

## CHAPTER 4

# FIXTURES, FAUCETS AND FIXTURE FITTINGS

### SECTION 401 GENERAL

**401.1 Scope.** This chapter shall govern the materials, design and installation of plumbing fixtures, faucets and fixture fittings in accordance with the type of occupancy, and shall provide for the minimum number of fixtures for various types of occupancies.

**401.2 Prohibited fixtures and connections.** Water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge in accordance with ASME A112.19.2M shall be prohibited. Any water closet that permits siphonage of the contents of the bowl back into the tank shall be prohibited. Trough urinals shall be prohibited.

**401.3 Water conservation.** The maximum water flow rates and flush volume for plumbing fixtures and fixture fittings shall comply with Section 604.4.

### SECTION 402 FIXTURE MATERIALS

**402.1 Quality of fixtures.** Plumbing fixtures shall be constructed of approved materials, with smooth, impervious surfaces, free from defects and concealed fouling surfaces, and shall conform to standards cited in this code. All porcelain enameled surfaces on plumbing fixtures shall be acid resistant.

**402.2 Materials for specialty fixtures.** Materials for specialty fixtures not otherwise covered in this code shall be of stainless steel, soapstone, chemical stoneware or plastic, or shall be lined with lead, copper-base alloy, nickel-copper alloy, corrosion-resistant steel or other material especially suited to the application for which the fixture is intended.

**402.3 Sheet copper.** Sheet copper for general applications shall conform to ASTM B 152 and shall not weigh less than 12 ounces per square foot (3.7 kg/m<sup>2</sup>).

**402.4 Sheet lead.** Sheet lead for pans shall not weigh less than 4 pounds per square foot (19.5 kg/m<sup>2</sup>) coated with an asphalt paint or other approved coating.

### SECTION 403 MINIMUM PLUMBING FACILITIES

**403.1 Minimum number of fixtures.** Plumbing fixtures shall be provided for the type of occupancy and in the minimum number shown in Table 403.1. Types of occupancies not shown in Table 403.1 shall be considered individually by the code official. The number of occupants shall be determined by the *Florida Building Code, Building*. Occupancy classification shall be determined in accordance with the *Florida Building Code, Building*.

**TABLE 403.1  
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**  
(See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly (see Sections 403.2, 403.4 and 403.4.1)	A-1 <sup>d</sup>	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200	—	1 per 500	1 service sink	
		A-2 <sup>d</sup>	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75	—	1 per 500	1 service sink	
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200	—	1 per 500	1 service sink	
		A-3 <sup>d</sup>	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200	—	1 per 500	1 service sink	
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750	—	1 per 1,000	1 service sink	
			Places of worship and other religious services.	1 per 150	1 per 75	1 per 200	—	1 per 1,000	1 service sink	

(continued)

**TABLE 403.1—continued**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**  
 (See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
		A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,500 and 1 per 60 for the remainder exceeding 1,500	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,500 and 1 per 60 for the remainder exceeding 1,500	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business (see Sections 403.2, 403.4 and 403.4.1)	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	—
3	Educational	E/D	Educational facilities/Day care (313.3, FBC, B)	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		(see Section 411)	1 per 400	1 service sink
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		I-2	Hospitals, ambulatory nursing home patients <sup>b</sup>	1 per room <sup>c</sup>		1 per room <sup>c</sup>		1 per 15	1 per 100	1 service sink per floor
			Employees, other than residential care <sup>b</sup>	1 per 25		1 per 35		—	1 per 100	—
			Visitors, other than residential care	1 per 75		1 per 100		—	1 per 500	—
		I-3	Prisons <sup>b</sup>	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
I-3	Reformatories, detention centers, and correctional centers <sup>b</sup>	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink		

(continued)

**TABLE 403.1—continued**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**  
 (See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
6	Mercantile (see Sections 403.2, 403.4, 403.4.1 and 403.4.2) <sup>f</sup>	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-2	Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units
		R-3	One- and two-family dwellings	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit
		R-4	Residential care/assisted living facilities	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
8	Storage (see Sections 403.2, 403.4 and 403.4.1)	S-1 S-2	Structures for the storage of goods, warehouses, storehouse and freight depots. Low and Moderate Hazard.	1 per 100		1 per 100		See Section 411	1 per 1,000	1 service sink

- a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *Florida Building Code, Building*.
- b. Toilet facilities for employees shall be separate from facilities for inmates or patients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient room and with provisions for privacy.
- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. Reserved.
- f. In assembly and mercantile occupancies, a unisex toilet room, in accordance with Section 403.7, shall be provided where an aggregate of six or more male and female water closets are required. In buildings of mixed occupancy, only those water closets required for the assembly or mercantile occupancy shall be used to determine the unisex toilet room requirement.
- g. In recreational facilities (coliseums, arenas, stadiums, pools, etc., with less than 3,000 seats and coliseums, arenas and stadiums with more 3,000 seats or greater) where separate-sex bathing rooms are provided, a unisex bathing room in accordance with 403.7, shall be provided. Where each separate-sex bathing room has only one shower or bathtub fixture, a unisex bathing room is not required.

**403.1.1 Potty parity.** In assembly occupancies, restrooms which are open to the public must have a ratio of 3:2 water closets provided for women as the combined total of water closets and urinals provided for men, unless these are two or fewer such fixtures for men, in accordance with §553.86, *Florida Statutes*.

**Exception:** This section does not apply to establishments licensed under Chapter 509, *Florida Statutes*, if the establishment does not provide meeting or banquet rooms which accommodate more than 150 people, and the establishment has at least the same number of water closets for women as the combined total of water closets and urinals for men.

**403.1.1.1 Definitions.**

1. **New construction.** Means new construction, building, alteration, rehabilitation or repair that equals or exceeds 50 percent of the replacement value existing on October 1, 1992, unless the same was under design or construction, or under construction contract before October 1, 1992.
2. **Assembly occupancy.** The use of a building or structure, or any portion thereof, for the gathering together of people for purposes such as civic, social or religious functions or for recreation, or for food or drink consumption, or awaiting transportation.
3. **Historic building.** A building which is (a) listed on the National Register of Historic Places; (b) listed on the State Register of Historic Places; (c) listed on a municipal register of historic property, designated according to local ordinance; or (d) included in a district which is listed on a municipal, state or national register of historic property and which has been determined to contribute to the historic significance of the district.

**403.1.1.2 Occupancy content calculation.** The occupancy content of a building, which determines the number of water closets required for men, shall be calculated using the square footage per person requirements established by the building code in effect in a jurisdiction.

**403.1.2 Unisex toilet and bath fixtures.** Fixtures located within unisex toilet and bathing rooms complying with Section 403.7 shall be included in determining the minimum required number of fixtures for assembly and mercantile occupancies.

**403.1.3** For the purposes of calculating the minimum number of required plumbing facilities, the requirements of Table 403.1 shall apply to any areas outside of the building that are used as part of the building's designated occupancy (single or mixed). Where additional seating is also utilized in these areas, the actual number of seats shall be added to the number of persons calculated by Table 403.1 to obtain the total additional facilities required.

**403.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.

**Exceptions:**

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required for food service establishments which seat 10 persons or less.
3. Separate facilities shall not be required in business and mercantile occupancies with a total floor area of 3,000 square feet (279 m<sup>2</sup>) or less.

**403.3 Number of occupants of each sex.** The required water closets, lavatories, and showers or bathtubs shall be distributed equally between the sexes based on the percentage of each sex anticipated in the occupant load. The occupant load shall be composed of 50 percent of each sex, unless statistical data approved by the code official indicate a different distribution of the sexes (see also Section 403.1.1).

**403.4 Required public toilet facilities.** Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The accessible route to public facilities shall not pass through kitchens, storage rooms, closets or similar spaces. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

**403.4.1 Location of toilet facilities in occupancies other than covered malls.** In occupancies other than covered malls, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

**Exception:** The location and maximum travel distances to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum travel distance are approved.

**403.4.2 Location of toilet facilities in covered malls.** In covered mall buildings, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 300 feet (91 440 mm). In covered mall buildings, the required facilities shall be based on total square footage, and facilities shall be installed in each individual store or in a central toilet area located in accordance with this section. The maximum travel distance to central toilet facilities in covered mall buildings shall be measured from the main entrance of any store or tenant space. In covered mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum travel distance shall be measured from the employee's work area of the store or tenant space.

**403.4.3 Pay facilities.** Where pay facilities are installed, such facilities shall be in excess of the required minimum facilities. Required facilities shall be free of charge.

**403.5 Signage.** Required public facilities shall be designated by a legible sign for each sex. Signs shall be readily visible and located near the entrance to each toilet facility.

**403.6 Public facilities.** Reserved.

**403.7 Unisex toilet and bathing rooms.** In assembly and mercantile occupancies, an accessible unisex toilet room shall be provided where an aggregate of six or more male and female water closets is required. In buildings of mixed occupancy, only those water closets required for the assembly or mercantile occupancy shall be used to determine the unisex toilet room requirement. In recreational facilities where separate-sex bathing rooms are provided, an accessible unisex bathing room shall be provided. Fixtures located within unisex toilet and bathing rooms shall be included in determining the number of fixtures provided in an occupancy.

**Exception:** Where each separate-sex bathing room has only one shower or bathtub fixture, a unisex bathing room is not required.

**403.7.1 Required fixtures.** Unisex toilet and bathing rooms shall comply with Sections 403.7.2 through 403.7.7.

**403.7.2 Unisex toilet rooms.** Unisex toilet rooms shall include only one water closet and only one lavatory. A unisex bathing room in accordance with Section 403.7.3 shall be considered a unisex toilet room.

**Exception:** A urinal is permitted to be provided in addition to the water closet in a unisex toilet room.

**403.7.3 Unisex bathing rooms.** Unisex bathing rooms shall include only one shower or bathtub fixture. Unisex bathing rooms shall also include one water closet and one lavatory. Where storage facilities are provided for separate-sex bathing rooms, accessible storage facilities shall be provided for unisex bathing rooms.

**403.7.4 Location.** Unisex toilet and bathing rooms shall be located on an accessible route. Unisex toilet rooms shall be located not more than one story above or below separate-sex toilet rooms. The accessible route from any separate-sex toilet room to a unisex toilet room shall not exceed 500 feet (152 m).

**403.7.5 Prohibited location.** In passenger transportation facilities and airports, the accessible route from separate-sex toilet rooms to a unisex toilet room shall not pass through security checkpoints.

**403.7.6 Clear floor space.** Where doors swing into a unisex toilet or bathing room, a clear floor space not less than 30 inches by 48 inches (762 mm by 1219 mm) shall be provided, within the room, beyond the area of the door swing.

**403.7.7 Privacy.** Doors to unisex toilet and bathing rooms shall be securable from within the room.

**403.8 Sanitary Facilities for Public Swimming Pools.** Separate sanitary facilities shall be provided and labeled for each sex and shall be located within a 200 foot radius of the nearest water’s edge of each pool served by the facilities.

**Exception:** Where a swimming pool serves only a designated group of residential dwelling units and not the general public, poolside sanitary facilities are not required if all living units are within a 200 foot radius of the nearest water’s edge, are not over three stories in height and are each equipped with private sanitary facilities.

**403.8.1 Required fixtures.** Fixtures shall be provided as indicated on Table 403.8. An additional set of fixtures shall be provided in the men’s restroom for every 5000 square feet or major fraction thereof for pools greater than 10,000 square feet. Women’s restrooms shall have a ratio of three to two water closets provided for women as the combined total of water closets and urinals provided for men.

**403.8.2 Outside access.** Outside access to facilities shall be provided for bathers at outdoor pools. If they are not visible from any portion of the pool deck, signs shall be posed showing directions to the facilities. Directions shall be legible from any portion of the pool deck; letters shall be a minimum of 1-inch high.

**403.8.3 Sanitary facility floors.** Floors of sanitary facilities shall be constructed of concrete or other nonabsorbent materials, shall have a smooth, slip-resistant finish, and shall slope to floor drains. Carpets, duckboards and footbaths are prohibited. The intersection between the floor and walls shall be covered.

**SECTION 404  
ACCESSIBLE PLUMBING FACILITIES**

**404.1 General.**

**404.1.1 Accessibility.** The sections contained herein are plumbing fixture accessibility requirements only. For complete accessibility requirements, and associated figures, refer to *Florida Building Code, Building*, Chapter 11.

**404.2 (Florida Building Code, Building, 11-4.15) Drinking fountains and water coolers.**

**TABLE 403.8  
PUBLIC SWIMMING POOL FIXTURES REQUIRED**

SIZE	MEN'S RESTROOMS			WOMEN'S RESTROOMS	
	Urinals	WC	Lavatory	WC	Lavatory
0 - 2500 sq ft	1	1	1	1	1
2501 - 5000 sq ft	2	1	1	5	1
5001 - 7500 sq ft	2	2	2	6	2
7501 - 10,000 sq ft	3	3	3	9	3

For SI: 1 square foot = 0.0929 m<sup>2</sup>

**404.2.1 (Florida Building Code, Building, 11-4.15.1) Minimum number.** Drinking fountains or water coolers required to be accessible by *Florida Building Code, Building*, Section 11-4.1 shall comply with Section 404.2.

**404.2.2 (Florida Building Code, Building, 11-4.15.2) Spout height.** Spouts shall be no higher than 36 inches (915 mm), measured from the floor or ground surfaces to the spout outlet [see Figure 404.2.2(a)].

