CHAPTER

PLUMBING FIXTURES

27

SECTION P2701
FIXTURES, FAUCETS AND FIXTURE FITTINGS

P2701.1 Quality of fixtures. Plumbing fixtures, faucets and fixture fittings shall be constructed of approved materials, shall have smooth impervious surfaces, shall be free from defects and concealed fouling surfaces, and shall conform to the standards cited in this code. Plumbing fixtures shall be provided with an adequate supply of potable water to flush and keep the fixtures in a clean and sanitary condition without danger of backflow or cross connection.

Q • Are new bathtubs required to have a non-slip surface?

A • Section P2701.1 requires bathtubs to conform to one of the referenced standards in Table P2701.1. The code has no requirement for slip resistance. [27-1]

Q • Is a water meter a plumbing fixture that is regulated by the IRC plumbing provisions?

A • A water meter is not a plumbing fixture. Plumbing fixtures typically discharge to the drainage system or in some cases discharge to the outdoors. The installation of water meters for billing purposes is regulated by the water purveyor, which in some cases is a public works department. If a water meter is being installed for purposes other than for charging for water or sewer usage, it is considered the same as other devices, fittings or components that fall within the scope of the code and are commonly installed as part of a plumbing system. Such components include water filters, water softeners, backflow preventers and booster pump equipment. [27-2]

SECTION P2704
ACCESS TO CONNECTIONS

P2704.1 General. Slip joints shall be made with an approved elastomeric gasket and shall be installed only 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 connections for inspection and repair.

Q • What are the requirements for bathtub access panels?

A • There are no requirements for access to bathtub traps. Section P2704.1 requires access to all slip-joint connections for inspection and repair. Therefore, if a bathtub trap is located in a concealed space, and the trap has slip-joint connections, then some means of access must be provided. Access panels must be at least 12 inches in height and width. Slip joint connections are permitted only on traps. Bathtub traps without slip-joint connections, for example a Schedule 40 PVC trap with solvent cement-welded connections, are permitted without access. [27-3]

SECTION P2705
INSTALLATION

P2705.1 General. The installation of fixtures shall conform to the following:

1. Floor-outlet or floor-mounted fixtures shall be secured to the drainage connection and to the floor, where so designed, by screws, bolts, washers, nuts and similar fasteners of copper, brass or other corrosion-resistant material.

TABLE P2701.1
PLUMBING FIXTURES, FAUCETS AND FIXTURE FITTINGS

MATERIAL	STANDARD
Air gap fittings for use with plumbing fixtures, appliances and appurtenances	ASME A112.1.3
Bathtub/whirlpool pressure-sealed doors	ASME A112.19.15
Diverters for faucets with hose spray anti-syphon type, residential application	ASSE 1025
Enameled cast-iron plumbing fixtures	ASME A112.19.1M, CSA B45.2
Floor drains	ASME A112.6.3
Floor-affixed supports for off-the-floor plumbing fixtures for public use	ASME A112.6.1M
Framing-affixed supports for off-the-floor water closets with concealed tanks	ASME A112.6.2
Home laundry equipment	ASSE 1007
Hose connection vacuum breaker	ASSE 1052
Hot water dispensers, household storage type, electrical	ASSE 1023
Household dishwashing machines	ASSE 1006
Household disposers	ASSE 1008
Hydraulic performance for water closets and urinals	ASME A112.19.2
Individual pressure balancing valves for individual fixture fittings	ASSE 1066
Individual shower control valves anti-scald	ASSE 1016, CSA B125
Macerating toilet systems and related components	ASME A112.3.4
Nonvitreous ceramic plumbing fixtures	ASME A112.19.9M, CSA B45.1
Plastic bathtub units	ANSI Z124.1, CSA B45.1
Plastic lavatories	ANSI Z124.3, CSA B45.5
Plastic shower receptors and shower stall	ANSI Z124.2, CSA B45.5
Plastic sinks	ANSI Z124.6, CSA B45.5
Plastic water closet bowls and tanks	ANSI Z124.4, CSA B45.5
Plumbing fixture fittings	ASME A112.18.1/CSA B125.1
Plumbing fixture waste fittings	ASME A112.18.2/CSA B125.2, ASTM F 409
Porcelain-enameled formed steel plumbing fixtures	ASME A112.19.4M, CSA B45.3
Pressurized flushing devices for plumbing fixtures	ASSE 1037
Specification for copper sheet and strip for building construction	ASTM B 370
Stainless steel plumbing fixtures (residential)	ASME A112.19.3M, CSA B45.4
Suction fittings for use in swimming pools, wading pools, spas, hot tubs and whirlpool bathtub appliances	ASME A112.19.8M
Temperature-actuated, flow reduction valves to individual fixture fittings	ASSE 1062
Thermoplastic accessible and replaceable plastic tube and tubular fittings	ASTM F 409
Trench drains	ASME A112.6.3
Trim for water closet bowls, tanks and urinals	ASME A112.19.5
Vacuum breaker wall hydrant—frost-resistant, automatic-draining type	ASSE 1019
Vitreous china plumbing fixtures	ASME A112.19.2M
Wall-mounted and pedestal-mounted, adjustable and pivoting lavatory and sink carrier systems	ASME A112.19.12
Water closet flush tank fill valves	ASSE 1002, CSA B125.3
Whirlpool bathtub appliances	ASME A112.19.7M

