

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. Pan, valve, plunger, offset, washout, latrine, frostproof and other water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge 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/m²).

402.4 Sheet lead. Sheet lead for pans shall not weigh less than 4 pounds per square foot (19.5 kg/m²) 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 building code. Occupancy classification shall be determined in accordance with the *Florida Building Code, Building*.

**TABLE 403.1)
MINIMUM NUMBER OF PLUMBING FACILITIES^a
(See Sections 403.2 and 403.3)**

OCCUPANCY		WATER CLOSETS (Urinals see Section 419.2)		LAVATORIES	BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (see Section 410.1)	OTHERS
		Male	Female				
A	Nightclubs	1 per 40	1 per 40	1 per 75	—	1 per 500	1 service sink
S	Restaurants ^g	1 per 75	1 per 75	1 per 200	—	1 per 500	1 service sink
S	Theatres, Halls, museums, etc. ^g	1 per 125	1 per 65	1 per 200	—	1 per 500	1 service sink
E	Coliseums, arenas (less than 3,000 seats)	1 per 75	1 per 40	1 per 150	—	1 per 1,000	1 service sink
M	Coliseums, arenas (3,000 seats or greater) ^g	1 per 120	1 per 60	Male 1 per 200 Female 1 per 150	— —	1 per 1,000	1 service sink
B	Churches ^{b, g}	1 per 150	1 per 75	1 per 200	—	1 per 1,000	1 service sink
L	Stadiums, (less than 3,000 seats), pools, etc. ^{g, h}	1 per 100	1 per 50	1 per 150	—	1 per 1,000	1 service sink
Y	Stadiums, (3,000 seats or greater) ^g	1 per 150	1 per 75	Male 1 per 200 Female 1 per 150	—	1 per 1,000	1 service sink
	Business (see Sections 403.2, 403.4 and 403.5)	1 per 50		1 per 80	—	1 per 100	1 service sink
	Educational	1 per 50		1 per 50	—	1 per 100	1 service sink
	Factory and industrial	1 per 100		1 per 100	(See Section 411)	1 per 400	1 service sink
	Passenger terminals and transportation facilities	1 per 500		1 per 750	—	1 per 1,000	1 service sink

(continued)

TABLE 403.1 — 403.1.1.1

TABLE 403.1—continued
MINIMUM NUMBER OF PLUMBING FACILITIES^a
 (See Sections 403.2 and 403.3)

OCCUPANCY		WATER CLOSETS (Urinals see Section 419.2)		LAVATORIES	BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (see Section 410.1)	OTHERS
		Male	Female				
I N S T I T U T I O N A L	Residential care	1 per 10		1 per 10	1 per 8	1 per 100	1 service sink
	Hospitals, ambulatory nursing home patients ^c	1 per room ^d		1 per room ^d	1 per 15	1 per 100	1 service sink floor
	Day nurseries, sanitariums, nonambulatory nursing home patients, etc. ^c	1 per 15		1 per 15	1 per 15 ^e	1 per 100	1 service sink
	Employees, other than residential care ^c	1 per 25		1 per 35	—	1 per 100	—
	Visitors, other than residential care	1 per 75		1 per 100	—	1 per 500	—
	Prisons ^c	1 per cell		1 per cell	1 per 15	1 per 100	1 service sink
	Asylums, reformatories, etc. ^c	1 per 15		1 per 15	1 per 15	1 per 100	1 service sink
	Mercantile (see Sections 403.2, 403.4 and 403.5)	1 per 500		1 per 750	—	1 per 1,000	
R E S I D E N T I A L	Hotels, motels	1 per guestroom		1 per guestroom	1 per guestroom	—	1 service sink
	Lodges	1 per 10		1 per 10	1 per 8	1 per 100	1 service sink
	Multiple family	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
	Dormitories	1 per 10		1 per 10	1 per 8	1 per 100	1 service sink
	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 ^f
	Storage (see Sections 403.2 403.4)	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 Fixtures located in adjacent buildings under the ownership or control of the church shall be made available during periods the church is occupied.

^c Toilet facilities for employees shall be separate from facilities for inmates or patients.

^d A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient rooms shall be permitted where such room is provided with direct access from each patient room and with provisions for privacy.

^e For day nurseries, a maximum of one bathtub shall be required.

^f For attached one- and two-family dwellings, one automatic clothes washer connection shall be required per 20 dwelling units.

^g 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 or an aggregate of six and more 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.

^h In recreational facilities where separate-sex bathing rooms are provided, a unisex bathing room in accordance with Section 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 to 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 553.141 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 from Section 553.141, Florida Statutes, regarding scope.

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 in residential occupancies.
2. Separate employee facilities shall not be required in occupancies in which 15 or less people are employed.
3. Separate facilities shall not be required for food service establishments which seat 10 persons or less.
4. Separate facilities shall not be required in business and mercantile occupancies with a total floor area of 3000 square feet 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 Location of employee toilet facilities in occupancies other than assembly or mercantile. Access to toilet facilities in occupancies other than mercantile and assembly occupancies shall be from within the employees' regular working area. The required toilet facilities shall be located not more

than one story above or below the employees' regular working area and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m). Employee facilities shall be either separate facilities or public customer facilities.

Exception: Facilities that are required for employees in storage structures or kiosks, and are located in adjacent structures under the same ownership, lease or control, shall be a maximum travel distance of 500 feet (152 m) from the employees' regular working area.

403.5 Location of employee toilet facilities in mercantile and assembly occupancies. Employees shall be provided with toilet facilities in buildings and tenant spaces utilized as restaurants, nightclubs, places of public assembly and mercantile occupancies. The employee facilities shall be either separate facilities or public customer facilities.

Exception: Employee toilet facilities shall not be required in tenant spaces of 900 square feet (84 m²) or less where the travel distance from the main entrance of the tenant space to a central toilet area does not exceed 500 feet (152 m) and such central toilet facilities are located not more than one story above or below the tenant space.

403.6 Customer facilities. Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public use and utilized as restaurants, nightclubs, places of assembly, business and mercantile occupancies. Customer toilet facilities shall be located not more than one story above or below the space required to be provided with customer toilet facilities and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m). In covered mall buildings, 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 the central toilet facilities in covered mall buildings shall be measured from the main entrance of any store or tenant space.

403.6.1 Pay facilities. Required facilities shall be free of charge and designated by legible signs for each sex. Where pay facilities are installed, such facilities shall be in excess of the required minimum facilities.