**404.2.3 (Florida Building Code, Building, 11-4.15.3) Spout location.** The spouts of drinking fountains and water coolers shall be at the front of the unit and shall direct the water flow in a trajectory that is parallel or nearly parallel to the front of the unit. The spout shall provide a flow of water at least 4 inches (100 mm) high so as to allow the insertion of a cup or glass under the flow of water. On an accessible drinking fountain with a round or oval bowl, the spout must be positioned so the flow of water is within 3 inches (75 mm) of the front edge of the fountain.

**404.2.4 (Florida Building Code, Building, 11-4.15.4) Controls.** Controls shall comply with Section 404.13. Unit controls shall be front mounted or side mounted near the front edge.

**404.2.5 (Florida Building Code, Building, 11-4.15.5) Clearances.**

**404.2.5.1 [Florida Building Code, Building, 11-4.15.5(1)].** Wall- and post-mounted cantilevered units shall have a clear knee space between the bottom of the apron and the floor or ground at least 27 inches (685 mm) high, 30 inches (760 mm) wide, and 17 inches to 19 inches (430 mm to 485 mm) deep [see Figure 404.2.2(a) and Figure 404.2.2(b)]. Such units shall also have a minimum clear floor space 30 inches by 48 inches (760 mm

by 1220 mm) to allow a person in a wheelchair to approach the unit facing forward.

**404.2.5.2 [Florida Building Code, Building, 11-4.15.5(2)].** Free-standing or built-in units not having a clear space under them shall have a clear floor space at least 30 inches by 48 inches (760 mm by 1220 mm) that allows a person in a wheelchair to make a parallel approach to the unit [see Figure 404.2.2(c) and Figure 404.2.2(d)]. This clear floor space shall comply with *Florida Building Code, Building*, 11-4.2.4.

**404.3 (Florida Building Code, Building, 11-4.16) Water closets.**

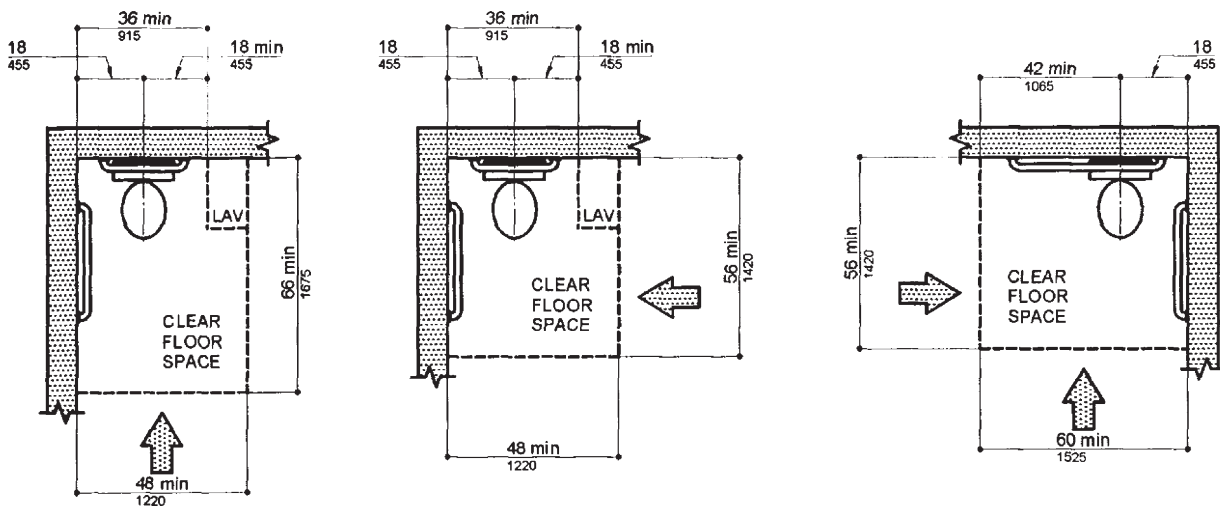
**404.3.1 (Florida Building Code, Building, 11-4.16.1) General.** Accessible water closets shall comply with Section 404.3.

**404.3.2 (Florida Building Code, Building, 11-4.16.2) Clear floor space.** Clear floor space for water closets not in stalls shall comply with Figure 404.3.2. Clear floor space may be arranged to allow either a left-handed or right-handed approach.

**404.3.3 (Florida Building Code, Building, 11-4.16.3) Height.** The height of water closets shall be 17 inches to 19 inches (430 mm to 485 mm) measured to the top of the toilet seat [see Figure 404.3.3(b)]. Seats shall not be sprung to return to a lifted position.

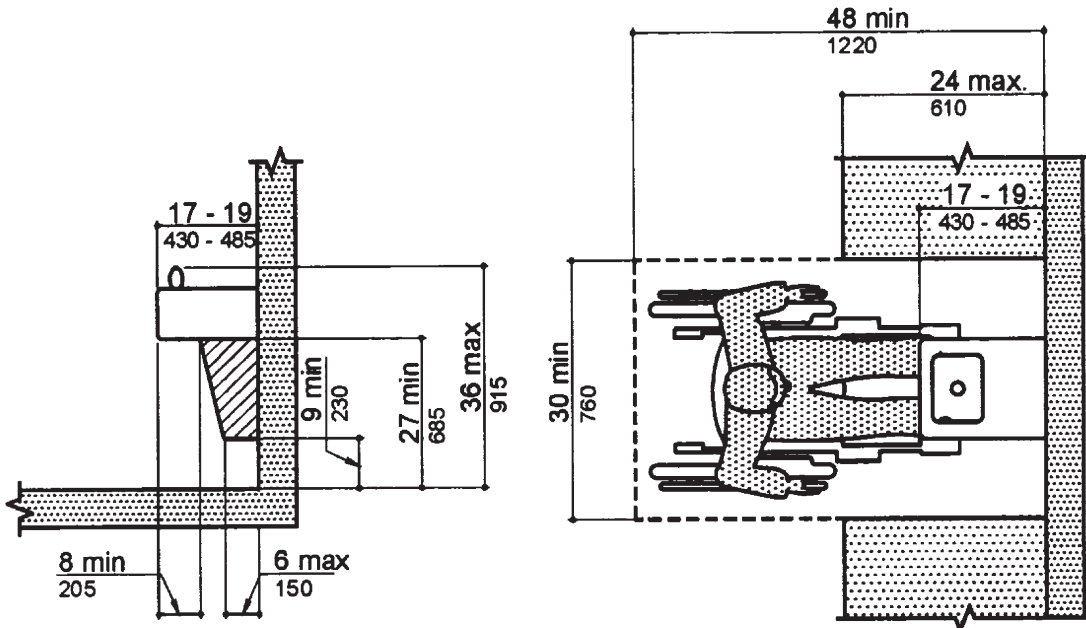
**404.3.4 (Florida Building Code, Building, 11-4.16.4) Grab bars.** Grab bars for water closets not located in stalls shall comply with Section 404.12 and Figure 404.3.3. The grab bar behind the water closet shall be 36 inches (915 mm) minimum.

**404.3.5 (Florida Building Code, Building, 11-4.16.5) Flush controls.** Flush controls shall be hand operated or



**FIGURE 404.3.2**  
**CLEAR FLOOR SPACE AT WATER CLOSETS (NOT IN STALL)**  
*Florida Building Code, Building, Chapter 11, Figure 28*

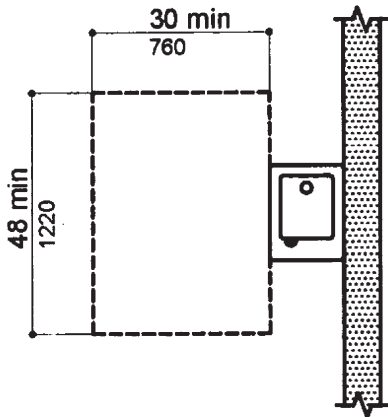
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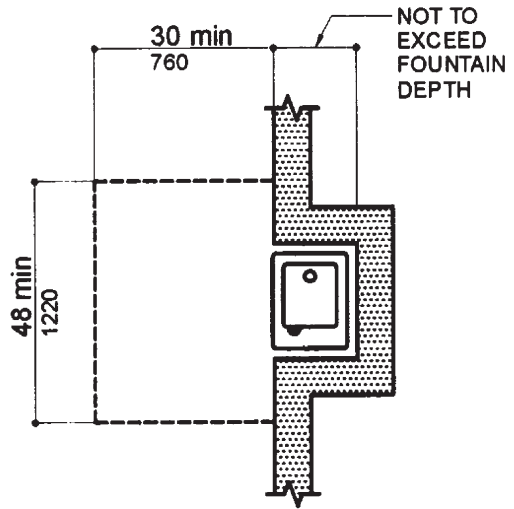
NOTE: Equipment permitted in shaded area

(a) Spout Height and Knee Clearance

(b) Clear Floor Space

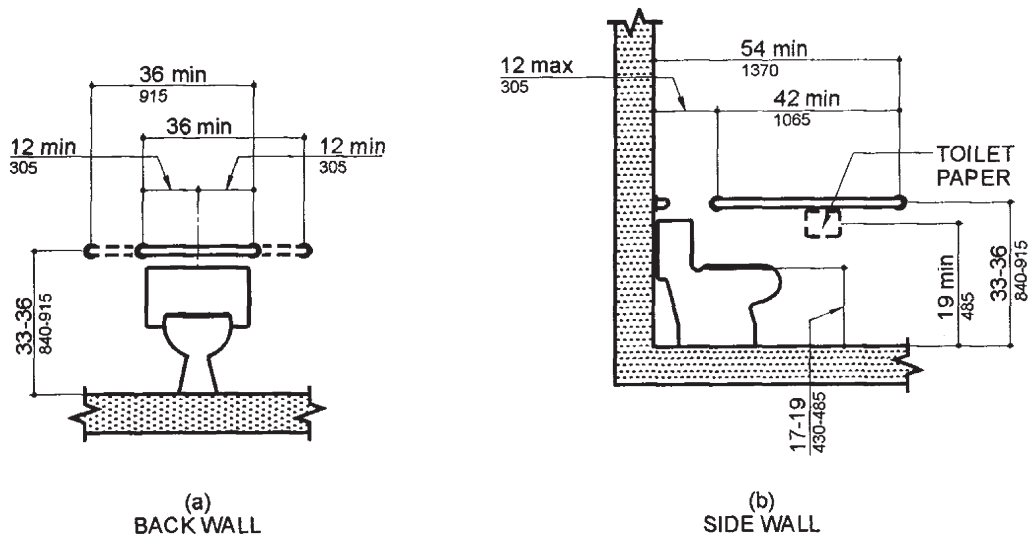


(c) Free-Standing Fountain or Cooler



(d) Built-in Fountain or Cooler

FIGURE 404.2.2  
DRINKING FOUNTAINS AND WATER COOLERS  
Florida Building Code, Building, Chapter 11, Figure 27



**FIGURE 404.3.3**  
**GRAB BARS AT WATER CLOSETS**  
*Florida Building Code, Building, Chapter 11, Figure 29*

automatic and shall comply with Section 404.13. Controls for flush valves shall be mounted on the wide side of toilet areas no more than 44 inches (1120 mm) above the floor.

**404.3.6 (Florida Building Code, Building, 11-4.16.6) Dispensers.** Toilet paper dispensers shall be installed within reach, as shown in Figure 404.3.3(b). Dispensers that control delivery, or that do not permit continuous paper flow, shall not be used.

**404.4 (Florida Building Code, Building, 11-4.17) Toilet Stalls.**

**404.4.1 (Florida Building Code, Building, 11-4.17.1) Location.** Accessible toilet stalls shall be on an accessible route and shall meet the requirements of Section 404.4.

**404.4.2 (Florida Building Code, Building, 11-4.17.2) Water Closets.** Water closets in accessible stalls shall comply with Section 404.3.

**404.4.3 (Florida Building Code, Building, 11-4.17.3) Size and Arrangement.** The size and arrangement of the standard toilet stall shall comply with Figure 404.4.3(a), Standard Stall. Standard toilet stalls with a minimum depth of 56 inches (1420 mm) [See Figure 404.4.3(a)] shall have wall-mounted water closets. If the depth of a standard toilet stall is increased at least 3 inches (75 mm), a floor-mounted water closet may be used. Arrangements shown for standard toilet stalls may be reversed to allow either a left- or right-hand approach. Additional stalls shall be provided in conformance with Section 404.9.4

**Exception:** In instances of alteration work where provision of a standard stall [See Figure 404.4.3(a)] is technically infeasible or where plumbing code requirements prevent combining existing stalls to provide space, either

alternate stall [See Figure 404.4.3(b)] may be provided in lieu of the standard stall.

