Chapter 1 of the International Plumbing Code® (IPC) clarifies how the code will be enforced by code officials. Definitions of plumbing code terminology are found in Chapter 2. General regulations in Chapter 3 identify requirements not listed in other code chapters, such as testing and inspections. Fixtures and water heaters are addressed in Chapters 4 and 5, respectively. Chapters 6 and 7 regulate water and drainage piping systems, in that order. Indirect/special waste is covered in Chapter 8. Chapter 9 details acceptable venting methodologies with in-depth piping arrangements. The provisions for traps with various receptors are found in Chapter 10. Storm drainage, with its piping collection system, is covered in Chapter 11. Installation, design, storage, handling, and use of nonflammable medical gas systems are addressed in Chapter 12. Gray-water recycling systems are now addressed in Chapter 13. Standards are identified with clear guidelines in Chapter 14. Appendices A through F cover nonmandatory provisions for permit fees, rainfall rates, vacuum drainage, degree design temperatures, a water sizing method, and structural protection methodology.
202 Plumbing Fixture Definition

202 Plumbing Appliance Definition

202 Grease Interceptor Definition

303.1, 303.4 Material Identification and Third-Party Certification

308.9 Parallel Water Distribution Systems

315.1 Sealing of Annular Spaces at Penetrations

TABLE 403.1 Minimum Number of Required Plumbing Fixtures

403.2 Separate Toilet Facilities in Group M Occupancies

403.2.1 Family or Assisted-Use Toilet Facilities Serving as Separate Facilities

403.3.2 Relationship of Toilet Rooms and Food Preparation Areas

403.3.6 Locking of Toilet Room Doors

403.5 Drinking Fountain Locations

405.3.1 Minimum Water Closet Compartment Size

405.4 Floor and Wall Drainage Connections

407.2 Bathtub Waste Outlets and Overflows

410 Minimum Required Number of Drinking Fountains

417.5.2.6 Shower Pan Liner Materials

424.9 Water Closet Personal Hygiene Devices

504.4.1 Water Heater Storage Tank Relief Valves

504.7 Water Heater Pans

605 Polyethylene of Raised-Temperature (PE-RT) Plastic Tubing

TABLE 605.3 Polyethylene (PE) Water Service Pipe

TABLE 605.3 PEX Water Service Pipe

606.7 Labeling of Water Distribution Pipes in Bundles

607.1.1 Water-Temperature-Limiting Means

607.2 Hot or Tempered Water Supply to Fixtures

607.5 Hot Water Piping Insulation

608.8 Identification of Nonpotable Water

704.3, 711.2.1 Horizontal Branch Connections

TABLE 709.1 Drainage Fixture Units for Bathroom Groups

712.3.3 Sump Pump and Ejector Discharge Pipe and Fittings

712.3.5 Sump Pump Connection to the Drainage System

715.1 Fixture Protection from Sewage Backflow
802.1.8
Indirect Discharge of Food Preparation Sinks

802.2
Installation of Indirect Waste Piping

802.3
Prohibited Locations for Waste Receptors

901.3, 918.8
Air Admittance Valves for Chemical Waste Vent Systems

903.5
Location of Vent Terminals

915.2
Combination Waste and Vent System Sizing

917
Single-Stack Vent Systems

1002.1
Floor Drains in Multi-Level Parking Structures

1003.1
Interceptors and Separators

1003.3.1
Alternate GreaseInterceptor Locations

1003.3.4
Hydromechanical Grease Interceptors

1105
Roof Drain Strainers

1107
Siphonic Roof Drainage Systems

CHAPTER 13
Gray-Water Recycling Systems
CHANGE TYPE:  Modification

CHANGE SUMMARY:  The definition of “plumbing fixture” has been modified to include fixtures such as waterless urinals.

2012 CODE:  Plumbing Fixture.  A receptacle or device that is either permanently or temporarily connected to the water distribution supply system or of the premises and demands a supply of water therefrom; discharges wastewater, liquid-borne waste materials or sewage either directly or indirectly to the drainage system of the premises; or requires both.  Such receptacles or devices require a supply of water and discharge waste to the drainage system of the premises.