403.7 Unisex toilet and bathing rooms . In assembly and mercantile occupancies, a unisex toilet room 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. In recreational facilities where separate-sex bathing rooms are provided, a unisex bathing room shall be provided.

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 be provided with the fixtures required in Section 403.7.1.1 and 403.7.1.2 as applicable.

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

Exception: A separate-sex toilet room containing not more than two water closets without urinals, or containing only one water closet and one urinal shall be considered a unisex toilet room.

403.7.1.2 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.

403.7.2 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 posted showing directions to the facilities. Directions shall be legible from any portion of the pool deck; letters shall be a minimum of one 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.

**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	2	6	2
5001 - 7500 sq ft		3	3	9	3
7501 - 10,000 sq ft		4	4	12	4

SECTION 404 ACCESSIBLE PLUMBING FIXTURES

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*, Section 11-4.15) Drinking Fountains and Water Coolers

404.2.1 (*Florida Building Code, Building*, Section 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 404.2.

404.2.2 (*Florida Building Code, Building*, Section 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)).

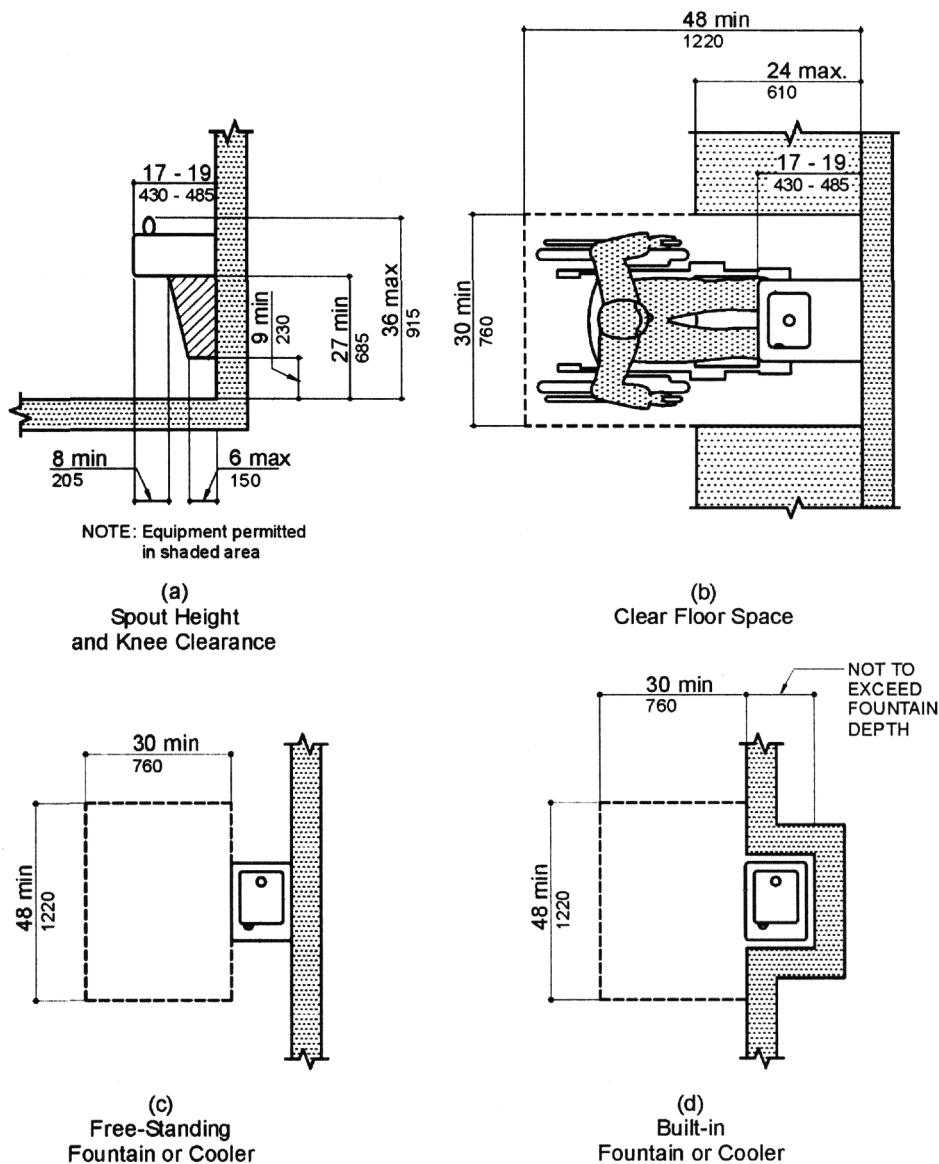


FIGURE 404.2.2
DRINKING FOUNTAINS AND WATER COOLERS
 (Florida Building Code, Building, Chapter 11, Figure 27)

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

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

404.2.5.1 (Florida Building Code, Building, Section 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

404.2.5.2 — FIGURE 404.3.3

404.2.2(a) and (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, Section 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 404.2.2(c) and (d)). This clear floor space shall comply with *Florida Building Code, Building, Section 11-4.2.4*.

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

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

404.3.2 (*Florida Building Code, Building, Section 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.

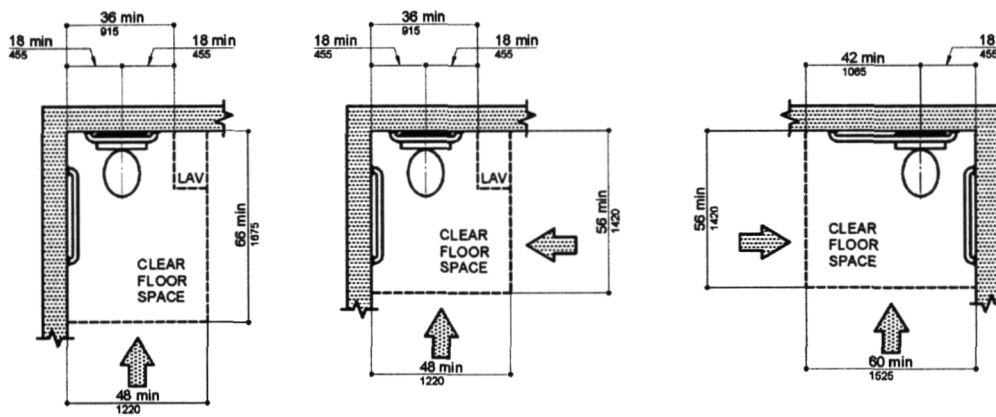


FIGURE 404.3.2
CLEAR FLOOR SPACE IN WATER CLOSETS (not in stall)
(*Florida Building Code, Building, Chapter 11, Figure 28*)