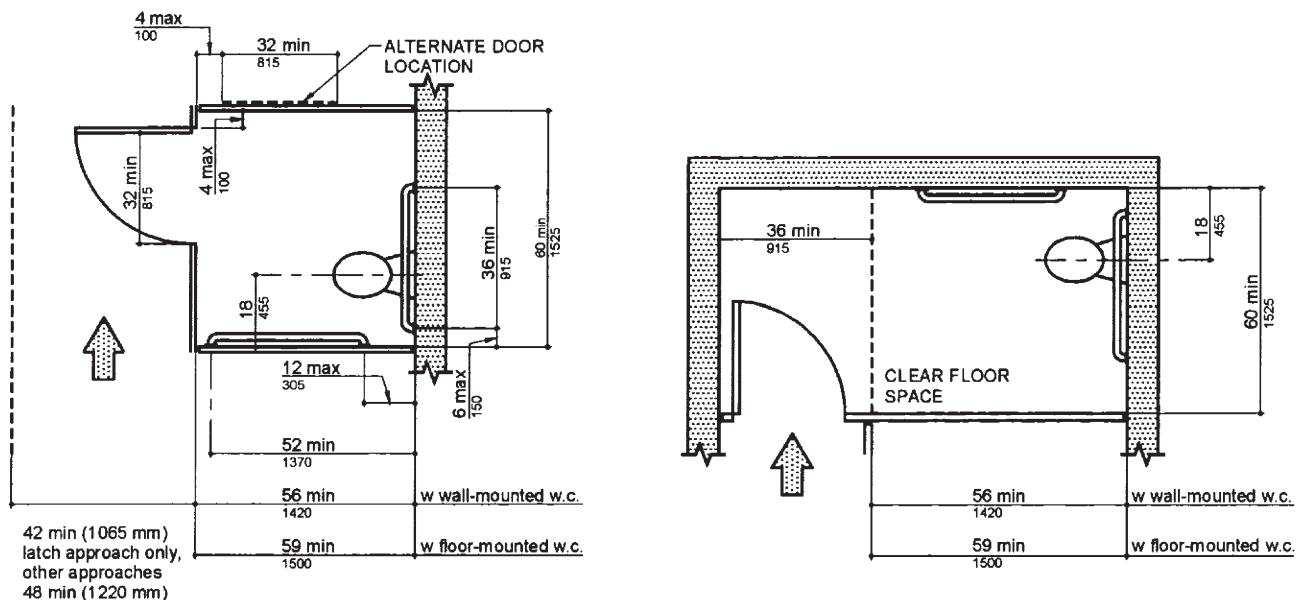
**New Construction:**

1. The standard accessible restroom stall shall contain an accessible lavatory within it, the size of such lavatory to be not less than 19 inches wide by 17 inches deep, nominal size, and wall mounted. The lavatory shall be mounted so as not to overlap the clear floor space areas required by Section 404.4 [See Fig.404.4.3 (e)] and to comply with Section 404.6 of the code. Such lavatories shall be counted as part of the required fixture count for the building.
2. The accessible water closet shall be located in the corner, diagonal to the door.

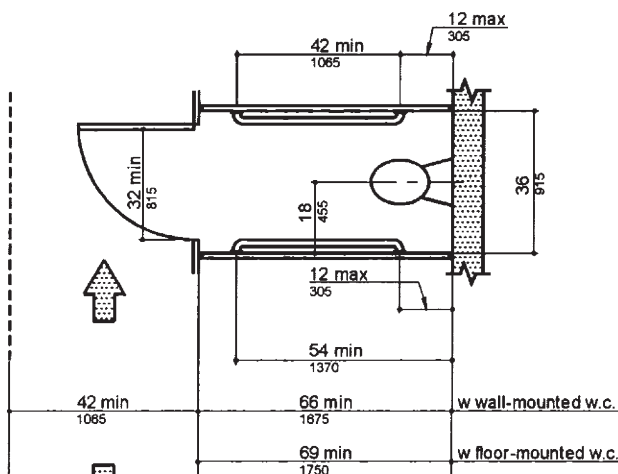
**404.4.4 (Florida Building Code, Building, 11-4.17.4) Toe Clearances.** In standard stalls, the front partition and at least one side partition shall provide a toe clearance of at least 9 inches (230 mm) above the floor. If the depth of the stall is greater than 60 inches (1525 mm), the toe clearance is not required.

**404.4.5 (Florida Building Code, Building, 11-4.17.5) Doors.** Toilet stall doors, including door hardware, shall comply with *Florida Building Code, Building*, Section 11-4.13. The doors shall be self closing. If toilet stall approach is from the latch side of the stall door, clearance between the door side of the stall and any obstruction may be reduced to a minimum of 42 inches (1065 mm) (See Fig. 404.4.3). Doors shall not swing into the clear floor space of any fixture.

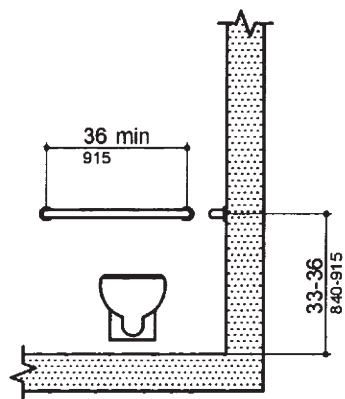
**404.4.6 (Florida Building Code, Building, 11-4.17.6) Grab Bars.** Grab bars complying with the length and positioning shown in Figure 404.4.3(a), Figure 404.4.3(b), Figure 404.4.3(c), and Figure 404.4.3(d) shall be provided.



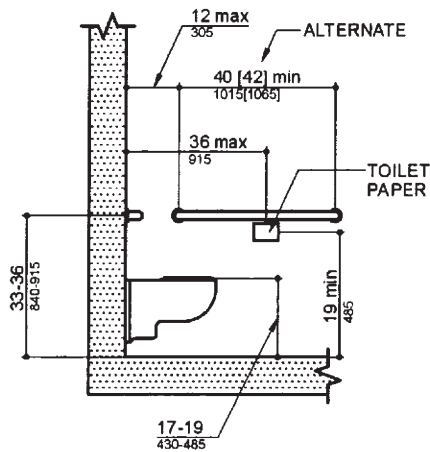
(a) Standard Stall



(b) Alternate Stalls

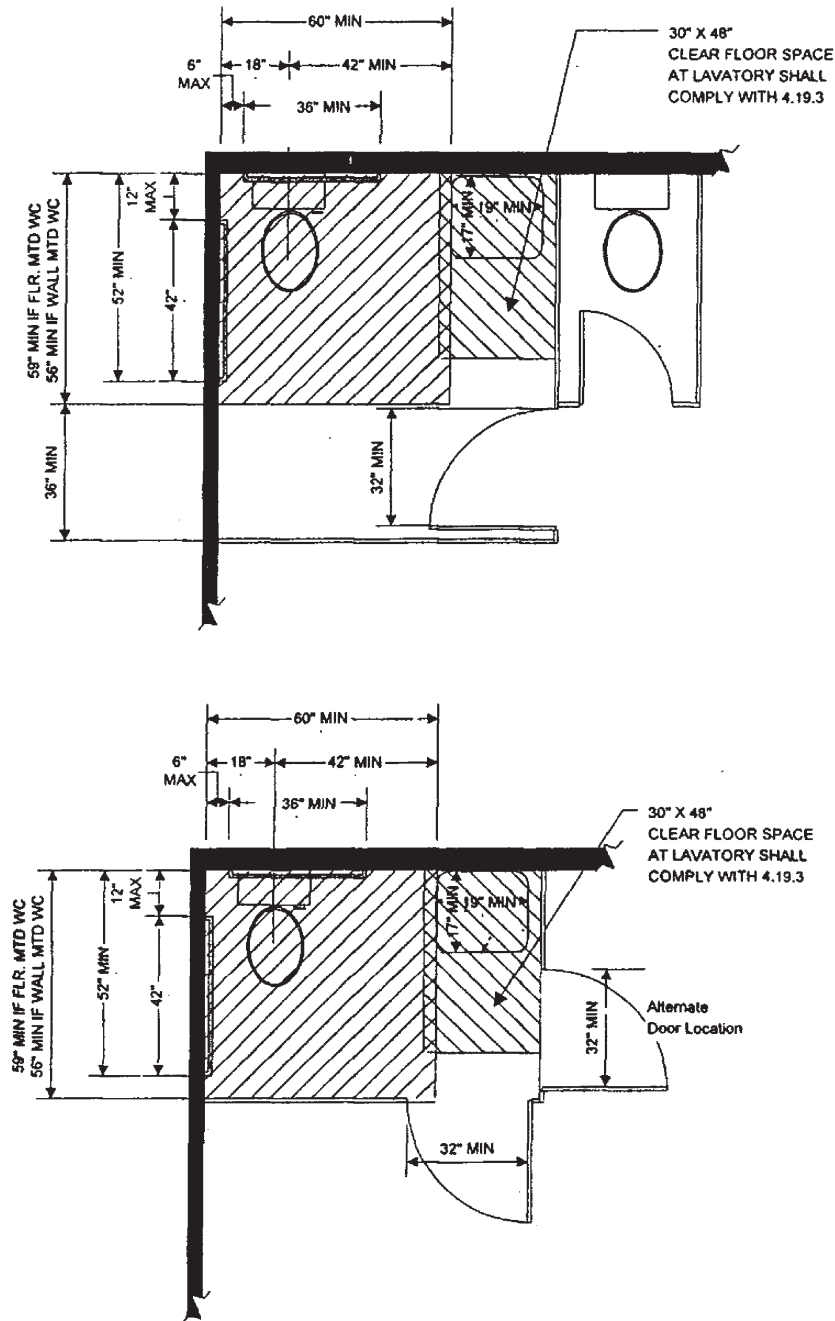


(c) Rear Wall of Standard Stall



(d) Side Walls

FIGURE 404.4.3  
TOILET STALLS  
Florida Building Code, Building, Chapter 11, Figure 30



IN NEW CONSTRUCTION, A LAVATORY SHALL BE PROVIDED WITHIN THE ACCESSIBLE TOILET STALL. THE LAVATORY SHALL NOT ENCRoACH INTO THE REQUIRED CLEAR FLOOR SPACE FOR THE WATER CLOSET. SEE FIGURE 30 (a) FOR THE REQUIRED CLEAR FLOOR SPACE FOR THE WATER CLOSET. THE LOCATION SHOWN FOR THE LAVATORY IS ONLY ONE OF MANY POSSIBLE LOCATIONS WITHIN THE ACCESSIBLE TOILET STALL. THE WATER CLOSET SHALL BE LOCATED IN THE CORNER DIAGONAL TO THE DOOR. THE TOILET STALL DOOR SHALL NOT SWING INTO THE REQUIRED CLEAR FLOOR SPACE FOR ANY FIXTURE. FLUSH CONTROL SHALL COMPLY WITH SECTION 4.16.5.

FIGURE 404.4.3(e)  
TOILET STALL NEW CONSTRUCTION  
Florida Building Code, Building, Chapter 11, Figure 30(3)

Grab bars may be mounted with any desired method as long as they have a gripping surface at the locations shown and do not obstruct the required clear floor area. Grab bars shall comply with Section 404.12.

**404.5 (Florida Building Code, Building, 11-4.18) Urinals.**

**404.5.1 (Florida Building Code, Building, 11-4.18.1) General.** Accessible urinals shall comply with Section 404.5.

**404.5.2 (Florida Building Code, Building, 11-4.18.2) Height.** Urinals shall be stall-type or wall-hung with an elongated rim at a maximum of 17 inches (430 mm) above the finish floor.

**404.5.3 (Florida Building Code, Building, 11-4.18.3) Clear Floor Space.** A clear floor space 30 inches by 48 inches (760 mm by 1220 mm) shall be provided in front of urinals to allow forward approach. This clear space shall adjoin or overlap an accessible route and shall comply with Florida Building Code, Building, Section 11-4.2.4. Urinal shields that do not extend beyond the front edge of the urinal rim may be provided with 29 inches (735 mm) clearance between them.

**404.5.4 (Florida Building Code, Building, 11-4.18.4) Flush Controls.** Flush controls shall be hand operated or automatic, and shall comply with Section 404.13, and shall be mounted no more than 44 inches (1120 mm) above the finish floor.

**404.6 (Florida Building Code, Building, 11-4.19) Lavatories and mirrors.**

**404.6.1 (Florida Building Code, Building, 11-4.19.1) General.** The requirements of Section 404.6 shall apply to lavatory fixtures, vanities and built-in lavatories.

**404.6.2 (Florida Building Code, Building, 11-4.19.2) Height and clearances.** Lavatories shall be mounted with the rim or counter surface no higher than 34 inches (865 mm) above the finish floor. Provide a clearance of at least 29 inches (735 mm) above the finish floor to the bottom of the apron. Knee and toe clearance shall comply with Figure 404.6.2.

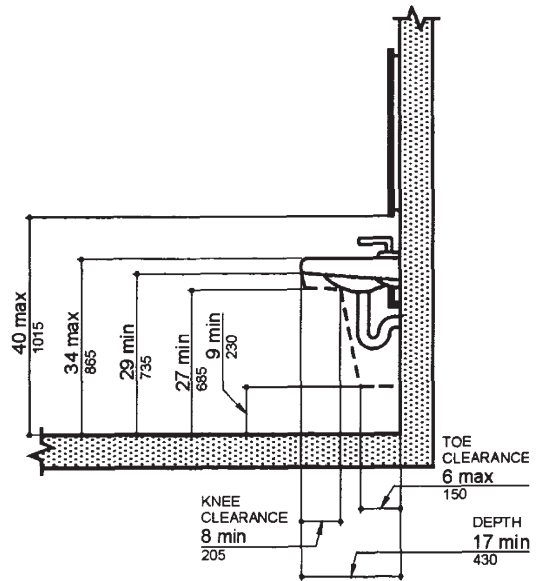
**404.6.3 (Florida Building Code, Building, 11-4.19.3) Clear floor space.** A clear floor space 30 inches by 48 inches (760 mm by 1220 mm) complying with Florida Building Code, Building, Section 11-4.2.4 shall be provided in front of a lavatory to allow forward approach. Such clear floor space shall adjoin or overlap an accessible route and shall extend a maximum of 19 inches (485 mm) underneath the lavatory (see Figure 404.6.3).