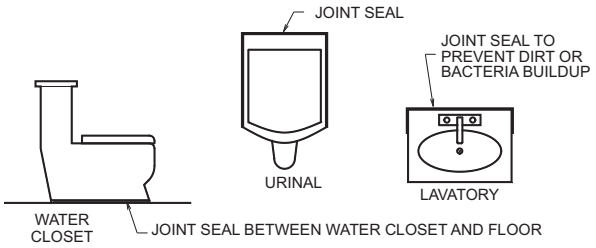
2. Wall-hung fixtures shall be rigidly supported so that strain is not transmitted to the plumbing system.
3. Where fixtures come in contact with walls and floors, the contact area shall be water tight.
4. Plumbing fixtures shall be usable.
5. Water closets, lavatories and bidets. A water closet, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition or vanity 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, lavatory or bidet to any wall, fixture or door.
6. The location of piping, fixtures or equipment shall not interfere with the operation of windows or doors.
7. In areas prone to flooding as established by Table R301.2(1), plumbing fixtures shall be located or installed in accordance with Section R322.1.7.
8. Integral fixture-fitting mounting surfaces on manufactured plumbing fixtures or plumbing fixtures constructed on site, shall meet the design requirements of ASME A112.19.2 or ASME A 112.19.3.

Q • Does a standalone fixture such as a commode or a bidet that does not fasten to a wall still have to be sealed around the base of the fixture?

A • Yes. Item 3 of Section P2705.1 requires a water-tight seal where fixtures come in contact with wall and floor surfaces. The intent is to prevent wastewater overflows from the fixture or water splash from use of a fixture from collecting in an area that cannot be readily cleaned. Stagnant bacteria-laden water can create insanitary conditions, mold and odors as well as degradation of surfaces, such as wood, that are structurally affected by standing water. Fixtures that are intended to be sealed to floors typically include water closets and bidets. Fixtures that are intended to be sealed to walls typically include wall-hung water closets and wall-mounted lavatories. [27-4]

Q • Does the requirement for water-tight joints in Section P2705.1 refer to the wax ring providing a seal for the water closet?

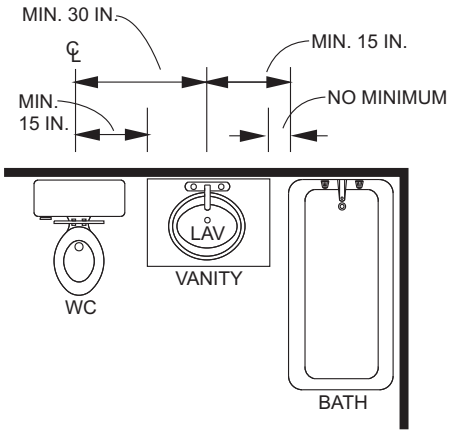
A • No. Item 3 of Section P2705.1 addresses the surface contact between a plumbing fixture and the wall or floor. The seal required is to prevent the accumulation of moisture, dirt or bacteria in a typically difficult-to-clean concealed space under or behind a water closet. The point of contact referred to in this section is not meant to address the joint between the water closet and any piping material (i.e., wax ring), which is regulated by other code provisions. See Figure 27-5. [27-5]



WATER-TIGHT JOINTS BETWEEN FIXTURES AND WALLS OR FLOORS
FIGURE 27-5

Q • Does the code regulate the distance from the side of a vanity to the side of a bathtub?