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

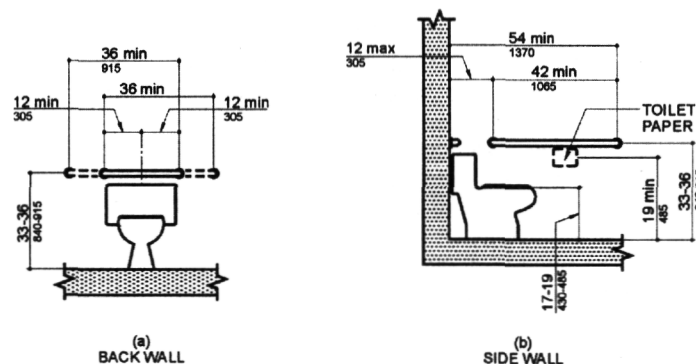


FIGURE 404.3.3
GRAB BARS AT WATER CLOSETS
(*Florida Building Code, Building, Chapter 11, Figure 29*)

404.3.5 (*Florida Building Code, Building*, Section 11-4.16.5) **Flush Controls.** Flush controls shall be hand operated or automatic and shall comply with 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*, Section 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*, Section 11-4.17) **Toilet Stalls.**

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

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

404.4.3 (*Florida Building Code, Building*, Section 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), then 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 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.

Exception: 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 Figure 404.4.3(a)) 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*, Section 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), then the toe clearance is not required.

404.4.5 (*Florida Building Code, Building*, Section 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 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 Figure 404.4.3). Doors shall not swing into the clear floor space of any fixture.

404.4.6 (*Florida Building Code, Building*, Section 11-4.17.6) **Grab Bars.** Grab bars complying with the length and positioning shown in Figure 404.4.3(a), (b), (c), and (d) shall be provided. 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 404.12.

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

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

404.5.2 (*Florida Building Code, Building*, Section 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*, Section 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.

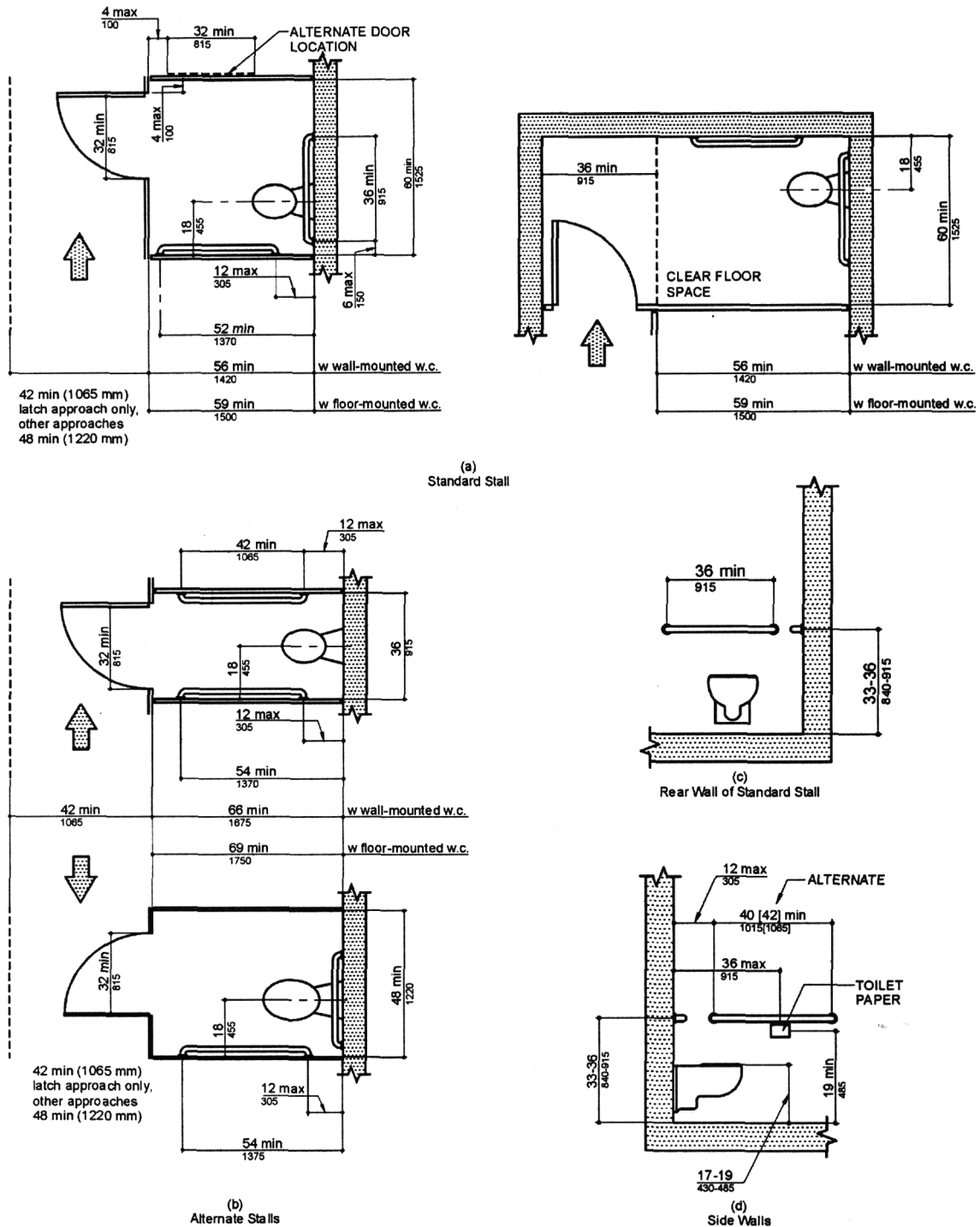
404.5.4 (*Florida Building Code, Building*, Section 11-4.18.4) **Flush Controls.** Flush controls shall be hand operated or automatic, and shall comply with 404.13, and shall be mounted no more than 44 inches (1120 mm) above the finish floor.