**404.6.4 (Florida Building Code, Building, 11-4.19.4) Exposed pipes and surfaces.** Hot water and drain pipes under lavatories shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories.

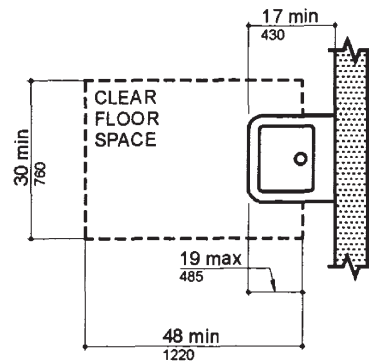
**404.6.5 (Florida Building Code, Building, 11-4.19.5) Faucets.** Faucets shall comply with Section 404.13. Lever-operated, push-type and electronically controlled mechanisms are examples of acceptable designs. If

self-closing valves are used, the faucet shall remain open for at least 10 seconds.

**404.6.6 [Florida Building Code, Building, 11-4.19.6(1)] Mirrors.** Mirrors shall be mounted with the bottom edge of the reflecting surface no higher than 40 inches (1015 mm) above the finish floor (see Figure 404.6.2).



**FIGURE 404.6.2**  
**LAVATORY CLEARANCES**  
Florida Building Code, Building, Chapter 11, Figure 31



**FIGURE 404.6.3**  
**CLEAR FLOOR SPACE AT LAVATORIES**  
Florida Building Code, Building, Chapter 11, Figure 32

**404.7 (Florida Building Code, Building, 11-4.20) Bathtubs.**

**404.7.1 (Florida Building Code, Building, 11-4.20.1) General.** Accessible bathtubs shall comply with Section 404.7.

**404.7.2 (Florida Building Code, Building, 11-4.20.2) Floor Space.** Clear floor space in front of bathtubs shall be as shown in Figure 404.7.2.

**404.7.3 (Florida Building Code, Building, 11-4.20.3) Seat.** An in-tub seat or a seat at the head end of the tub shall be provided as shown in Figure 404.7.2 and Figure 404.7.3. The structural strength of seats and their attachments shall comply with Section 404.12.3. Seats shall be mounted securely and shall not slip during use.

**404.7.4 (Florida Building Code, Building, 11-4.20.4) Grab bars.** Grab bars complying with Section 404.12 shall be provided as shown in Figure 404.7.2 and Figure 404.7.3.

**404.7.5 (Florida Building Code, Building, 11-4.20.5) Controls.** Faucets and other controls complying with Florida Building Code, Building, Section 404.13 shall be located as shown in Figure 404.7.3.

**404.7.6 (Florida Building Code, Building, 11-4.20.6) Shower unit.** A shower spray unit with a hose at least 60 inches (1525 mm) long that can be used both as a fixed shower head and as a hand-held shower shall be provided.

**404.7.7 (Florida Building Code, Building, 11-4.20.7) Bathtub enclosures.** If provided, enclosures for bathtubs shall not obstruct controls or transfer from wheelchairs onto bathtub seats or into tubs. Enclosures on bathtubs shall not have tracks mounted on their rims.

**404.8 (Florida Building Code, Building, 11-4.21) Shower Stalls.**

**404.8.1 (Florida Building Code, Building, 11-4.21.1) General.** Accessible shower stalls shall comply with Section 404.8.

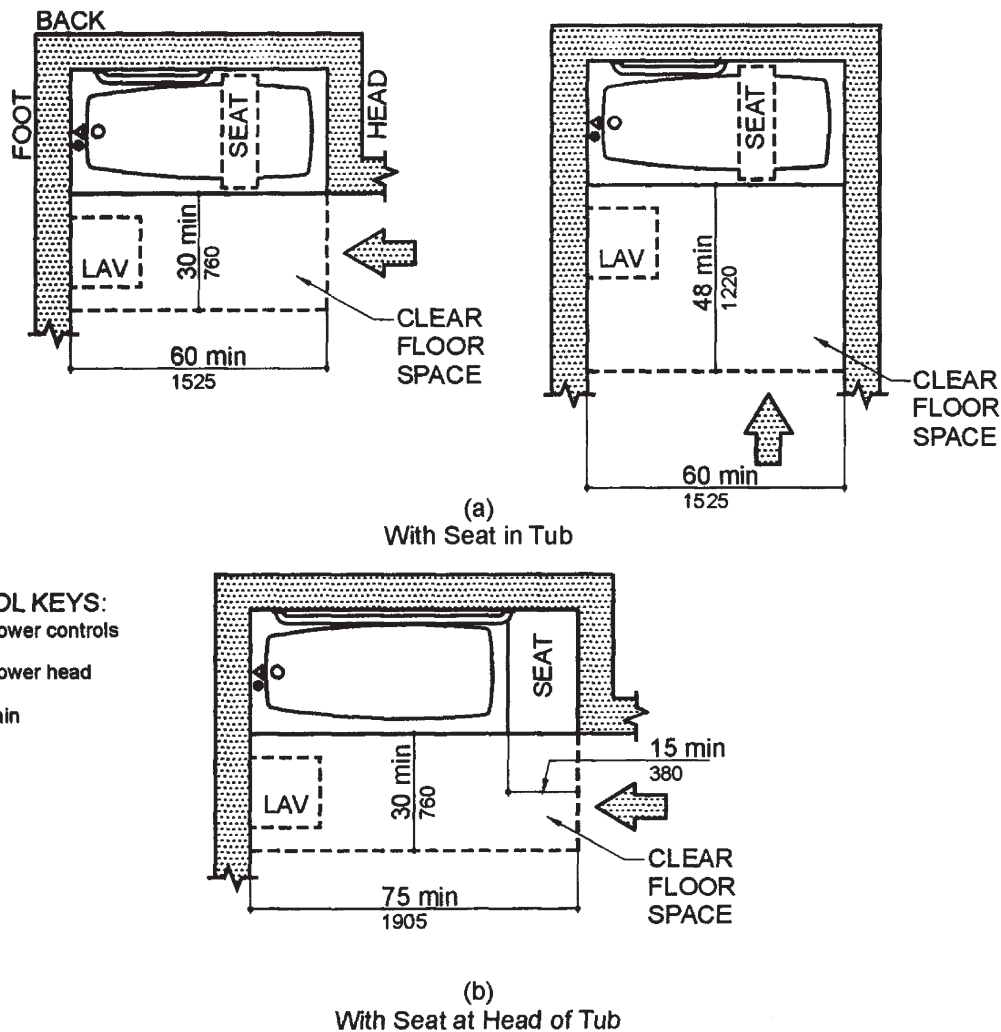
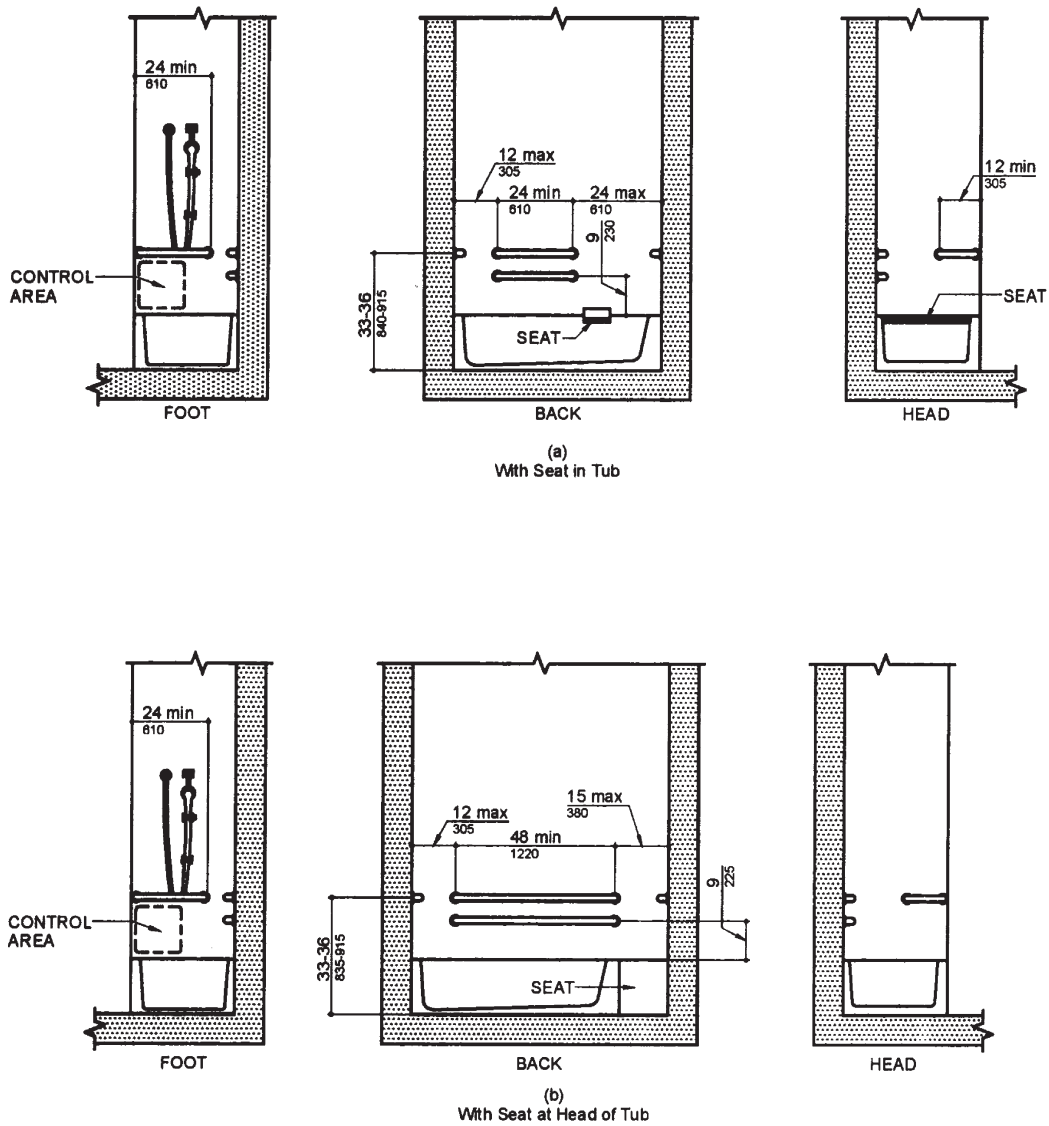


FIGURE 404.7.2  
 CLEAR FLOOR SPACE AT BATHTUBS  
 Florida Building Code, Building, Chapter 11, Figure 33



**FIGURE 404.7.3**  
**GRAB BARS AT BATHTUBS**  
*Florida Building Code, Building, Chapter 11, Figure 34*

**404.8.2 (Florida Building Code, Building, 11-4.21.2) Size and Clearances.** Except as specified in 11-9.1.2, shower stall size and clear floor space shall comply with Figure 404.8.2(1)(a) or Figure 404.8.2(1)(b). The shower stall in Figure 404.8.2(1)(a) shall be 36 inches by 36 inches (915 mm by 915 mm). Shower stalls required by *Florida Building Code, Building, 11-9.1.2* shall comply with Figure 404.8.2(2)(a) or Figure 404.8.2(2)(b). The shower stall in Figure 404.8.2(1)(b) will fit into the space required for a bathtub.

**404.8.3 (Florida Building Code, Building, 11-4.21.3) Seat.** A seat shall be provided in shower stalls 36 inches by 36 inches (915 mm by 915 mm) and shall be as shown in Figure 404.8.3. The seat shall be mounted 17 inches to 19 inches (430 mm to 485 mm) from the bathroom floor and shall extend the full depth of the stall. In a 36-inch by

36-inch (915 mm by 915 mm) shower stall, the seat shall be on the wall opposite the controls. Where a fixed seat is provided in a 30-inch by 60-inch minimum (760 mm by 1525 mm) shower stall, it shall be a folding type and shall be mounted on the wall adjacent to the controls as shown in Figure 404.8.2(2). The structural strength of seats and their attachments shall comply with Section 404.12.3.

**404.8.4 (Florida Building Code, Building, 11-4.21.4) Grab Bars.** Grab bars complying with Section 404.12 shall be provided as shown in Figure 404.8.4.

**404.8.5 (Florida Building Code, Building, 11-4.21.5) Controls.** Faucets and other controls complying with Section 404.13 shall be located as shown in Figure 404.8.4. In shower stalls 36 inches by 36 inches (915 mm by 915 mm), all controls, faucets and the shower unit shall be mounted on the side wall opposite the seat.

