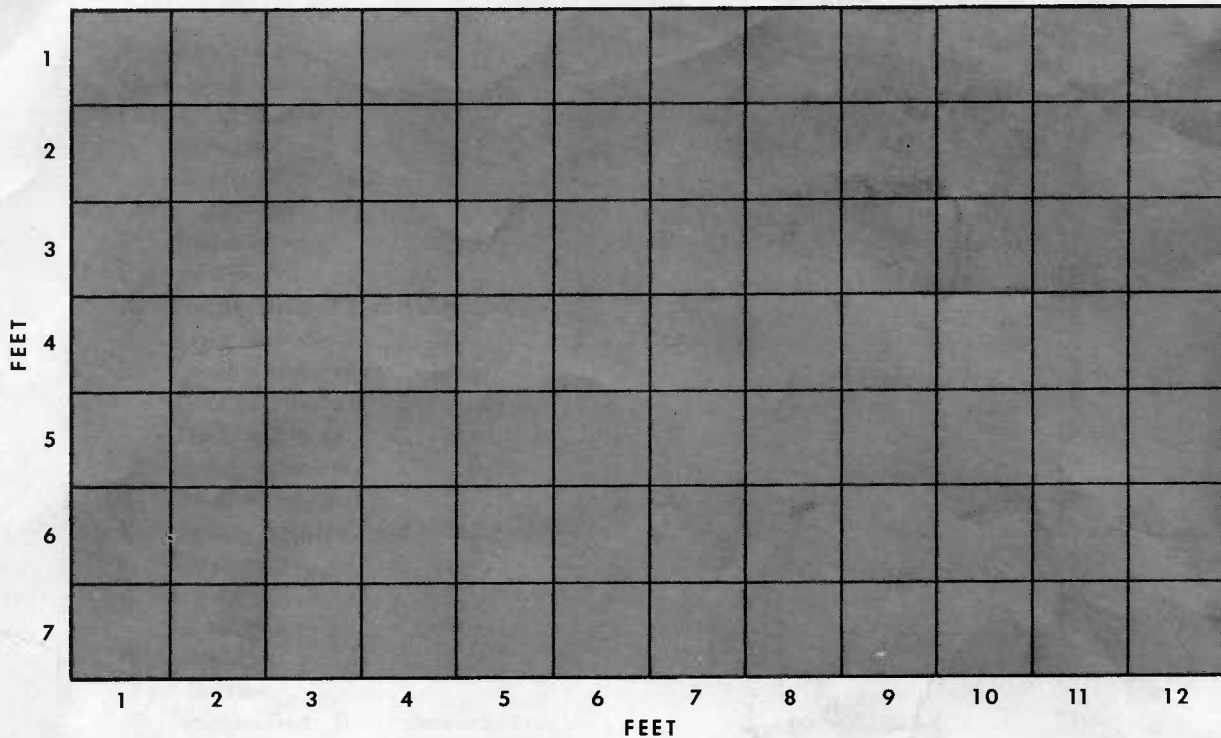
The USDA publications listed below contain additional information on planning, selecting, and installing individual plumbing systems. Copies may be obtained from your county extension office or from the U.S. Department of Agriculture, Washington, D.C., 20250.

	<i>Order No.</i>
Simple Plumbing Repairs for the Home and Farmstead.....	F 2202
Farmstead Sewage and Refuse Disposal.....	AB 274
Planning the Electric Water System and Plumbing for Your Farmstead....	MP 674

Two other publications, issued by the Public Health Service, U.S. Department of Health, Education, and Welfare, give more detailed information. They may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402, at 40 cents each. They are: "Manual of Individual Water Supply Systems" and "Manual of Septic-Tank Practice."

CUTOUTS ON NEXT PAGE

# BATHROOM CUTOUTS



SCALE 1/2" = 1'-0"

SCALE 1/4" = 1'-0"