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

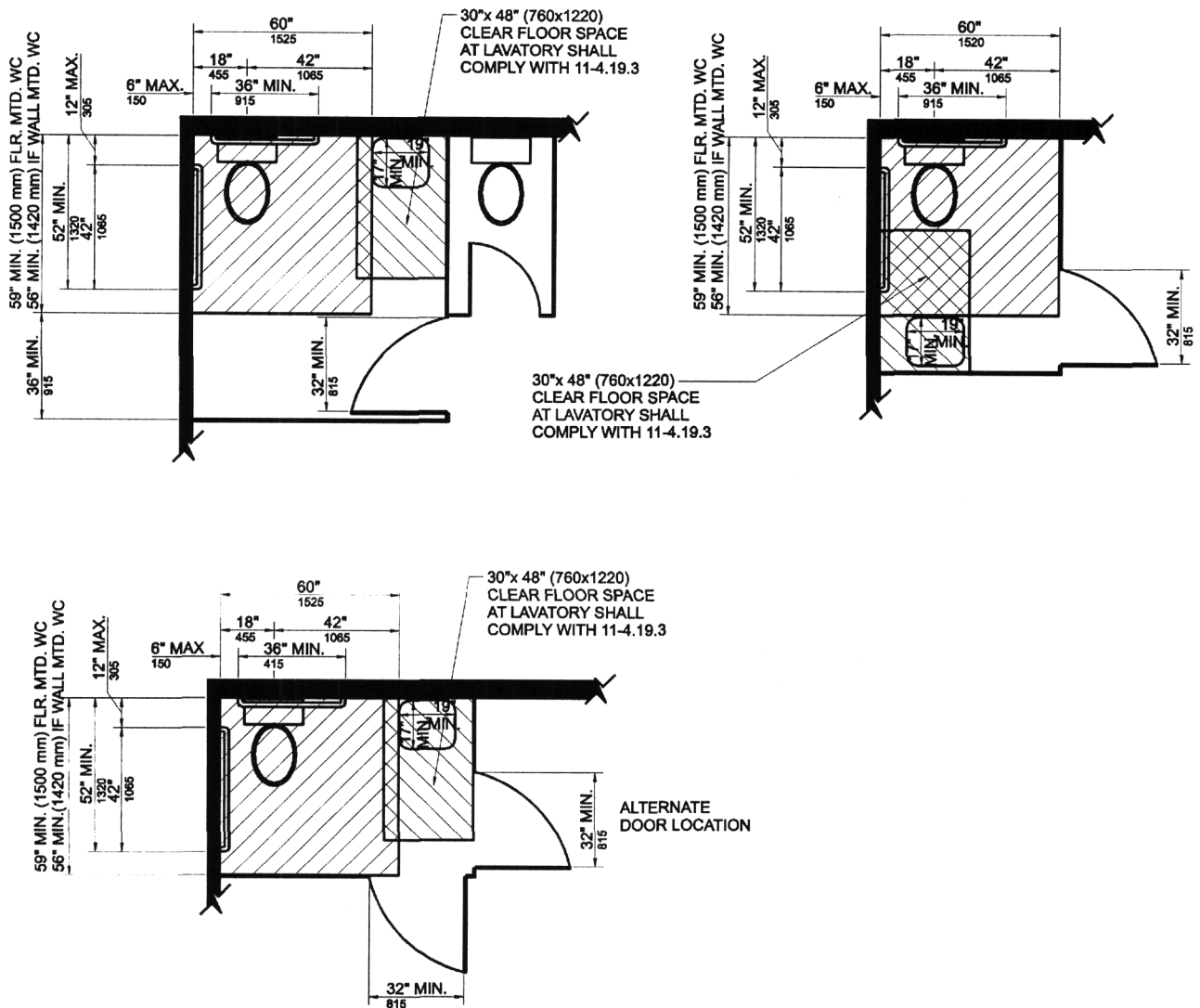
404.6.1 (*Florida Building Code, Building*, Section 11-4.19.1) **General.** The requirements of 404.6 shall apply to lavatory fixtures, vanities, and built-in lavatories.

404.6.2 (*Florida Building Code, Building*, Section 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.

FIGURE 404.4.3

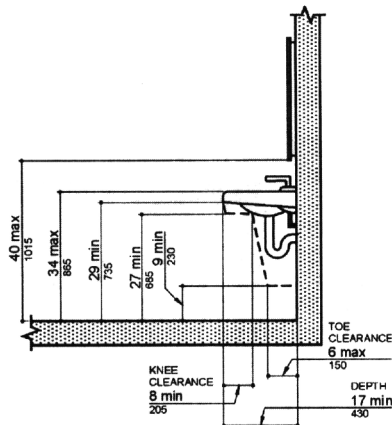


**FIGURE 404.4.3
TOILET STALLS
(Florida Building Code, Building, Chapter 11, Figure 30)**



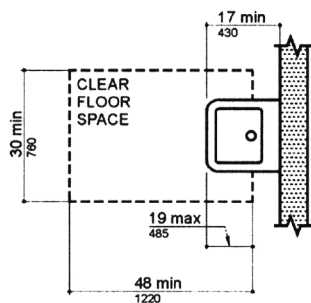
IN NEW CONSTRUCTION A LAVATORY SHALL BE PROVIDED WITHIN THE ACCESSIBLE TOILET STALL. THE LAVATORY SHALL NOT ENCROACH INTO THE REQUIRED CLEAR FLOOR SPACE FOR THE WATER OFFSET SEE FIGURE 404.4.3(a) FOR THE REQUIRED CLEAR FLOOR SPACE FOR THE WATER CLOSET. THE LOCATION SHOWN FOR THE LAVATORY IS ONLY ONE 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 11-4.16.5

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



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

404.6.3 (Florida Building Code, Building, Section 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).



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

404.6.4 (Florida Building Code, Building, Section 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.