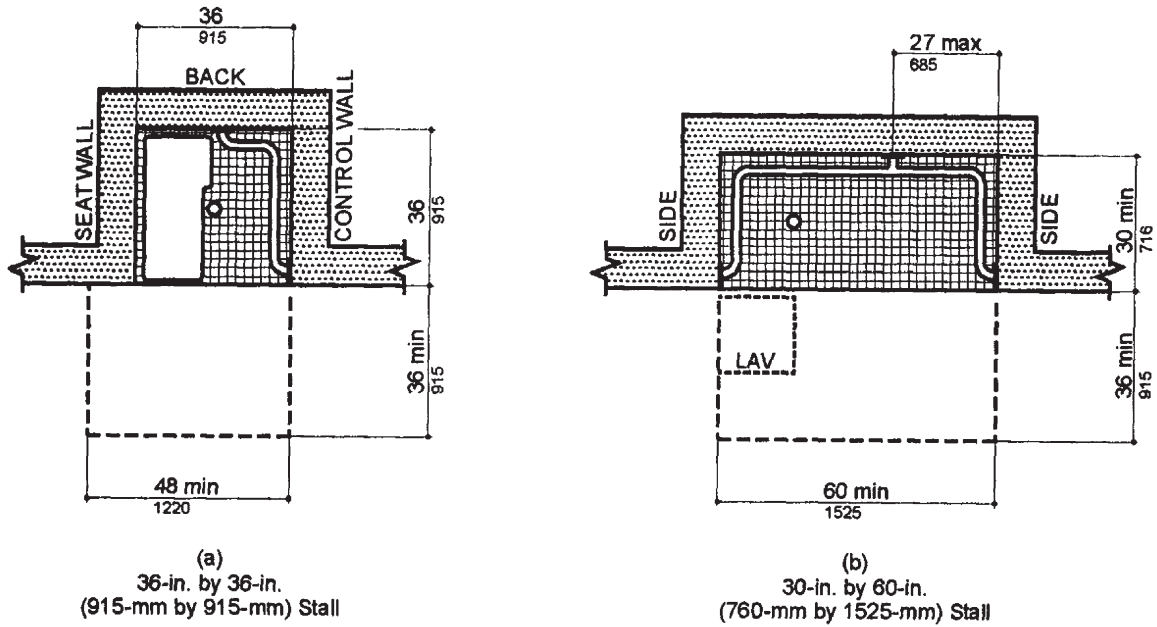


FIGURE 404.8.2(1)  
SHOWER SIZE AND CLEARANCES  
Florida Building Code, Building, Chapter 11, Figure 35

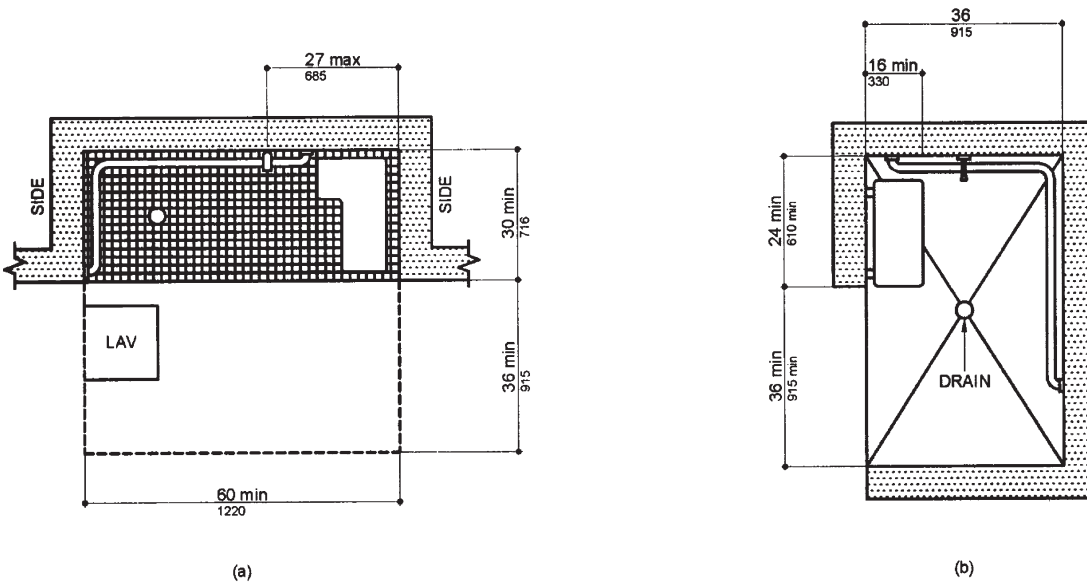
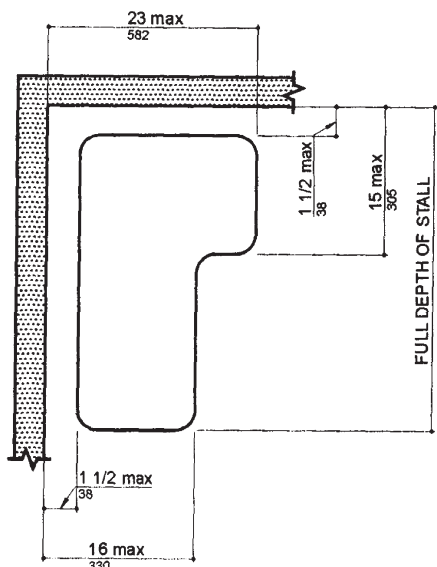


FIGURE 404.8.2(2)  
ROLL-IN SHOWER WITH FOLDING SEAT  
Florida Building Code, Building, Chapter 11, Figure 57



**FIGURE 404.8.3**  
**SHOWER SEAT DESIGN**  
*Florida Building Code, Building, Chapter 11, Figure 36*

**404.8.6 (Florida Building Code, Building, 11-4.21.6) Shower unit.** A shower spray unit with a hose at least 60 inches (1525 mm) long that can be used both as a fixed shower head and as a hand-held shower shall be provided.

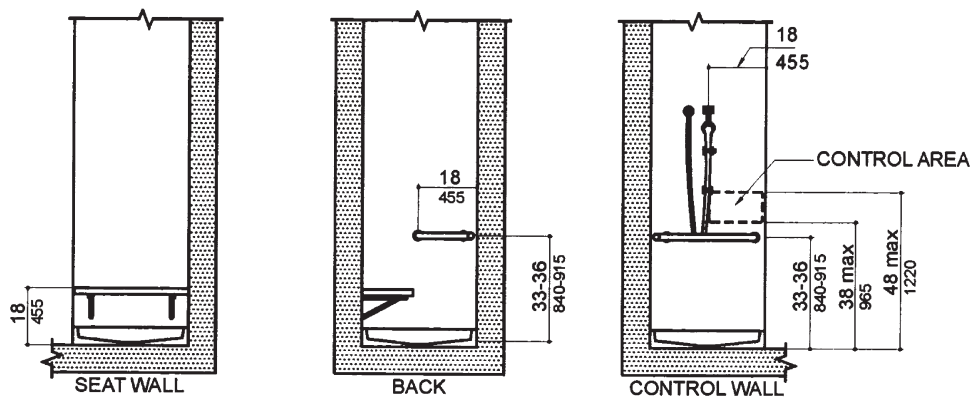
**Exception:** In unmonitored facilities where vandalism is a consideration, a fixed shower head mounted at 48 inches (1220 mm) above the shower floor may be used in lieu of a hand-held shower head.

**404.8.7 (Florida Building Code, Building, 11-4.21.7) Curbs.** If provided, curbs in shower stalls 36 inches by 36 inches (915 mm by 915 mm) shall be no higher than 1/2 inch (13 mm). Shower stalls that are 30 inches by 60 inches (760 mm by 1525 mm) minimum shall not have curbs.

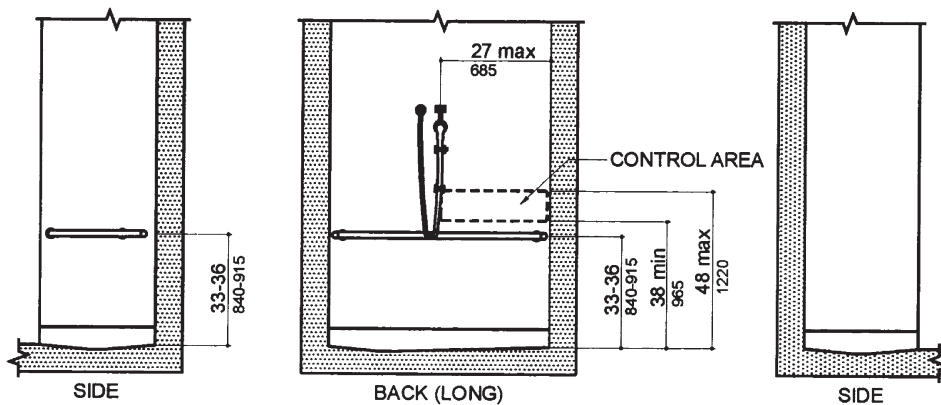
**404.8.8 (Florida Building Code, Building, 11-4.21.8) Shower enclosures.** If provided, enclosures for shower stalls shall not obstruct controls or obstruct transfer from wheelchairs onto shower seats.

**404.9 (Florida Building Code, Building, 11-4.22) Toilet Rooms**

**404.9.1 (Florida Building Code, Building, 11-4.22.1) Minimum Number.** Toilet facilities required to be accessi-



(a)  
 36-in by 36-in (915-mm by 915-mm) Stall



(b)  
 30-in by 60-in (760-mm by 1525-mm) Stall

NOTE: Shower head and control area may be on back (long) wall (as shown) or on either side wall.

**FIGURE 404.8.4**  
**GRAB BARS AT SHOWER STALLS**  
*Florida Building Code, Building, Chapter 11, Figure 37*

ble by Florida Building Code, Building, 11-4.1 shall comply with *Florida Building Code, Building*, 11-4.22. Accessible toilet rooms shall be on an accessible route.

**404.9.2 (Florida Building Code, Building, 11-4.22.2) Doors.** All doors to accessible toilet rooms shall comply with *Florida Building Code, Building*, Section 11-4.13. Doors shall not swing into the clear floor space required for any fixture.

**Exception:** All new single-family houses, duplexes, triplexes, condominiums and townhouses shall provide at least one bathroom, located with maximum possible privacy, where bathrooms are provided on habitable grade levels, with a door that has a 29 inch clear opening. However, if only a toilet room is provided at grade level, such toilet room shall have a clear opening of not less than 29 inches.

**404.9.3 (Florida Building Code, Building, 11-4.22.3) Clear Floor Space.** The accessible fixtures and controls required in Sections 404.9.4, 404.9.5, 404.9.6 and 404.9.7 shall be on an accessible route. An unobstructed turning space complying with *Florida Building Code, Building*, Section 11-4.2.3 shall be provided within an accessible toilet room. The clear floor space at fixtures and controls, the accessible route and the turning space may overlap.

**404.9.4 (Florida Building Code, Building, 11-4.22.4) Water closets.** If toilet stalls are provided, then at least one shall be a standard toilet stall complying with Section 404.4; where six or more stalls are provided, in addition to the stall complying with Section 404.4.3, at least one stall 36 inches (915 mm) wide with an outward swinging, self-closing door and parallel grab bars complying with Figures 404.4.3(d) and 404.12.2 shall be provided. Water closets in such stalls shall comply with Section 404.3. If water closets are not in stalls, then at least one shall comply with Section 404.3.

**404.9.5 (Florida Building Code, Building, 11-4.22.5) Urinals.** If urinals are provided, at least one shall comply with 404.5.

**404.9.6 (Florida Building Code, Building, 11-4.22.6) Lavatories and Mirrors.** If lavatories and mirrors are provided, then at least one of each shall comply with Section 404.6.

**404.9.7 (Florida Building Code, Building, 11-4.22.7) Controls and Dispensers.** If controls, dispensers, receptacles or other equipment are provided, then at least one of each shall be on an accessible route and shall comply with *Florida Building Code, Building*, Section 11-4.27.

**404.10 (Florida Building Code, Building, 11-4.23) Bathrooms, Bathing Facilities, and Shower Rooms.**

**404.10.1 (Florida Building Code, Building, 11-4.23.1) Minimum Number.** Bathrooms, bathing facilities, or shower rooms required to be accessible by *Florida Building Code, Building*, Section 11-4.1 shall comply with Section 404.10 and shall be on an accessible route.

**404.10.2 (Florida Building Code, Building, 11-4.23.2) Doors.** Doors to accessible bathrooms shall comply with *Florida Building Code, Building*, Section 11-4.13. Doors shall not swing into the floor space required for any fixture.

**Exception:** All new single-family houses, duplexes, triplexes, condominiums and townhouses shall provide at least one bathroom, located with maximum possible privacy, where bathrooms are provided on habitable grade levels, with a door that has a 29-inch (737 mm) clear opening. However, if only a toilet room is provided at grade level, such toilet room shall have a clear opening of not less than 29 inches (737 mm).

**404.10.3 (Florida Building Code, Building, 11-4.23.3) Clear floor space.** The accessible fixtures and controls required in Sections 404.10.4, 404.10.5, 404.10.6, 404.10.7, 404.10.8 and 404.10.9 shall be on an accessible route. An unobstructed turning space complying with *Florida Building Code, Building*, Section 11-4.2.3 shall be provided within an accessible bathroom. The clear floor spaces at fixtures and controls, the accessible route and the turning space may overlap.

**404.10.4 (Florida Building Code, Building, 11-4.23.4) Water closets.** If toilet stalls are provided, at least one shall be a standard toilet stall complying with Section 404.4; where six or more stalls are provided, in addition to the stall complying with Section 404.4.3, at least one stall 36 inches (915 mm) wide with an outward swinging, self-closing door and parallel grab bars complying with Section 404.12 and Figure 404.4.3(d) shall be provided. Water closets in such stalls shall comply with Section 404.3. If water closets are not in stalls, at least one shall comply with Section 404.3.

**404.10.5 (Florida Building Code, Building, 11-4.23.5) Urinals.** If urinals are provided, at least one shall comply with Section 404.5.