CHANGE SIGNIFICANCE:  The previous definition of “plumbing fixture” was outdated and incomplete.  The definition now includes receptacles and devices that do not necessarily require connection to a water supply.  Waterless urinals and floor drains, now addressed in the revised definition, were not defined as plumbing fixtures in the past.
CHANGE TYPE: Clarification

CHANGE SUMMARY: The definition of "plumbing appliance" has been changed to clarify the difference between appliances and fixtures.

2012 CODE: Plumbing Appliance. Any one of a special class of plumbing fixtures. Water-connected or drain-connected devices intended to perform a special function. Included are fixtures having the These devices have their operation or control dependent on one or more energized components, such as motors, controls, or heating elements or pressure or temperature sensing elements. Such fixtures devices are manually adjusted or controlled by the owner or operator, or are operated automatically through one or more of the following actions; a time cycle, a temperature range, a pressure range, a measured volume or weight.

CHANGE SIGNIFICANCE: The modified definition of "plumbing appliance" provides a better distinction between appliances and fixtures. The revised text updates and simplifies the definition, now recognizing these two classes as different. Examples of plumbing appliances include dishwashers, clothes washers, garbage disposals, water softeners, water purifiers, and water heaters.

Domestic garbage disposal
202
Grease Interceptor
Definition

CHANGE TYPE: Modification

CHANGE SUMMARY: The definition of “grease interceptor” has been modified for consistency with current industry terms for the two general types of grease interceptors being used in plumbing installations.

2012 CODE: Grease Interceptor. A plumbing appurtenance that is installed in a sanitary drainage system to intercept oily and greasy wastes from a wastewater discharge. Such device has the ability to intercept free-floating fats and oils.

Grease Interceptor.

Hydromechanical. Plumbing appurtenances that are installed in the sanitary drainage system to intercept free-floating fats, oils and grease from wastewater discharge. Continuous separation is accomplished by air entrainment, buoyancy and interior baffling.

Gravity. Plumbing appurtenances of not less than 500 gallons (1893 L) capacity that are installed in the sanitary drainage system to intercept free-floating fats, oils and grease from wastewater discharge. Separation is accomplished by gravity during a retention time of not less than 30 minutes.

The installation of a typical hydromechanical grease interceptor (Courtesy of Thermaco, Inc. 2010)
CHANGE SIGNIFICANCE: The provisions of Section 1003.3.4 addressing grease interceptors and automatic grease removal devices were never intended to apply to gravity grease interceptors. The new terminology now makes a clear distinction between the two types of grease interceptors, hydromechanical and gravity. The revision to the definition along with the changes made in Section 1003.3.4 place the IPC in better alignment with product standards and industry terminology. Both types of grease interceptors require diligent effort by restaurant facility managers and staff to ensure that they are regularly maintained and properly serviced. For a grease collection device to work correctly, it must be properly designed, installed, maintained, and serviced regularly.
303.1, 303.4  
Material Identification and Third-Party Certification

**CHANGE TYPE:** Clarification

**CHANGE SUMMARY:** The identification requirements for plumbing products and materials have been clarified.

**2012 CODE:** 303.1 **Identification.** Each length of pipe and each pipe fitting, trap, fixture, material, and device utilized in a plumbing system shall bear the identification of the manufacturer and any markings required by the applicable referenced standards.

303.4 **Third-Party Testing and Certification.** All plumbing products and materials shall comply be listed by a third-party certification agency as complying with the referenced standards, specifications and performance criteria of this code, and shall be identified in accordance with Section 303.1. When required by Table 303.4, plumbing products and materials shall either be tested by an approved third-party testing agency or certified by an approved third-party certification agency. Products and materials shall be identified in accordance with Section 303.1.