A • No. Item 5 of Section P2705.1 requires a clearance of 15 inches from the centerline of a lavatory to any sidewall, partition, vanity or other obstruction. The intent is to measure this minimum clearance from the centerline of the lavatory to the edge of the tub. The code measures clearance from water closets to the bathtub in a similar manner—minimum 15 inches from the centerline of the water closet to the edge of the tub. In the case of a vanity and a tub, there is no clearance requirement if the installation of the lavatory in the vanity complies with the lavatory clearances. See Figure 27-6. [27-6]



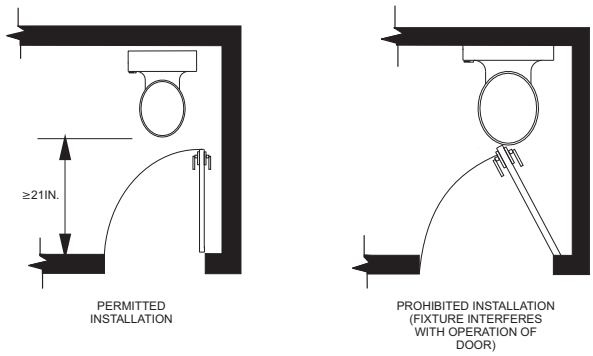
MINIMUM SIDE CLEARANCES FOR BATHROOM FIXTURES
FIGURE 27-6

Q: Is a minimum 21-inch clearance required in front of a bathtub?

A: No. A minimum 21-inch clearance is required in front of water closets, urinals, bidets and lavatories. Section P2705.1 does not address a minimum clearance around a bathtub. [27-7]

Q: When item 5 of Section P2705.1 mentions the minimum 21-inch clearance in front of fixtures to doors, is the measurement taken from the fixture to the arc of the door swing?

A: No. The clearance is measured from the front of the fixture to the door in the closed position. Item 6 of this section prohibits plumbing fixtures to be set in a location that interferes with the operation of a door or window. See Figure 27-8. [27-8]



MINIMUM CLEARANCE IN FRONT OF FIXTURES
FIGURE 27-8

Q: Item 5 of Section P2705.1 requires 15 inches of clearance from the centerline of a water closet to a vanity and 30 inches from the centerline of a water closet to the centerline of a lavatory. If the lavatory bowl is set in a vanity, and the 15-inch dimension between the water closet and vanity is met, is the prescribed dimension between lavatory and water closet still required?

A: Yes. The 30-inch dimension from the centerline of the water closet to the centerline of the lavatory is required even when the lavatory is installed in a vanity cabinet. This dimension is not meant to apply to wall-hung and pedestal lavatories only. In your example, both the 30-inch and 15-inch dimensions are minimum requirements. Refer to Figure 27-6. [27-9]

SECTION P2706
WASTE RECEPTORS

P2706.1 General. Every waste receptor shall be of an approved type. Plumbing fixtures or other receptors receiving the discharge of indirect waste pipes shall be shaped and have a capacity to prevent splashing or flooding and shall be readily accessible for inspection and cleaning. Waste receptors and standpipes shall be trapped and vented and shall connect to the building drainage system. A removable strainer or basket shall cover the waste outlet of waste receptors. Waste receptors shall be installed in ventilated spaces. Waste receptors shall not be installed in bathrooms or in any inaccessible or unventilated space such as a closet. Ready access shall be provided to waste receptors.

> **Exception:** Open hub waste receptors shall be permitted in the form of a hub or pipe extending not less than 1 inch (25 mm) above a water-impervious floor, and are not required to have a strainer.

P2706.2 Standpipes. Standpipes shall extend a minimum of 18 inches (457 mm) and a maximum of 42 inches (1067 mm) above the trap weir. Access shall be provided to all standpipe traps and drains for rodding.

P2706.2.1 Laundry tray connection. A laundry tray waste line is permitted to connect into a standpipe for the automatic clothes washer drain. The standpipe shall extend not less than 30 inches (762 mm) above the trap weir and shall extend above the flood level rim of the laundry tray. The outlet of the laundry tray shall be a maximum horizontal distance of 30 inches (762 mm) from the standpipe trap.

