**SECTION 405 INSTALLATION OF FIXTURES

405.1 Water supply protection.**
The supply lines and fittings for every plumbing fixture shall be installed so as to prevent backflow.  **405.2 Access for cleaning.**
Plumbing fixtures shall be installed so as to afford easy *access* for cleaning both the fixture and the area around the fixture.  **405.3 Setting.**
Fixtures shall be set level and in proper alignment with reference to adjacent walls.

**405.3.1 Water closets, urinals, lavatories and bidets.**
A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction, or closer than 30 inches (762 mm) center to center between adjacent fixtures. There shall be not less than a 21-inch (533 mm) clearance in front of the water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall be not less than 30 inches (762 mm) in width and not less than 60 inches (1524 mm) in depth for floor- mounted water closets and not less than 30 inches (762 mm) in width and 56 inches (1422 mm) in depth for wall- hung water closets.

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

**405.3.3 Location of fixtures and piping.**
Piping, fixtures or equipment shall not be located in such a manner as to interfere with the normal operation of windows, doors or other means of egress openings.

**405.3.4 Water closet compartment.**
Each water closet utilized by the *public* or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.  **Exceptions:**

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.

2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.

3. This provision is not applicable to toilet areas located within Group I-3 housing areas.

**405.3.5 Urinal partitions.**
Each urinal utilized by the *public* or employees shall occupy a separate area with walls or partitions to provide privacy. The walls or partitions shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.  **Exceptions:**

1. Urinal partitions shall not be required in a single occupant or family/assisted-use toilet room with a lockable door.

2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

**405.4 Floor and wall drainage connections.**
Connections between the drain and floor outlet plumbing fixtures shall be made with a floor flange or a waste connector and sealing gasket. The waste connector and sealing gasket joint shall comply with the joint tightness test of ASME A112.4.3 and shall be installed in accordance with the manufacturer’s instructions. The flange shall be attached to the drain and anchored to the structure. Connections between the drain and wall-hung water closets shall be made with an *approved* extension nipple or horn adaptor. The water closet shall be bolted to the hanger with corrosion-resistant bolts or screws. Joints shall be sealed with an *approved* elastomeric gasket, flange-to-fixture connection complying with ASME A112.4.3 or an *approved* setting compound.

**405.4.1 Floor flanges.**
Floor flanges for water closets or similar fixtures shall not be less than 0.125 inch (3.2 mm) thick for brass, 0.25 inch (6.4 mm) thick for plastic, and 0.25 inch (6.4 mm) thick and not less than a 2-inch (51 mm) caulking depth for cast-iron or galvanized malleable iron.  **Floor flanges of hard lead shall weigh not less than 1 pound, 9 ounces (0.7 kg) and shall be composed of lead alloy with not less than 7.75-percent antimony by weight.** Closet screws and bolts shall be of brass. Flanges shall be secured to the building structure with corrosion-resistant screws or bolts.

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

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

**405.5 Water-tight joints.**
Joints formed where fixtures come in contact with walls or floors shall be sealed.  **405.6 Plumbing in mental health centers.**
In mental health centers, pipes or traps shall not be exposed, and fixtures shall be bolted through walls.  **405.7 Design of overflows.**
Where any fixture is provided with an overflow, the waste shall be designed and installed so that standing water in the fixture will not rise in the overflow when the stopper is closed, and no water will remain in the overflow when the fixture is empty.

**405.7.1 Connection of overflows.**
The overflow from any fixture shall discharge into the drainage system on the inlet or fixture side of the trap.  **Exception:** The overflow from a flush tank serving a water closet or urinal shall discharge into the fixture served.

**405.8 Slip joint connections.**
Slip joints shall be made with an *approved* elastomeric gasket and shall only be installed on the trap outlet, trap inlet and within the trap seal. Fixtures with concealed slip-joint connections shall be provided with an *access* panel or utility space not less than 12 inches (305 mm) in its smallest dimension or other *approved* arrangement so as to provide *access* to the slip joint connections for inspection and repair.  **405.9 Design and installation of plumbing fixtures.**
Integral fixture fitting mounting surfaces on manufactured plumbing fixtures or plumbing fixtures constructed on site, shall meet the design requirements of ASME A112.19.2/CSA B45.1 or ASME A112.19.3/CSA B45.4.