**TABLE 303.4  Products and Materials Requiring Third-Party Testing and Third-Party Certification**

<table>
<thead>
<tr>
<th>Product or Material</th>
<th>Third-Party Certified</th>
<th>Third-Party Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potable water supply-system components and potable water fixture-fittings</td>
<td>Required</td>
<td>–</td>
</tr>
<tr>
<td>Sanitary drainage and vent system components</td>
<td>Plastic-pipe, fittings and pipe-related components</td>
<td>All Others</td>
</tr>
<tr>
<td>Waste fixture fittings</td>
<td>Plastic-pipe, fittings and pipe-related components</td>
<td>All Others</td>
</tr>
<tr>
<td>Storm-drainage system-components</td>
<td>Plastic-pipe, fittings and pipe-related components</td>
<td>All Others</td>
</tr>
<tr>
<td>Plumbing fixtures</td>
<td>–</td>
<td>Required</td>
</tr>
<tr>
<td>Plumbing appliances</td>
<td>Required</td>
<td>–</td>
</tr>
<tr>
<td>Backflow prevention devices</td>
<td>Required</td>
<td>–</td>
</tr>
<tr>
<td>Water distribution system safety devices</td>
<td>Required</td>
<td>–</td>
</tr>
<tr>
<td>Special waste system components</td>
<td>–</td>
<td>Required</td>
</tr>
<tr>
<td>Subsoil drainage system components</td>
<td>–</td>
<td>Required</td>
</tr>
</tbody>
</table>
CHANGE SIGNIFICANCE: The modification to the identification provisions of Section 303.1 clarifies the intent of the code that products and materials shall bear the identification of the manufacturer, as well as the identification requirements that are referenced by the applicable standard. As a result of the modifications made to Section 303.4, all plumbing products and materials must now be listed by a third-party certification agency. Table 303.4 was deleted as a result of the modifications made to Section 303.4.
308.9
Parallel Water Distribution Systems

CHANGE TYPE: Modification

CHANGE SUMMARY: In parallel water distribution systems, the hot and cold water piping may now be grouped in the same pipe bundle.

2012 CODE: 308.9 Parallel Water Distribution Systems. Piping bundles for manifold systems shall be supported in accordance with Table 308.5. Support at changes in direction shall be in accordance with the manufacturer’s installation instructions. Where hot and cold water piping shall not be grouped in the same is bundled with cold or hot water piping, each hot water pipe shall be insulated.

CHANGE SIGNIFICANCE: Hot water piping is now permitted to be bundled together with other cold or hot water piping. However, this installation method is only permitted where each hot water pipe is insulated. Only one of the hot water pipes in a parallel water distribution system actually has hot water running through it at any given time. The other hot water pipes have cold water sitting in them and heat transfer between the hot pipe being used and the other piping will take place. Manifold plumbing systems are control centers for hot and cold water that feed flexible PEX supply lines to individual fixtures. Cold water and un-insulated hot water piping in the same bundles are known to absorb large amounts of heat. This code modification will prevent this costly heat transfer.

Example of insulated bundle piping
CHANGE TYPE: Modification

CHANGE SUMMARY: The provisions for sealing any annular spaces created at piping penetrations have been revised to be consistent with the building envelope sealing requirements of the International Energy Conservation Code.

2012 CODE: 305.4 315.1 Sleeves Sealing of Annular Spaces. The annular spaces between the outside of a pipe and the inside of a pipe sleeves, and pipes or between the outside of a pipe and an opening in a building envelope wall, floor, or ceiling assembly penetrated by a pipe shall be filled or tightly caulked sealed in an approved manner with caulking material or closed with a gasketing system. The caulking material, foam sealant, or gasketing system shall be designed for the conditions at the penetration location and shall be compatible with the pipe, sleeve and building materials in contact with the sealing materials. Annular spaces between created by pipes penetrating sleeves and pipes in fire resistance-rated assemblies or membranes of such assemblies shall be filled or tightly caulked sealed or closed in accordance with Section 714 of the International Building Code.