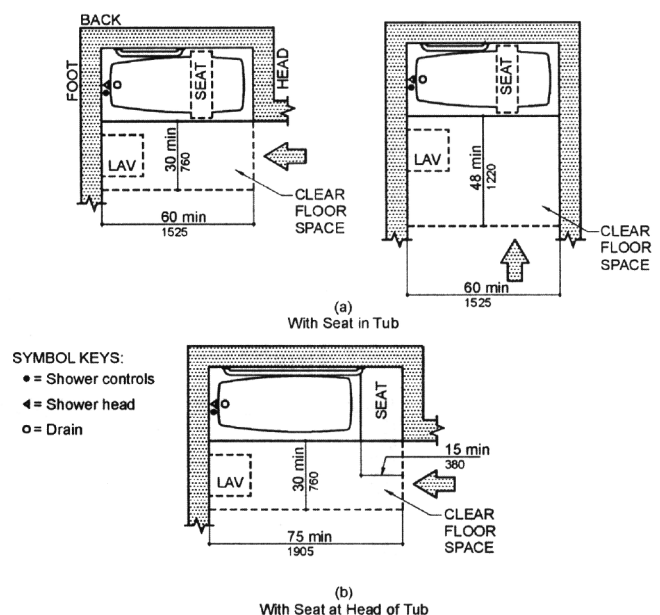
404.6.5 (Florida Building Code, Building, Section 11-4.19.5) **Faucets.** Faucets shall comply with 404.13. Lever-operated, push-type, and electronically controlled mechanisms are examples of acceptable designs. If self-closing valves are used, the faucet shall remain open for at least 10 seconds.

404.6.6 (Florida Building Code, Building, Section 11-4.19.6¹) **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).

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

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

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



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

404.7.3 (Florida Building Code, Building, Section 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 404.7.3. The structural strength of seats and their attachments shall comply with 404.12.3. Seats shall be mounted securely and shall not slip during use.

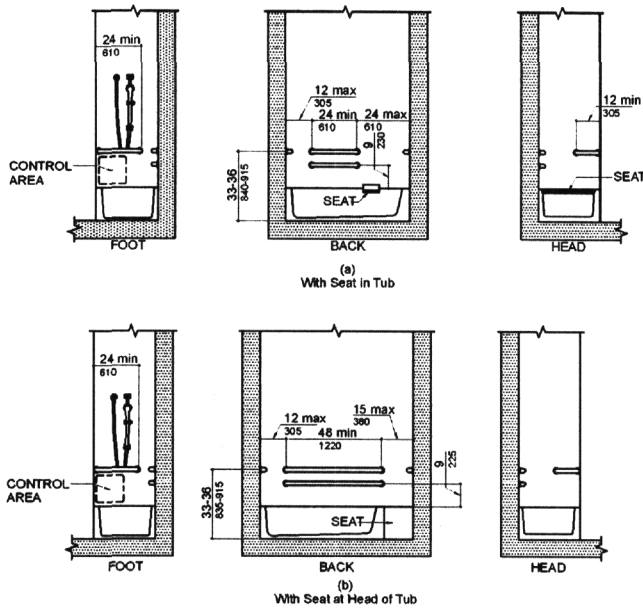


FIGURE 404.7.3
GRAB BARS AT BATHTUBS
(Florida Building Code, Building, Chapter 11, Figure 34)

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

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

404.7.6 (Florida Building Code, Building, Section 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, Section 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, Section 11-44.21) **Shower Stalls.**

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

404.8.2 (Florida Building Code, Building, Section 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(a) or (b). The shower stall in Fig. 404.8.2(a) shall be 36 inches by 36 inches (915 mm by 915 mm). Shower stalls required by Florida Building Code, Building, Section 11-9.1.2 shall comply with Figure 404.8.2(2)(a) or (b). The shower stall in Figure 404.8.2(b) will fit into the space required for a bathtub.

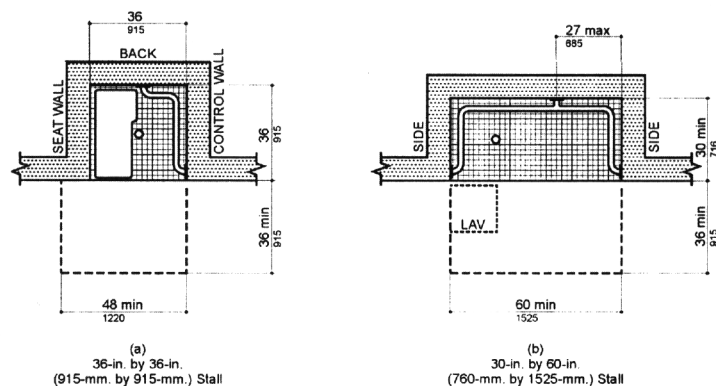


FIGURE 404.8.2(1)
SHOWER SIZE AND CLEARANCES
(Florida Building Code, Building, Chapter 11, Figure 35)

FIGURE 404.8.2(2) — FIGURE 404.8.3

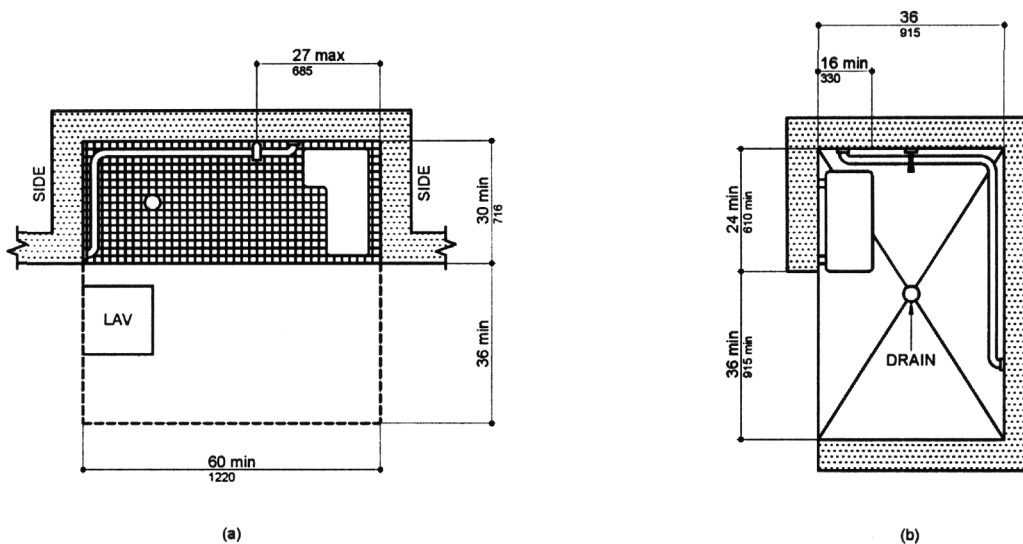


FIGURE 404.8.2(2)
ROLL-IN SHOWER WITH FOLDING SEAT
(Florida Building Code, Building, Chapter 11, Figure 57)

404.8.3 (Florida Building Code, Building, Section 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 Fig. 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 404.12.3.