P2706.3 Prohibited waste receptors. Plumbing fixtures that are used for washing or bathing shall not be used to receive the discharge of indirect waste piping.

Exceptions:

1. A kitchen sink trap is acceptable for use as a receptor for a dishwasher.
2. A laundry tray is acceptable for use as a receptor for a clothes washing machine.

Q: Does the IRC prohibit the connection of A/C condensate drain piping to a tailpiece or trap

of a lavatory? Section P2706.3 seems to imply this connection is prohibited.

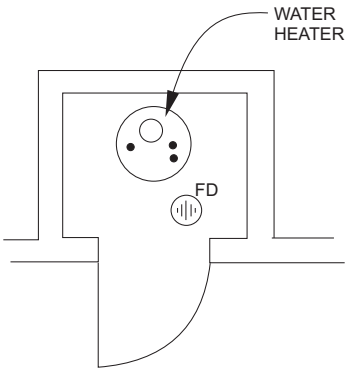
A The code is silent concerning the connection of condensate piping to traps or tailpieces of plumbing fixtures. In the context of the IRC, condensate piping is regulated by the heating and cooling equipment provisions of Chapter 14. Section M1411.3.2 specifies the acceptable piping materials and references the applicable piping materials provisions for sanitary drainage in Chapter 30. Section M1411.3 states that condensate shall be conveyed to an "approved" place of disposal. Floor drains, waste receptors, standpipes, and laundry trays generally are considered acceptable discharge locations for condensate, but are not required locations. Therefore, the code does not necessarily designate condensate piping as indirect waste piping, which is defined in the code as piping that discharges to the drainage system through an air gap. Section P2706 is not specifically applicable to the connection in your question. The building official has the final say on an acceptable method for condensate disposal and approval of a direct connection to a trap or a tailpiece. [27-10]

Q Does the code permit A/C condensate waste to discharge to a stand pipe receptor in a stud wall cavity as long as access is provided by a vented or solid access panel?

A The installation described is not permitted by the IRC. Section M1411.3 of the mechanical provisions requires condensate to discharge to an approved location. Condensate, being only clear water waste, is allowed to be discharged to a floor drain, hub drain, stand pipe, other approved receptacle or an approved fixture, such as a laundry tub in accordance with the IRC and IPC. Condensate piping that discharges to the drainage system through an air gap is considered indirect waste piping. Section P2706.1 requires ready access to plumbing fixtures and other receptors receiving the discharge of indirect waste pipes. In addition, all waste receptors must be readily accessible. By definition in Section R202, "readily accessible" means access is provided without a person removing a panel or similar obstruction. It follows that the code does not permit a waste receptor in a location where access requires removal of a panel or obstruction. [27-11]

Q Does a full-sized service-door comply with the code definition for "ready access"?

A Yes, a standard door is considered to provide ready access. In Section R202, in the definitions of "access" and "ready access," the reference to a door is intended to mean an access door such as the door on a panel, box, or a piece of equipment. The term "door" in this context does not mean a normal passage door such as would be found on a closet, mechanical room, bathroom, or utility room or a door leading to some similar space. In other words, if a device, receptor or fixture requiring ready access is located in a space, and the only obstruction to access the device is the service door to that space, the requirement for ready access has been satisfied. For example, this provision would apply to a floor drain located in a utility room and receiving the indirect discharge of condensate. In addition to the indirect waste provisions of Section P2706.1, Section P2719.1 provides that floor drains cannot be obstructed by an appliance such as a water heater or furnace. See Figure 27-12. [27-12]



FULL-SIZE PASSAGE DOOR PROVIDES READY ACCESS TO FLOOR DRAIN
FIGURE 27-12

Q Do service access panels (solid or vented) fastened to finished walls comply with the code definition for ready access?

A No. Where "ready access" is required in the code, access panels on finished walls are not permitted because they require removal for access. [27-13]

SECTION P2708
SHOWERS

P2708.1 General. Shower compartments shall have at least 900 square inches (0.6 m^2) of interior cross-sectional area. Shower compartments shall be not less than 30 inches (762 mm) in minimum dimension measured