315.1 continues
CHANGE SIGNIFICANCE: It is important that penetrations of the building envelope and other building elements be appropriately sealed. The modified text clarifies that only the ends of the annular spaces need to be sealed or closed. Filling of the entire annular space cavity is unnecessary for preventing uncontrolled air movement. The term “tightly caulked” was removed, as it was considered outdated language from the era of “packing and pouring” lead joints. It is anticipated that there will be only a few situations that would warrant having a pipe so rigidly fixed in a through-penetration. The term “pipe” was added in the reference to sleeves in order to clarify which sleeves are to be considered.

Clarification has been given to what was sometimes interpreted to require sealing between pipe and flexible plastic sleeving that is used for corrosion protection. It was also considered important to add the requirements that sealing materials be compatible with all items that they might come in contact with and that the materials be suitable for the weather and temperature conditions of the application. There are several solvent-based caulking materials that affect plastic piping, and there are instances where a caulking material is inappropriate for outdoor conditions, resulting in rainwater damage to the building.

An additional change made was to clarify and emphasize the importance of ensuring that where fire-resistance-rated assemblies are being penetrated by pipes, specific materials and methods in accordance with the International Building Code (IBC) must be used. Proper firestopping methods are critical for fire safety.
**CHANGE TYPE:** Modification

**CHANGE SUMMARY:** Service sinks are no longer required in Group B and M occupancies where the occupant load does not exceed 15.

**2012 CODE:**

**Table 403.1 (IBC TABLE 2902.1) Minimum Number of Required Plumbing Fixtures (See Sections 403.2 and 403.3)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Classification</th>
<th>Occupancy</th>
<th>Description</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Business</td>
<td>B</td>
<td>Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses</td>
<td>1 service sinkg</td>
</tr>
<tr>
<td>6</td>
<td>Mercantile</td>
<td>M</td>
<td>Retail stores, service stations, shops, salesrooms, markets and shopping centers</td>
<td>1 service sinkg</td>
</tr>
</tbody>
</table>

*Reader's Note: Other changes may occur in Table 403.1 that will be addressed in different areas of this book; those portions of the table not addressed remain unchanged.

**CHANGE SIGNIFICANCE:** A new allowance limited to business and mercantile occupancies permits the omission of a service sink where the occupant load of the establishment is 15 or less persons. The basis for the exception is that there are other thresholds established within the code that provide for reduced requirements where the maximum occupancy is very low. For example, the requirement for separate male and female restrooms (separate facilities for each sex) is only applicable where there are more than 15 occupants, increasing to 100 occupants in mercantile sales occupancies. The allowance granted by footnote “g” eliminates the mandate for a service sink in small business and mercantile occupancies. In a small facility, such as a retail store with a sales area of not more than 3,000 square feet or an office with a maximum floor area of 1,500 square feet, a service sink and the associated closet can occupy a disproportionate amount of floor space. Typically, service sinks in these small occupancies are rarely, if ever, used.
403.2
Separate Toilet Facilities in Group M Occupancies

CHANGE TYPE: Modification

CHANGE SUMMARY: The exemption from separate plumbing facilities for each sex in Group M mercantile occupancies now applies where the occupant load of the occupancy does not exceed 100.

2012 CODE: 403.2 Separate Facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:
1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or less.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 50 or less.

CHANGE SIGNIFICANCE: Recent years have seen an increase in mixed-use buildings that are predominantly residential in use with one or more small, secondary retail components. Such retail spaces are quite often developed into neighborhood retail that is boutique in nature and classified as a Group M occupancy. A study by the U.S. Department of Labor, Bureau of Labor Statistics indicated that the typical floor area of the retail units fell within a range of 1,500 square feet to 3,000 square feet. As an example, based on International Building Code (IBC) Table 1004.1.1, at 30 square feet per occupant, a typical space of 2,400 square feet would...
Significant Changes to the IPC 2012 Edition

403.2 • Separate Toilet Facilities in Group M Occupancies

have an occupant load of 80 persons. Consequently, such a space did not previously qualify for Exception 3 of the IPC Section 403.5 that allows for a single toilet facility to serve up to 50 occupants. Therefore, the space would have required separate toilet facilities for males and females. The requirement for separate facilities for each sex placed on these smaller retail occupancies often led to manipulation of the occupant load calculation for the purpose of avoiding the additional toilet facility. Because a Group M occupancy requires a second exit where the occupant load exceeds 49, the manipulation of occupant load subsequently adversely impacted the means-of-egress requirements for the space. By increasing the occupant load threshold to 100 persons, separate toilet facilities for each sex are not required for those small retail spaces having floor areas not greater than 3,000 square feet.