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

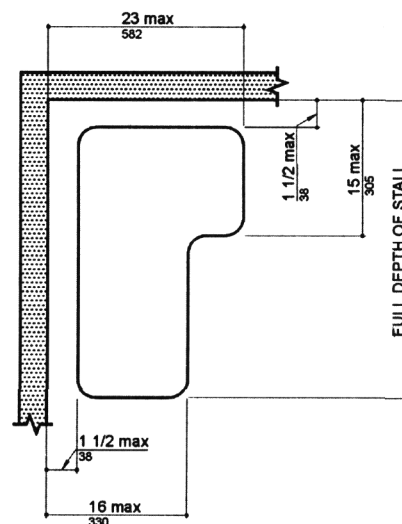
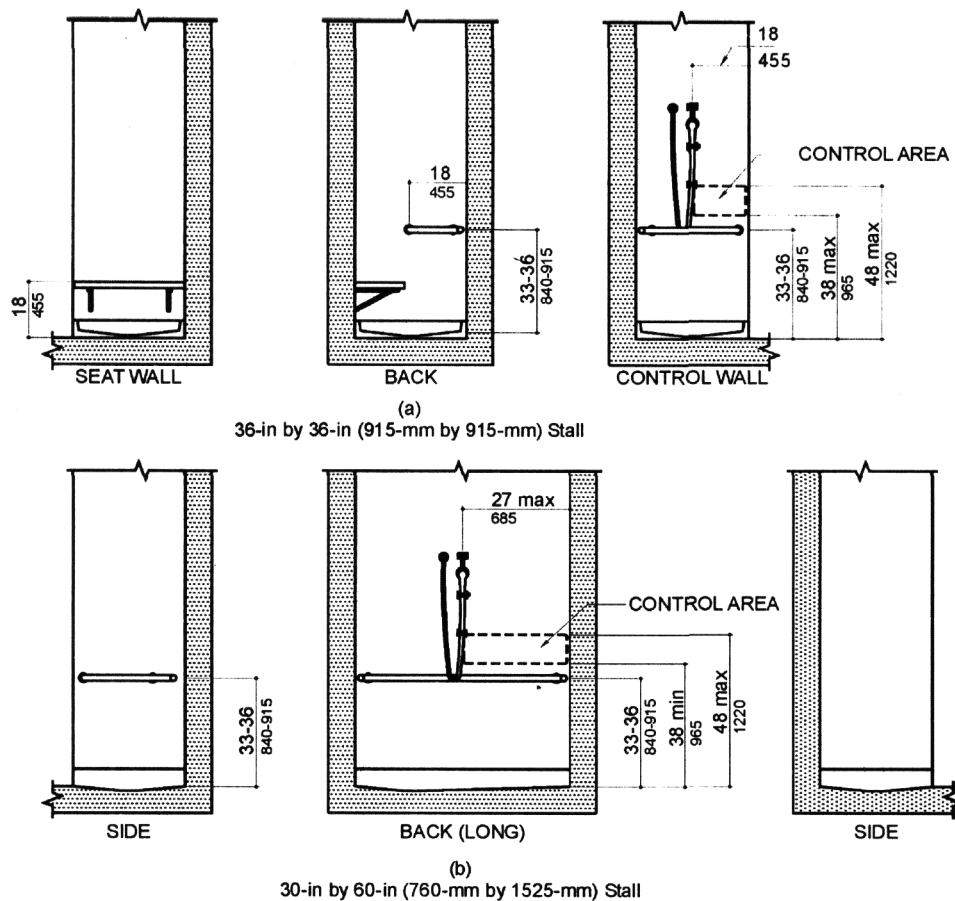


FIGURE 404.8.3
SHOWER SEAT DESIGN
(Florida Building Code, Building, Chapter 11, Figure 36)



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)

404.8.5 (*Florida Building Code, Building*, Section 11-4.21.5) **Controls.** Faucets and other controls complying with 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.

404.8.6 (*Florida Building Code, Building*, Section 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*, Section 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 $\frac{1}{2}$ 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*, Section 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*, Section 11-4.22) **Toilet Rooms.**

404.9.1 (*Florida Building Code, Building*, Section 11-4.22.1) **Minimum Number.** Toilet facilities required to be accessible by *Florida Building Code, Building*, Section 11-4.1 shall comply with *Florida Building Code, Building*, Section 11-404.9. Accessible toilet rooms shall be on an accessible route.

404.9.2 (*Florida Building Code, Building*, Section 11-4.22.2) **Doors.**

(1) 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*, Section 11-4.22.3) **Clear Floor Space.** The accessible fixtures and controls required in 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*, Section 11-4.22.4) **Water Closets.** If toilet stalls are provided, then at least one shall be a standard toilet stall complying with 404.4; where 6 or more stalls are provided, in addition to the stall complying with 404.4.3, at least one stall 36 in (915 mm) wide with an outward swinging, self-closing door and parallel grab bars complying with Figure 404.4.3(d) and 404.12 shall be provided. Water closets in such stalls shall comply with 404.3. If water closets are not in stalls, then at least one shall comply with 404.3.

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

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

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

404.10.1 (*Florida Building Code, Building*, Section 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 404.10 and shall be on an accessible route.

404.10.2 (*Florida Building Code, Building*, Section 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 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.

404.10.3 (*Florida Building Code, Building*, Section 11-4.23.3) **Clear Floor Space.** The accessible fixtures and controls required in 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*, Section 11-4.23.4) **Water Closets.** If toilet stalls are provided, then at least one shall be a standard toilet stall complying with 404.4; where 6 or more stalls are provided, in addition to the stall complying with *Florida Building Code, Building*, Section 404.4.3, at least one stall 36 in (915 mm) wide with an outward swinging, self-closing door and parallel grab bars complying with Figure 404.4.3(d) and 404.12 shall be provided. Water closets in such stalls shall comply with 404.3. If water closets are not in stalls, then at least one shall comply with 404.3.

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

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

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

404.10.9 (*Florida Building Code, Building*, Section 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 in (1120 mm) above the floor space. The floor space shall comply with *Florida Building Code, Building*, Section 11-4.2.4.

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

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

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

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

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

404.11.5 (*Florida Building Code, Building*, Section 11-4.24.5) **Clear Floor Space.** A clear floor space at least 30 in by 48 in (760 mm by 1220 mm) complying with *Florida Building Code, Building*, 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 in (485 mm) underneath the sink (See Figure 404.6.3).