**404.10.6 (Florida Building Code, Building, 11-4.23.6) Lavatories and mirrors.** If lavatories and mirrors are provided, at least one of each shall comply with Section 404.6.

**404.10.7 (Florida Building Code, Building, 11-4.23.7) Controls and dispensers.** If controls, dispensers, receptacles or other equipment are provided, then at least one of each shall be on an accessible route and shall comply with *Florida Building Code, Building*, Section 11-4.27.

**404.10.8 (Florida Building Code, Building, 11-4.23.8) Bathing and shower facilities.** If tubs or showers are provided, at least one accessible tub that complies with Section 404.7 or at least one accessible shower that complies with Section 404.8 shall be provided.

**404.10.9 (Florida Building Code, Building, 11-4.23.9) Medicine Cabinets.** If medicine cabinets are provided, at least one shall be located with a usable shelf no higher than 44 inches (1120 mm) above the floor space. The floor space shall comply with *Florida Building Code, Building*, 11-4.2.4.

**404.11 (Florida Building Code, Building, 11-4.24) Sinks.**

**404.11.1 (Florida Building Code, Building, 11-4.24.1) General.** Sinks required to be accessible by *Florida Building Code, Building*, Section 11-4.1 shall comply with Section 404.11.

**404.11.2 (Florida Building Code, Building, 11-4.24.2) Height.** Sinks shall be mounted with the counter or rim no higher than 34 inches (865 mm) above the finish floor.

**404.11.3 (Florida Building Code, Building, 11-4.24.3) Knee clearance.** Knee clearance that is at least 27 inches (685 mm) high, 30 inches (760 mm) wide and 19 inches (485 mm) deep shall be provided underneath sinks.

**404.11.4 (Florida Building Code, Building, 11-4.24.4) Depth.** Each sink shall be a maximum of 6 1/2 inches (165 mm) deep.

**404.11.5 (Florida Building Code, Building, 11-4.24.5) Clear floor space.** A clear floor space at least 30 inches by 48 inches (760 mm by 1220 mm) complying with *Florida Building Code, Building*, Section 11-4.2.4 shall be provided in front of a sink to allow forward approach. The clear floor space shall be on an accessible route and shall extend a maximum of 19 inches (485 mm) underneath the sink (see Figure 404.6.3).

**404.11.6 (Florida Building Code, Building, 11-4.24.6) Exposed pipes and surfaces.** Hot water and drain pipes exposed under sinks shall be insulated or otherwise configured so as to protect against contact. There shall be no sharp or abrasive surfaces under sinks.

**404.11.7 (Florida Building Code, Building, 11-4.24.7) Faucets.** Faucets shall comply with Section 404.13. Lever-operated, push-type, touch-type or electronically controlled mechanisms are acceptable designs.

**404.12 (Florida Building Code, Building, 11-4.26) Handrails, grab bars, and tub and shower seats.**

**404.12.1 (Florida Building Code, Building, 11-4.26.1) General.** All handrails, grab bars and tub and shower seats required to be accessible by *Florida Building Code, Building*, Section 11-4.1, *Florida Building Code, Building*, Section 11-4.8, *Florida Building Code, Building*, Section 11-4.9, Section 404.3, 404.4, 404.7 or 404.8 shall comply with Section 404.12.

**404.12.2 (Florida Building Code, Building, 11-4.26.2) Size and Spacing of grab bars and handrails.** The diameter or width of the gripping surfaces of a handrail or grab bar shall be 1 1/4 inches to 1 1/2 inches (32 mm to 38 mm), or the shape shall provide an equivalent gripping surface. If handrails or grab bars are mounted adjacent to a wall, the space between the wall and the grab bar shall be 1/2 inches (38 mm) [see Figure 404.12.2(a), Figure 404.12.2(b), Figure 404.12.2(c), and Figure 404.12.2(e)]. Handrails may be located in a recess if the recess is a maximum of 3 inches (75 mm) deep and extends at least 18 inches (455 mm) above the top of the rail [see Figure 404.12.2(d)].

**404.12.3 (Florida Building Code, Building, 11-4.26.3) Structural strength.** The structural strength of grab bars, tub and shower seats, fasteners and mounting devices shall meet the following specification:

1. Bending stress in a grab bar or seat induced by the maximum bending moment from the application of 250 pound-force (1112 N) shall be less than the

allowable stress for the material of the grab bar or seat.

2. Shear stress induced in a grab bar or seat by the application of 250 pound foot (1112 N) shall be less than the allowable shear stress for the material of the grab bar or seat. If the connection between the grab bar or seat and its mounting bracket or other support is considered to be fully restrained, direct and torsional shear stresses shall be totaled for the combined shear stress, which shall not exceed the allowable shear stress.
3. Shear force induced in a fastener or mounting device from the application of 250 pound-force (1112 N) shall be less than the allowable lateral load of either the fastener or mounting device or the supporting structure, whichever is the smaller allowable load.
4. Tensile force induced in a fastener by a direct tension force of 250 pound-force (1112 N) plus the maximum moment from the application of 250 pound-force (1112 N) shall be less than the allowable withdrawal load between the fastener and the supporting structure.
5. Grab bars shall not rotate within their fittings.

**404.12.4 (Florida Building Code, Building, 11-4.26.4) Eliminating hazards.** A handrail or grab bar and any wall or other surface adjacent to it shall be free of any sharp or abrasive elements. Edges shall have a minimum radius of 1/8 inch (3.2 mm).

**404.13 (Florida Building Code, Building, 11-4.27.4) Operation.** Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 pounds-force (22.2 N).

**SECTION 405  
INSTALLATION OF FIXTURES**

**405.1 Water supply protection.** The supply lines and fittings for every plumbing fixture shall be installed so as to prevent backflow.

**405.2 Access for cleaning.** Plumbing fixtures shall be installed so as to afford easy access for cleaning both the fixture and the area around the fixture.

**405.3 Setting.** Fixtures shall be set level and in proper alignment with reference to adjacent walls.

**405.3.1 Water closets, urinals, lavatories and bidets.** A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction, or closer than 30 inches (762 mm) center-to-center between adjacent fixtures. There shall be at least a 21-inch (533 mm) clearance in front of the water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall not be less than 30 inches (762 mm) wide and 60 inches (1524 mm) deep (see Figure 405.3.1).

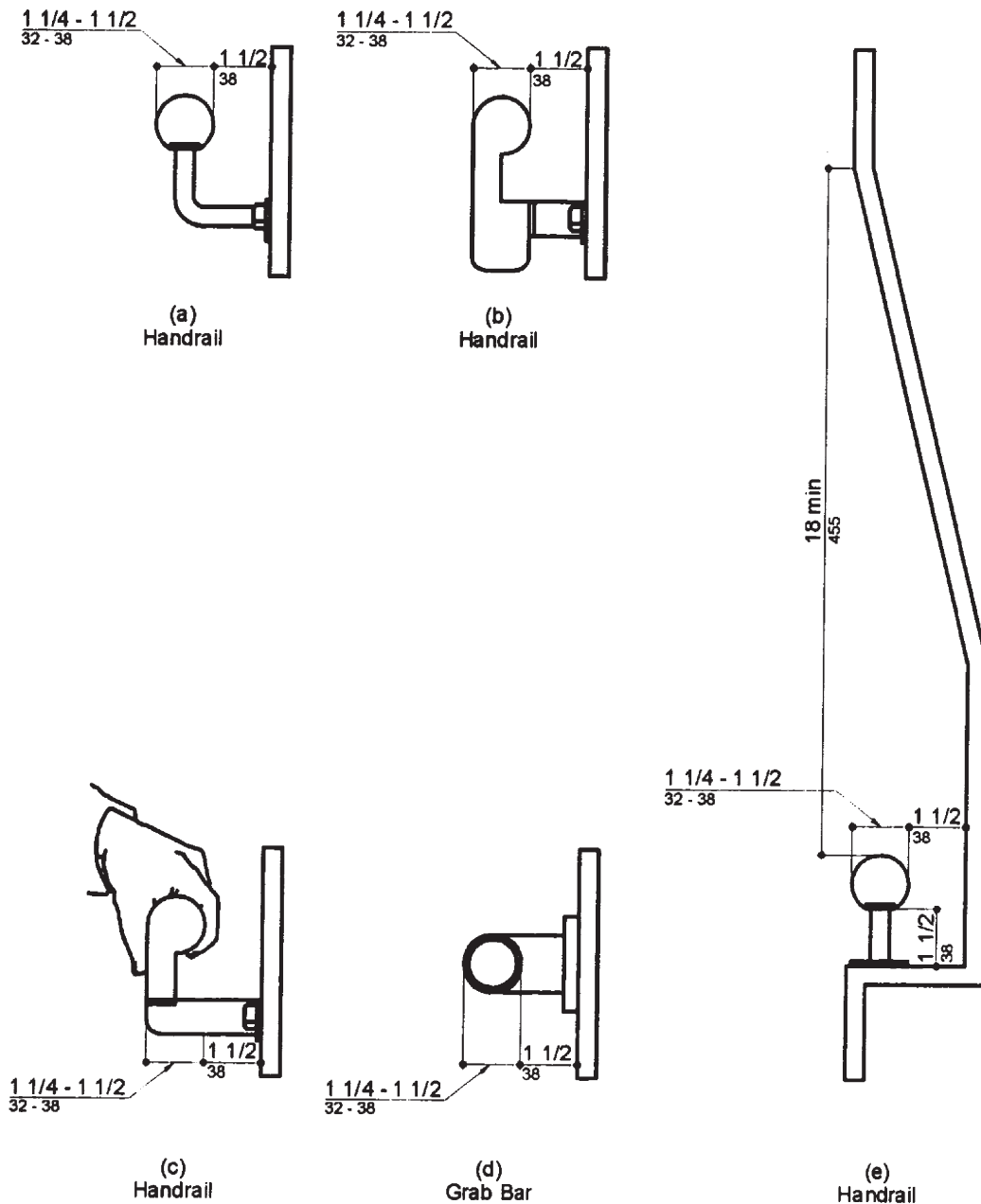


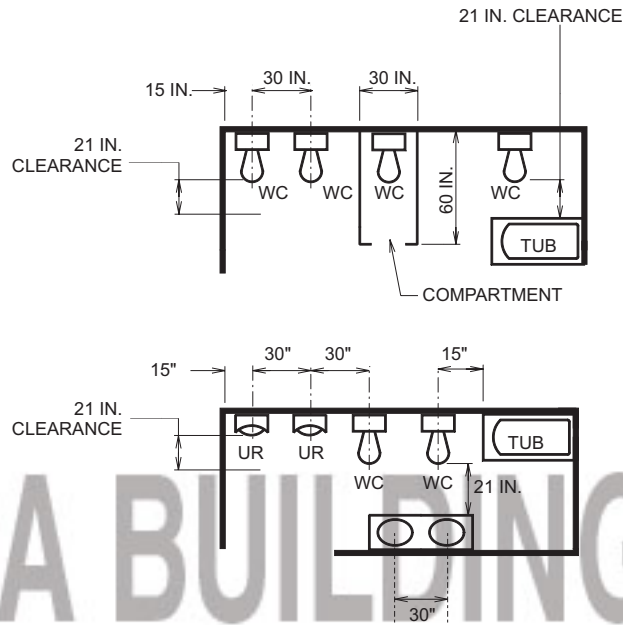
FIGURE 404.12.2  
SIZE AND SPACING OF HANDRAILS AND GRAB BARS  
Florida Building Code, Building, Chapter 11, Figure 39

**405.3.2 Public lavatories.** In employee and public toilet rooms, the required lavatory shall be located in the same room as the required water closet.

**405.4 Floor and wall drainage connections.** Connections between the drain and floor outlet plumbing fixtures shall be made with a floor flange. The flange shall be attached to the drain and anchored to the structure. Connections between the drain and wall-hung water closets shall be made with an approved extension nipple or horn adaptor. The water closet

shall be bolted to the hanger with corrosion-resistant bolts or screws. Joints shall be sealed with an approved elastomeric gasket, flange-to-fixture connection complying with ASME A112.4.3 or an approved setting compound.

**405.4.1 Floor flanges.** Floor flanges for water closets or similar fixtures shall not be less than 0.125 inch (3.2 mm) thick for brass, 0.25 inch (6.4 mm) thick for plastic, and 0.25 inch (6.4 mm) thick and not less than a 2-inch (51 mm) caulking depth for cast-iron or galvanized malleable iron.



**FIGURE 405.3.1  
FIXTURE CLEARANCE**

Floor flanges of hard lead shall weigh not less than 1 pound, 9 ounces (0.7 kg) and shall be composed of lead alloy with not less than 7.75-percent antimony by weight. Closet screws and bolts shall be of brass. Flanges shall be secured to the building structure with corrosion-resistant screws or bolts.

**405.4.2 Securing floor outlet fixtures.** Floor outlet fixtures shall be secured to the floor or floor flanges by screws or bolts of corrosion-resistant material.

**405.4.3 Securing wall-hung water closet bowls.** Wall-hung water closet bowls shall be supported by a concealed metal carrier that is attached to the building structural members so that strain is not transmitted to the closet connector or any other part of the plumbing system. The carrier shall conform to ASME A112.6.1M or ASME A112.6.2.

**405.5 Water-tight joints.** Joints formed where fixtures come in contact with walls or floors shall be sealed.

**405.6 Plumbing in mental health centers.** In mental health centers, pipes or traps shall not be exposed, and fixtures shall be bolted through walls.

**405.7 Design of overflows.** Where any fixture is provided with an overflow, the waste shall be designed and installed so that standing water in the fixture will not rise in the overflow when the stopper is closed, and no water will remain in the overflow when the fixture is empty.

**405.7.1 Connection of overflows.** The overflow from any fixture shall discharge into the drainage system on the inlet or fixture side of the trap.

**Exception:** The overflow from a flush tank serving a water closet or urinal shall discharge into the fixture served.

**405.8 Slip joint connections.** Slip joints shall be made with an approved elastomeric gasket and shall only be installed on the trap outlet, trap inlet and within the trap seal. Fixtures with concealed slip-joint connections shall be provided with an access panel or utility space at least 12 inches (305 mm) in its smallest dimension or other approved arrangement so as to provide access to the slip joint connections for inspection and repair.

**405.9 Design and installation of plumbing fixtures.** Integral fixture fitting mounting surfaces on manufactured plumbing fixtures or plumbing fixtures constructed on site, shall meet the design requirements of ASME A112.19.2M or ASME A112.19.3M.

**SECTION 406  
AUTOMATIC CLOTHES WASHERS**

**406.1 Approval.** Domestic automatic clothes washers shall conform to ASSE 1007.

**406.2 Water connection.** The water supply to an automatic clothes washer shall be protected against backflow by an air gap installed integrally within the machine conforming to ASSE 1007 or with the installation of a backflow preventer in accordance with Section 608.

**406.3 Waste connection.** The waste from an automatic clothes washer shall discharge through an air break into a standpipe in accordance with Section 802.4 or into a laundry sink. The trap and fixture drain for an automatic clothes washer standpipe shall be a minimum of 2 inches (51 mm) in diameter. The auto-

matic clothes washer fixture drain shall connect to a branch drain or drainage stack a minimum of 3 inches (76 mm) in diameter. Automatic clothes washers that discharge by gravity shall be permitted to drain to a waste receptor or an approved trench drain.

**SECTION 407  
BATHTUBS**

**407.1 Approval.** Bathtubs shall conform to ANSI Z124.1, ASME A112.19.1M, ASME A112.19.4M, ASME A112.19.9M, CSA B45.2, CSA B45.3 or CSA B45.5.

**407.2 Bathtub waste outlets.** Bathtubs shall have waste outlets a minimum of 1.5 inches (38 mm) in diameter. The waste outlet shall be equipped with an approved stopper.

**407.3 Glazing.** Windows and doors within a bathtub enclosure shall conform to the safety glazing requirements of the *Florida Building Code, Building*.

**407.4 Bathtub enclosure.** Doors within a bathtub enclosure shall conform to ASME A112.19.15.

**SECTION 408  
BIDETS**

**408.1 Approval.** Bidets shall conform to ASME A112.19.2M, ASME A112.19.9M or CSA B45.1.

**408.2 Water connection.** The water supply to a bidet shall be protected against backflow by an air gap or backflow preventer in accordance with Section 608.13.1, 608.13.2, 608.13.3, 608.13.5, 608.13.6 or 608.13.8.

**408.3 Bidet water temperature.** The discharge water temperature from a bidet fitting shall be limited to a maximum temperature of 110°F (43°C) by a water temperature limiting device conforming to ASSE 1070.

**SECTION 409  
DISHWASHING MACHINES**

**409.1 Approval.** Domestic dishwashing machines shall conform to ASSE 1006. Commercial dishwashing machines shall conform to ASSE 1004 and NSF 3.

**409.2 Water connection.** The water supply to a dishwashing machine shall be protected against backflow by an air gap or backflow preventer in accordance with Section 608.

**409.3 Waste connection.** The waste connection of a dishwashing machine shall comply with Section 802.1.6 or 802.1.7, as applicable.

**SECTION 410  
DRINKING FOUNTAINS**

**410.1 Approval.** Drinking fountains shall conform to ASME A112.19.1M, ASME A112.19.2M or ASME A112.19.9M and water coolers shall conform to ARI 1010. Drinking fountains and water coolers shall conform to NSF 61, Section 9. Where water is served in restaurants, drinking fountains shall not be required. In other occupancies, where drinking fountains are

required, water coolers or bottled water dispensers shall be permitted to be substituted for not more than 50 percent of the required drinking fountains.

**410.2 Prohibited location.** Drinking fountains shall not be installed in public restrooms.

**SECTION 411  
EMERGENCY SHOWERS AND  
EYEWASH STATIONS**

**411.1 Approval.** Emergency showers and eyewash stations shall conform to ISEA Z358.1.

**411.2 Waste connection.** Waste connections shall not be required for emergency showers and eyewash stations.

**SECTION 412  
FLOOR AND TRENCH DRAINS**

**412.1 Approval.** Floor drains shall conform to ASME A112.6.3, ASME A112.3.1 or CSA B79. Trench drains shall comply with ASME A112.6.3.

**412.2 Floor drains.** Floor drains shall have removeable strainers. The floor drain shall be constructed so that the drain is capable of being cleaned. Access shall be provided to the drain inlet.

**412.3 Size of floor drains.** Floor drains shall have a minimum 2-inch-diameter (51 mm) drain outlet.

**412.4 Public laundries and central washing facilities.** In public coin-operated laundries and in the central washing facilities of multiple-family dwellings, the rooms containing automatic clothes washers shall be provided with floor drains located to readily drain the entire floor area. Such drains shall have a minimum outlet of not less than 3 inches (76 mm) in diameter.

**SECTION 413  
FOOD WASTE GRINDER UNITS**

**413.1 Approval.** Domestic food waste grinders shall conform to ASSE 1008. Commercial food waste grinders shall conform to ASSE 1009. Food waste grinders shall not increase the drainage fixture unit load on the sanitary drainage system.

**413.2 Domestic food waste grinder waste outlets.** Domestic food waste grinders shall be connected to a drain of not less than 1.5 inches (38 mm) in diameter.

**413.3 Commercial food waste grinder waste outlets.** Commercial food waste grinders shall be connected to a drain a minimum of 2 inches (51 mm) in diameter. Commercial food waste grinders shall be connected and trapped separately from any other fixtures or sink compartments.

**413.4 Water supply required.** All food waste grinders shall be provided with a supply of cold water.

### SECTION 414 GARBAGE CAN WASHERS

**414.1 Water connection.** The water supply to a garbage can washer shall be protected against backflow by an air gap or a backflow preventer in accordance with Section 608.13.1, 608.13.2, 608.13.3, 608.13.5, 608.13.6 or 608.13.8.

**414.2 Waste connection.** Garbage can washers shall be trapped separately. The receptacle receiving the waste from the washer shall have a removable basket or strainer to prevent the discharge of large particles into the drainage system.

### SECTION 415 LAUNDRY TRAYS

**415.1 Approval.** Laundry trays shall conform to ANSI Z124.6, ASME A112.19.1M, ASME A112.19.3M, ASME A112.19.9M, CSA B45.2 or CSA B45.4.

**415.2 Waste outlet.** Each compartment of a laundry tray shall be provided with a waste outlet a minimum of 1.5 inches (38 mm) in diameter and a strainer or crossbar to restrict the clear opening of the waste outlet.

### SECTION 416 LAVATORIES

**416.1 Approval.** Lavatories shall conform to ANSI Z124.3, ASME A112.19.1M, ASME A112.19.2M, ASME A112.19.3M, ASME A112.19.4M, ASME A112.19.9M, CSA B45.1, CSA B45.2, CSA B45.3 or CSA B45.4. Group wash-up equipment shall conform to the requirements of Section 402. Every 20 inches (508 mm) of rim space shall be considered as one lavatory.

**416.2 Cultured marble lavatories.** Cultured marble vanity tops with an integral lavatory shall conform to ANSI Z124.3 or CSA B45.5.

**416.3 Lavatory waste outlets.** Lavatories shall have waste outlets not less than 1.25 inches (32 mm) in diameter. A strainer, pop-up stopper, crossbar or other device shall be provided to restrict the clear opening of the waste outlet.

**416.4 Moveable lavatory systems.** Moveable lavatory systems shall comply with ASME A112.19.12.

**416.5 Tempered water for public hand-washing facilities.** Tempered water shall be delivered from public hand-washing facilities through an approved water temperature limiting device that conforms to ASSE 1070.

### SECTION 417 SHOWERS

**417.1 Approval.** Prefabricated showers and shower compartments shall conform to ANSI Z124.2, ASME A112.19.9M or CSA B45.5. Shower valves for individual showers shall conform to the requirements of Section 424.3.

**417.2 Water supply riser.** Every water supply riser from the shower valve to the shower head outlet, whether exposed or not, shall be attached to the structure in an approved manner.

**417.3 Shower waste outlet.** Waste outlets serving showers shall be at least 1½ inches (38 mm) in diameter and, for other than waste outlets in bathtubs, shall have removable strainers not less than 3 inches (76 mm) in diameter with strainer openings not less than 0.25 inch (6.4 mm) in minimum dimension. Where each shower space is not provided with an individual waste outlet, the waste outlet shall be located and the floor pitched so that waste from one shower does not flow over the floor area serving another shower. Waste outlets shall be fastened to the waste pipe in an approved manner.

**417.4 Shower compartments.** All shower compartments shall have a minimum of 900 square inches (0.58 m<sup>2</sup>) of interior cross-sectional area. Shower compartments shall not be less than 30 inches (762 mm) in minimum dimension measured from the finished interior dimension of the compartment, exclusive of fixture valves, showerheads, soap dishes, and safety grab bars or rails. Except as required in Section 404, the minimum required area and dimension shall be measured from the finished interior dimension at a height equal to the top of the threshold and at a point tangent to its centerline and shall be continued to a height not less than 70 inches (1778 mm) above the shower drain outlet.

**Exception:** Shower compartments having not less than 25 inches (635 mm) in minimum dimension measured from the finished interior dimension of the compartment, provided that the shower compartment has a minimum of 1,300 square inches (.838 m<sup>2</sup>) of cross-sectional area.

**417.4.1 Wall area.** The wall area above built-in tubs with installed shower heads and in shower compartments shall be constructed of smooth, noncorrosive and nonabsorbent waterproof materials to a height not less than 6 feet (1829 mm) above the room floor level, and not less than 70 inches (1778 mm) where measured from the compartment floor at the drain. Such walls shall form a water-tight joint with each other and with either the tub, receptor or shower floor.

**417.4.2 Access.** The shower compartment access and egress opening shall have a minimum clear and unobstructed finished width of 22 inches (559 mm). Shower compartments required to be designed in conformance to accessibility provisions shall comply with Section 404.1.

**417.5 Shower floors or receptors.** Floor surfaces shall be constructed of impervious, noncorrosive, nonabsorbent and waterproof materials.

**417.5.1 Support.** Floors or receptors under shower compartments shall be laid on, and supported by, a smooth and structurally sound base.

**417.5.2 Shower lining.** Floors under shower compartments, except where prefabricated receptors have been provided, shall be lined and made water tight utilizing material complying with Sections 417.5.2.1 through 417.5.2.4. Such liners shall turn up on all sides at least 2 inches (51 mm) above the finished threshold level. Liners shall be recessed and fastened to an approved backing so as not to occupy the space required for wall covering, and shall not be nailed or perforated at any point less than 1 inch (25 mm) above the finished threshold. Liners shall be pitched one-fourth unit vertical in 12 units horizontal (2-percent slope) and shall be sloped toward the fixture drains and be securely fastened to

the waste outlet at the seepage entrance, making a water-tight joint between the liner and the outlet.

**Exceptions:**

1. Floor surfaces under shower heads provided for rinsing laid directly on the ground are not required to comply with this section.
2. Shower compartments where the finished shower drain is depressed a minimum of 2 inches (51 mm) below the surrounding finished floor on the first floor level and the shower recess is poured integrally with the adjoining floor.

**417.5.2.1 PVC sheets.** Plasticized polyvinyl chloride (PVC) sheets shall be a minimum of 0.040 inch (1.02 mm) thick, and shall meet the requirements of ASTM D 4551. Sheets shall be joined by solvent welding in accordance with the manufacturer's installation instructions.

**417.5.2.2 Chlorinated polyethylene (CPE) sheets.** Nonplasticized chlorinated polyethylene sheet shall be a minimum 0.040 inch (1.02 mm) thick, and shall meet the requirements of ASTM D 4068. The liner shall be joined in accordance with the manufacturer's installation instructions.

**417.5.2.3 Sheet lead.** Sheet lead shall not weigh less than 4 pounds per square foot (19.5 kg/m<sup>2</sup>) coated with an asphalt paint or other approved coating. The lead sheet shall be insulated from conducting substances other than the connecting drain by 15-pound (6.80 kg) asphalt felt or its equivalent. Sheet lead shall be joined by burning.

**417.5.2.4 Sheet copper.** Sheet copper shall conform to ASTM B 152 and shall not weigh less than 12 ounces per square foot (3.7 kg/m<sup>2</sup>). The copper sheet shall be insulated from conducting substances other than the connecting drain by 15-pound (6.80 kg) asphalt felt or its equivalent. Sheet copper shall be joined by brazing or soldering.

**417.6 Glazing.** Windows and doors within a shower enclosure shall conform to the safety glazing requirements of the *Florida Building Code, Building*.

**SECTION 418  
SINKS**

**418.1 Approval.** Sinks shall conform to ANSI Z124.6, ASME A112.19.1M, ASME A112.19.2M, ASME A112.19.3M, ASME A112.19.4M, ASME A112.19.9M, CSA B45.1, CSA B45.2, CSA B45.3 or CSA B45.4.