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

404.12 (*Florida Building Code, Building*, Section 11-4.26) **Handrails, Grab Bars, and Tub and Shower Seats.**

404.12.1 (*Florida Building Code, Building*, Section 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, 404.3, 404.4, 404.7 or 404.8 shall comply with 404.12.

404.12.2 (*Florida Building Code, Building*, Section 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 in to 1 1/2 in (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 1/2 in (38 mm) (See Figure 404.12.2(a), (b), (c), and (e)). Handrails may be located in a recess if the recess is a maximum of 3 in (75 mm) deep and extends at least 18 in (455 mm) above the top of the rail (See Figure 404.12.2(d)).

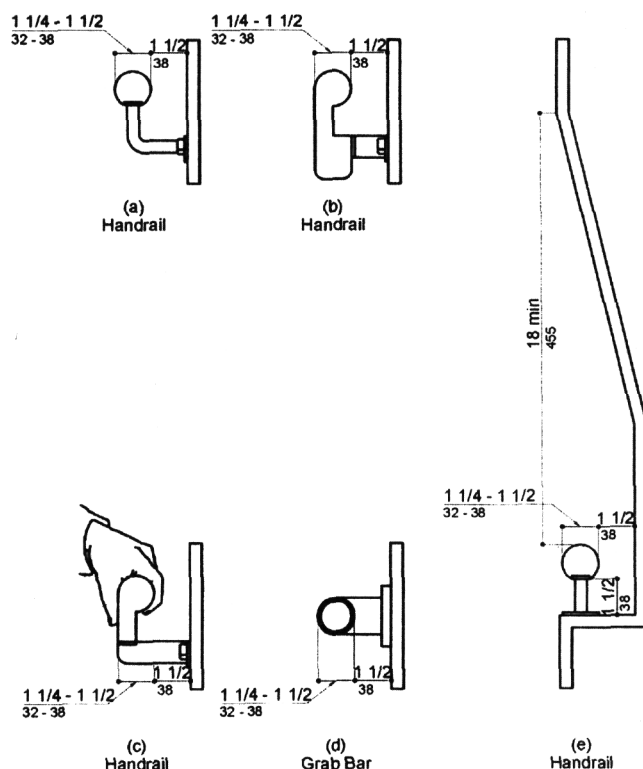


FIGURE 404.12.2
(*Florida Building Code, Building*, Chapter 11, Figure 39)

404.12.3 (Florida Building Code, Building, Section 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 lbf (1112N) 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 lbf (1112N) 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, then 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 lbf (1112N) 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 lbf (1112N) plus the maximum moment from the application of 250 lbf (1112N) 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, Section 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 $\frac{1}{8}$ in (3.2 mm).

404.13 (Florida Building Code, Building, Section 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 lbf (22.2 N).

SECTION 405 INSTALLATION OF FIXTURES

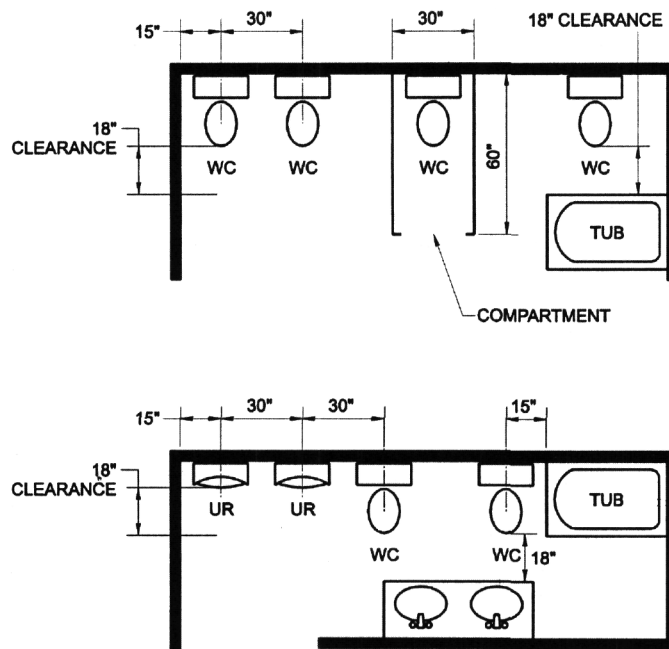
405.1 Water supply protection. The supply lines and fittings for every plumbing fixture shall be installed so as to prevent backflow.

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, lavatories and bidets. A water closet, 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 toilets or adjacent fixtures. There shall be at least

18 inches (457 mm) clearance in front of the water closet 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. There shall be at least 18 inches (457 mm) clearance in front of a lavatory to any wall, fixture or door (See Figure 405.3.1).



**FIGURE 405.3.1
FIXTURE CLEARANCES**

For SI: 1 inch = 25.4 mm

405.3.2 Urinals. A urinal shall not be set closer than 15 inches (381 mm) from the center of the urinal to any side wall, partition, vanity or other obstruction, or closer than 30 inches (762 mm) center-to-center between urinals (See Figure 405.3.1).

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 adapter. The water closet shall be bolted to the hanger with corrosion-resistant bolts or screws. Joints shall be sealed with an approved elastomeric gasket or setting compound conforming to FS TTP-1536a.

405.4.1 Floor flanges. Floor flanges for water closets or similar fixtures shall not be less than $\frac{1}{8}$ inch (3.2 mm) thick for brass, $\frac{1}{4}$ inch (6.4 mm) thick for plastic, and $\frac{1}{4}$ inch (6.4 mm) thick and not less than a 2-inch (51 mm) caulking depth for cast-iron or galvanized malleable iron.

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 A112.6.1.

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 Access to concealed connections. 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 connections for inspection and repair. Where such access cannot be provided, access doors shall not be required provided that all joints are soldered, solvent cemented or screwed so as to form a solid connection.

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 802.4.

406.3 Waste connection. The discharge from an automatic clothes washer shall be through an air break and connected to a standpipe in accordance with Section 802.4.

SECTION 407 BATHTUBS

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

407.2 Bathtub waste outlets. Bathtubs shall have waste outlets a minimum of 1 1/2 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*.

SECTION 408 BIDETS

408.1 Approval. Bidets shall conform to ASME A112.19.2, ASME A112.19.9 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, Section 608.13.2, Section 608.13.3, Section 608.13.5, Section 608.13.6 or Section 608.13.8.