**418.2 Sink waste outlets.** Sinks shall be provided with waste outlets a minimum of 1.5 inches (38 mm) in diameter. A strainer or crossbar shall be provided to restrict the clear opening of the waste outlet.

**418.3 Moveable sink systems.** Moveable sink systems shall comply with ASME A112.19.12.

**SECTION 419  
URINALS**

**419.1 Approval.** Urinals shall conform to ANSI Z124.9, ASME A112.19.2M, CSA B45.1 or CSA B45.5. Urinals shall conform to the water consumption requirements of Section 604.4. Water supplied urinals shall conform to the hydraulic performance requirements of ASME A112.19.6, CSA B45.1 or CSA B45.5.

**419.2 Substitution for water closets.** In each bathroom or toilet room, urinals shall not be substituted for more than 67 percent of the required water closets in assembly and educational occupancies. Urinals shall not be substituted for more than 50 percent of the required water closets in all other occupancies.

**[B] 419.3 Surrounding material.** Wall and floor space to a point 2 feet (610 mm) in front of a urinal lip and 4 feet (1219 mm) above the floor and at least 2 feet (610 mm) to each side of the urinal shall be waterproofed with a smooth, readily cleanable, nonabsorbent material.

**SECTION 420  
WATER CLOSETS**

**420.1 Approval.** Water closets shall conform to the water consumption requirements of Section 604.4 and shall conform to ANSI Z124.4, ASME A112.19.2M, CSA B45.1, CSA B45.4 or CSA B45.5. Water closets shall conform to the hydraulic performance requirements of ASME A112.19.6. Water closet tanks shall conform to ANSI Z124.4, ASME A112.19.2, ASME A112.19.9M, CSA B45.1, CSA B45.4 or CSA B45.5. Electro-hydraulic water closets shall comply with ASME A112.19.13.

**420.2 Water closets for public or employee toilet facilities.** Water closet bowls for public or employee toilet facilities shall be of the elongated type.

**420.3 Water closet seats.** Water closets shall be equipped with seats of smooth, nonabsorbent material. All seats of water closets provided for public or employee toilet facilities shall be of the hinged open-front type. Integral water closet seats shall be of the same material as the fixture. Water closet seats shall be sized for the water closet bowl type.

**420.4 Water closet connections.** A 4-inch by 3-inch (102 mm by 76 mm) closet bend shall be acceptable. Where a 3-inch (76 mm) bend is utilized on water closets, a 4-inch by 3-inch (102 mm by 76 mm) flange shall be installed to receive the fixture horn.

**SECTION 421  
WHIRLPOOL BATHTUBS**

**421.1 Approval.** Whirlpool bathtubs shall comply with ASME A112.19.7M or with CSA B45.5 and CSA B45 (Supplement 1).

**421.2 Installation.** Whirlpool bathtubs shall be installed and tested in accordance with the manufacturer's installation instructions. The pump shall be located above the weir of the fixture trap.

**421.3 Drain.** The pump drain and circulation piping shall be sloped to drain the water in the volute and the circulation piping when the whirlpool bathtub is empty.

**421.4 Suction fittings.** Suction fittings for whirlpool bathtubs shall comply with ASME A112.19.8M.

**421.5 Access to pump.** Access shall be provided to circulation pumps in accordance with the fixture or pump manufacturer's installation instructions. Where the manufacturer's instructions do not specify the location and minimum size of field-fabricated access openings, a 12-inch by 12-inch (305 mm by 305 mm) minimum sized opening shall be installed to provide access to the circulation pump. Where pumps are located more than 2 feet (609 mm) from the access opening, an 18-inch by 18-inch (457 mm by 457 mm) minimum sized opening shall be installed. A door or panel shall be permitted to close the opening. In all cases, the access opening shall be unobstructed and of the size necessary to permit the removal and replacement of the circulation pump.

**421.6 Whirlpool enclosure.** Doors within a whirlpool enclosure shall conform to ASME A112.19.15.

## SECTION 422

### HEALTH CARE FIXTURES AND EQUIPMENT

**422.1 Scope.** This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to the requirements of this section in addition to the other requirements of this code. The provisions of this section shall apply to the special devices and equipment installed and maintained in the following occupancies: nursing homes, homes for the aged, orphanages, infirmaries, first aid stations, psychiatric facilities, clinics, professional offices of dentists and doctors, mortuaries, educational facilities, surgery, dentistry, research and testing laboratories, establishments manufacturing pharmaceutical drugs and medicines, and other structures with similar apparatus and equipment classified as plumbing.

**422.2 Approval.** All special plumbing fixtures, equipment, devices and apparatus shall be of an approved type.

**422.3 Protection.** All devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, distillation, processing, cooling, or storage of ice or foods, and that connect to either the water supply or drainage system, shall be provided with protection against backflow, flooding, fouling, contamination of the water supply system and stoppage of the drain.

**422.4 Materials.** Fixtures designed for therapy, special cleansing or disposal of waste materials, combinations of such purposes, or any other special purpose, shall be of smooth, impervious, corrosion-resistant materials and, where subjected to temperatures in excess of 180°F (82°C), shall be capable of withstanding, without damage, higher temperatures.

**422.5 Access.** Access shall be provided to concealed piping in connection with special fixtures where such piping contains steam traps, valves, relief valves, check valves, vacuum breakers or other similar items that require periodic inspection, servicing, maintenance or repair. Access shall be provided to

concealed piping that requires periodic inspection, maintenance or repair.

**422.6 Clinical sink.** A clinical sink shall have an integral trap in which the upper portion of a visible trap seal provides a water surface. The fixture shall be designed so as to permit complete removal of the contents by siphonic or blowout action and to reseal the trap. A flushing rim shall provide water to cleanse the interior surface. The fixture shall have the flushing and cleansing characteristics of a water closet.

**422.7 Prohibited usage of clinical sinks and service sinks.** A clinical sink serving a soiled utility room shall not be considered as a substitute for, or be utilized as, a service sink. A service sink shall not be utilized for the disposal of urine, fecal matter or other human waste.

**422.8 Ice prohibited in soiled utility room.** Machines for manufacturing ice, or any device for the handling or storage of ice, shall not be located in a soiled utility room.

**422.9 Sterilizer equipment requirements.** The approval and installation of all sterilizers shall conform to the requirements of the *Florida Building Code, Mechanical*.

**422.9.1 Sterilizer piping.** Access for the purposes of inspection and maintenance shall be provided to all sterilizer piping and devices necessary for the operation of sterilizers.

**422.9.2 Steam supply.** Steam supplies to sterilizers, including those connected by pipes from overhead mains or branches, shall be drained to prevent any moisture from reaching the sterilizer. The condensate drainage from the steam supply shall be discharged by gravity.

**422.9.3 Steam condensate return.** Steam condensate returns from sterilizers shall be a gravity return system.

**422.9.4 Condensers.** Pressure sterilizers shall be equipped with a means of condensing and cooling the exhaust steam vapors. Nonpressure sterilizers shall be equipped with a device that will automatically control the vapor, confining the vapors within the vessel.

**422.10 Special elevations.** Control valves, vacuum outlets and devices protruding from a wall of an operating, emergency, recovery, examining or delivery room, or in a corridor or other location where patients are transported on a wheeled stretcher, shall be located at an elevation that prevents bumping the patient or stretcher against the device.

## SECTION 423

### SPECIALTY PLUMBING FIXTURES

**423.1 Water connections.** Baptisteries, ornamental and lily pools, aquariums, ornamental fountain basins, swimming pools and similar constructions, where provided with water supplies, shall be protected against backflow in accordance with Section 608.

**423.2 Approval.** Specialties requiring water and waste connections shall be submitted for approval.

**423.3 Reclaimed water.** Reclaimed water shall be permitted to be used for aesthetic uses such as decorative pools or fountains in accordance with Florida Department of Environmental Pro-

tection (DEP). Reuse of reclaimed water activities shall comply with the requirements of DEP rules.

**SECTION 424  
FAUCETS AND OTHER FIXTURE FITTINGS**

**424.1 Approval.** Faucets and fixture fittings shall conform to ASME A112.18.1 or CSA B125. Faucets and fixture fittings that supply drinking water for human ingestion shall conform to the requirements of NSF 61, Section 9. Flexible water connectors exposed to continuous pressure shall conform to the requirements of Section 605.6.

**424.1.1 Faucets and supply fittings.** Faucets and supply fittings shall conform to the water consumption requirements of Section 604.4.

**424.1.2 Waste fittings.** Waste fittings shall conform to ASME A112.18.2, ASTM F 409, CSA B125 or to one of the standards listed in Tables 702.1 and 702.4 for above-ground drainage and vent pipe and fittings.

**424.2 Hand showers.** Hand-held showers shall conform to ASME A112.18.1 or CSA B125.1. Hand-held showers shall provide backflow protection in accordance with ASME A112.18.1 or CSA B125.1 or shall be protected against backflow by a device complying with ASME A112.18.3.

**424.3 Individual shower valves.** Individual shower and tub-shower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016 or CSA B125 and shall be installed at the point of use. Shower and tub-shower combination valves required by this section shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in accordance with the manufacturer’s instructions. In-line thermostatic valves shall not be utilized for compliance with this section.

**424.4 Multiple (gang) showers.** Multiple (gang) showers supplied with a single-tempered water supply pipe shall have the water supply for such showers controlled by an approved automatic temperature control mixing valve that conforms to ASSE 1069 or CSA B125, or each shower head shall be individually controlled by a balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valve that conforms to ASSE 1016 or CSA B125 and is installed at the point of use. Such valves shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in accordance with the manufacturer’s instructions.

**424.5 Bathtub and whirlpool bathtub valves.** The hot water supplied to bathtubs and whirlpool bathtubs shall be limited to a maximum temperature of 120°F (49°C) by a water temperature limiting device that conforms to ASSE 1070, except where such protection is otherwise provided by a combination tub/shower valve in accordance with Section 424.3.

**424.6 Hose-connected outlets.** Faucets and fixture fittings with hose-connected outlets shall conform to ASME A112.18.3M or CSA B125.

**424.7 Temperature-actuated, flow reduction valves for individual fixture fittings.** Temperature-actuated, flow reduc-

tion devices, where installed for individual fixture fittings, shall conform to ASSE 1062. Such valves shall not be used alone as a substitute for the balanced pressure, thermostatic or combination shower valves required in Section 424.3.

**424.8 Transfer valves.** Deck-mounted bath/shower transfer valves containing an integral atmospheric vacuum breaker shall conform to the requirements of ASME A112.18.7.

**SECTION 425  
FLUSHING DEVICES FOR WATER CLOSETS AND URINALS**

**425.1 Flushing devices required.** Each water closet, urinal, clinical sink and any plumbing fixture that depends on trap siphonage to discharge the fixture contents to the drainage system shall be provided with a flushometer valve, flushometer tank or a flush tank designed and installed to supply water in quantity and rate of flow to flush the contents of the fixture, cleanse the fixture and refill the fixture trap.

**425.1.1 Separate for each fixture.** A flushing device shall not serve more than one fixture.

**425.2 Flushometer valves and tanks.** Flushometer valves and tanks shall comply with ASSE 1037. Vacuum breakers on flushometer valves shall conform to the performance requirements of ASSE 1001 or CSA B64.1.1. Access shall be provided to vacuum breakers. Flushometer valves shall be of the water-conservation type and shall not be utilized where the water pressure is lower than the minimum required for normal operation. When operated, the valve shall automatically complete the cycle of operation, opening fully and closing positively under the water supply pressure. Each flushometer valve shall be provided with a means for regulating the flow through the valve. The trap seal to the fixture shall be automatically refilled after each valve flushing cycle.

**425.3 Flush tanks.** Flush tanks equipped for manual flushing shall be controlled by a device designed to refill the tank after each discharge and to shut off completely the water flow to the tank when the tank is filled to operational capacity. The trap seal to the fixture shall be automatically refilled after each flushing. The water supply to flush tanks equipped for automatic flushing shall be controlled with a timing device or sensor control devices.

**425.3.1 Fill valves.** All flush tanks shall be equipped with an antisiphon fill valve conforming to ASSE 1002 or CSA B125. The fill valve backflow preventer shall be located at least 1 inch (25 mm) above the full opening of the overflow pipe.

**425.3.2 Overflows in flush tanks.** Flush tanks shall be provided with overflows discharging to the water closet or urinal connected thereto and shall be sized to prevent flooding the tank at the maximum rate at which the tanks are supplied with water according to the manufacturer’s design conditions. The opening of the overflow pipe shall be located above the flood level rim of the water closet or urinal or above a secondary overflow in the flush tank.

**425.3.3 Sheet copper.** Sheet copper utilized for flush tank linings shall conform to ASTM B 152 and shall not weigh less than 10 ounces per square foot (0.03 kg/m<sup>2</sup>).

**425.3.4 Access required.** All parts in a flush tank shall be accessible for repair and replacement.

**425.4 Flush pipes and fittings.** Flush pipes and fittings shall be of nonferrous material and shall conform to ASME A112.19.5 or CSA B125.

**SECTION 426  
MANUAL FOOD AND BEVERAGE DISPENSING  
EQUIPMENT**

**426.1 Approval.** Manual food and beverage dispensing equipment shall conform to the requirements of NSF 18.

**SECTION 427  
FLOOR SINKS**

**427.1 Approval.** Sanitary floor sinks shall conform to the requirements of ASME A112.6.7.

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