SECTION 409 DISHWASHING MACHINES

409.1 Approval. Domestic dishwashing machines shall conform to ASSE 1006. Commercial dishwashing machines shall conform to ASSE 1004.

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 Sections 409.3.1 and 409.3.2.

409.3.1 Domestic dishwashing machines. Domestic dishwashing machines shall discharge indirectly through an air gap or air break into a standpipe or waste receptor in accordance with Section 802.2 or discharge into a wye-branch fitting on the tailpiece of the kitchen sink or the dishwasher connection of a food waste grinder. The waste line of a domestic dishwashing machine discharging into a kitchen sink tailpiece or food waste grinder shall connect to a deck-mounted air gap or the waste line shall rise and be securely fastened to the underside of the sink rim or counter.

409.3.2 Commercial dishwashing machines. The discharge from a commercial dishwashing machine shall be through an air gap or air break into a standpipe or waste receptor in accordance with Section 802.2.

SECTION 410 DRINKING FOUNTAINS

410.1 Approval. Drinking fountains shall conform to ASME A112.19.1, A112.19.2 or A112.19.9, and water coolers shall conform to ARI 1010. Where water is served in restaurants or where bottled water coolers are provided in other occupancies, drinking fountains shall not be required.

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

SECTION 411 EMERGENCY SHOWERS AND EYEWASH STATIONS

411.1 Water connection. Emergency showers and eyewash stations shall be provided with a supply of cold water as required by the manufacturer.

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

SECTION 412 FLOOR DRAINS

412.1 Approval. Floor drains shall conform to ASME A112.21.1 or CSA B79.

412.2 Floor drain trap and strainer. Floor drain traps shall have removable strainers. The strainer shall have a waterway area of not less than the area of the tailpiece. 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 Required location and construction. In public coin-operated laundries and in the central washing facilities of multiple family dwellings, the rooms containing the automatic clothes washers shall be provided with floor drains located to readily drain the entire floor area. Such drains shall have a minimum outlet cross section 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 1/2 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, Section 608.13.2, Section 608.13.3, Section 608.13.5, Section 608.13.6 or Section 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 A112.19.1, ASME A112.19.3, ASME A112.19.9, 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 1/2 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 A112.19.1, ASME A112.19.2, ASME A112.19.3, ASME A112.19.4, ASME A112.19.9, 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 1/4 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.

SECTION 417 SHOWERS

417.1 Approval. Prefabricated showers and shower compartments shall conform to ANSI Z124.2, ASME A112.19.9 or CSA B45.5. Shower valves for individual showers shall conform to the requirements of Section 424.4.

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 2 inches (51 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 1/4 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 m²) 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. The 30-inch (762 mm) minimum dimension shall be measured as the side of a rectangle, altitude of a triangle or diameter of a circle. 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.

417.4.1 Square shower units. Square shower units designed to accommodate a 32-inch by 32-inch (813 mm by 813 mm) nominal rough-in opening shall be permitted, provided that such units conform in material composition to the applicable standards and provided that any exterior base side measures not less than 31 1/2 inches (800 mm).

417.4.2 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.

417.5 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 Pans. Floors under shower compartments, except where prefabricated receptors have been provided, shall be lined and made water tight by the provision of suitable shower pans of approved material. Such pans shall turn up on all sides at least 2 inches (51 mm) above the finished threshold level. Pans shall be securely fastened to the waste outlet at the seepage entrance, making a water-tight joint between the pan and the outlet.

Exceptions:

1. Floor surfaces under shower heads provided for rinsing laid directly on the ground.
2. Shower compartments where the finished shower drain is depressed a minimum of 2 inches below the surrounding finished floor on the first floor level and the shower recess is poured integrally with the adjoining floor.

417.5.3 PVC sheets. Plasticized polyvinyl chloride (PVC) sheet 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 instructions.

417.5.4 PE sheets. Nonplasticized chlorinated polyethylene (PE) sheet shall be a minimum 0.040 inch (1.02 mm) thick.

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 A112.19.1, ASME A112.19.2, ASME A112.19.3, ASME A112.19.4, ASME A112.19.9, 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 1/2 inches (38 mm) in diameter. A strainer or crossbar shall be provided to restrict the clear opening of the waste outlet. Sinks on which a food waste grinder is installed shall have a waste opening a minimum of 3 1/2 inches (89 mm) in diameter.

SECTION 419 URINALS

419.1 Approval. Urinals shall conform to ASME A112.19.2, CSA B45.1 or CSA B45.5. Urinals shall conform to the water consumption requirements of Section 604.4. 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 50 percent of the required water closets.

419.3 Urinals for public or employee toilet facilities. Urinals for public or employee toilet facilities shall have a visible trap seal.

419.4 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 A112.19.2, 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 A112.19.9, CSA B45.1, CSA B45.4 or CSA B45.5.

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 A112.19.7 or with CSA B45.5 and CSA CAN/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. Access shall be provided to the pump.

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 A112.19.8.

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, commercial drinking water dispensers, 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 Protection (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 CAN/CSA-B125 and shall conform to the water consumption requirements of Section 604.4. Faucets and fixture fittings that supply drinking water

for human ingestion shall conform to the requirements of ANSI/NSF 61, Section 9.

424.2 Hose spray. Sink faucets with a flexible hose and spray assembly shall conform to ASSE 1025 or CSA CAN/CSA-B125.

424.3 Hand showers. Hand-held showers shall conform to ASSE 1014 or CSA CAN/CSA-B125.

424.4 Shower valves. Shower and tub-shower combination valves shall be balanced pressure, thermostatic or combination mixing valves that conform to the requirements of ASSE 1016 or CSA CAN/CSA-B125. Multiple (gang) showers supplied with a single tempered water supply pipe shall have the water supply for such showers controlled by an approved master mixing valve. All valves shall be equipped with handle position stops that are field adjusted in accordance with the manufacturer's instructions to a maximum hot water setting of 120°F (49°C).

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 CAN/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 — 425.4

425.3.1 Ball cocks. All flush tanks shall be equipped with an antisiphon ball cock conforming to ASSE 1002 or CSA CAN/CSA-B125. The ball cock backflow preventer shall be located at least 1 inch (25.4 mm) above the full opening of the overflow pipe. A sheathed ball cock shall be installed in all gravity flush tanks in which the flush valve seat is located less than 1 inch (25.4 mm) above the flood level rim of the bowl.

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. 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/m²).

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 CAN/CSA-B125.