Two accessible single-user toilet facilities occupy approximately 80 square feet of floor area. In a 1,500-square-foot tenant space, these facilities would occupy more than 5% of the total space. The increase in the occupant load threshold now allows for the industry norm in boutique retail tenant size to be accommodated with one single-user toilet facility. Given that it is rare that these small retail spaces would be occupied by the number of persons equal to the design occupant load, and that IPC Table 403.1 indicates that two water closets are permitted to serve up to 1,000 persons, the provision of a single toilet facility appears to be more than adequate for the size of space that the proposed occupant load threshold increase would allow. The limited floor area of 3,000 square feet that the proposed occupant load threshold can accommodate is such that neither a 500- nor 300-foot travel distance limitation as required in IPC Section 403.3 would ever be exceeded.
403.2.1
Family or Assisted-Use Toilet Facilities Serving as Separate Facilities

CHANGE TYPE: Addition

CHANGE SUMMARY: Where separate toilet facilities for each sex are required and only one water closet is mandated in each facility, two family or assisted-use toilet facilities are now permitted to substitute for the separate facilities for each sex.

2012 CODE: 403.2.1 Family or Assisted-Use Toilet Facilities Serving as Separate Facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family/assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.

CHANGE SIGNIFICANCE: Separate toilet facilities for males and females are required in most buildings. In many cases, only one water closet is mandated within each toilet facility. In such situations, the code now permits the substitution of two family/assisted-use toilet rooms in lieu of the two separate toilet rooms for each sex. The advantage of allowing two family/assisted-use toilet facilities to serve as the required separate facilities is the efficiency provided when either toilet room can be used by either sex. This increases the availability of facilities in smaller spaces without needing to offer multi-user toilet facilities. There are often situations where a single gender-based toilet facility can be unavailable for periods of up to 15 minutes when, for example, the current occupant is using it for companion care, to change diapers, or to change a colostomy bag. There will also be less of an impact to potential users when one toilet room is being cleaned or serviced. This is not a new concept, as the IPC has always permitted the use of a shared toilet room in buildings or tenant spaces with low occupant loads. As another example, males and females use the same toilet facility on airplanes.
CHANGE TYPE: Addition

CHANGE SUMMARY: The IBC requirement prohibiting the opening of toilet rooms directly into food preparation areas is now also established in the IPC.

2012 CODE: **403.3.1 Toilet Room Ingress and Egress.** Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

CHANGE SIGNIFICANCE: IBC Section 1210.5 has historically prohibited openings between a toilet room and any room or space where food is being prepared for the public, such as a commercial kitchen that serves a restaurant dining area. The requirement that toilet rooms not open directly into rooms where food is prepared for the public is necessary to keep the food preparation areas in a sanitary condition. Replicating the building code provision in the IPC will be helpful and increase efficiency for plumbing designers, installers, inspectors, and other IPC users.

403.3.2 continues
403.3.2 continued

Cooler and food storage

Kitchen

Women's restroom

Men's restroom

Sales counter

Dining area customers

Unacceptable condition
CHANGE TYPE: Addition

CHANGE SUMMARY: Locking devices are now specifically prohibited on the egress door of toilet rooms designed for multiple occupants.

2012 CODE: 403.3.6 Door Locking. Where a toilet room is designed for multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.

CHANGE SIGNIFICANCE: The doors of multiple-occupant toilet rooms must no longer be capable of being locked from the inside of the room. Restricting the egress door in this way will reduce the possibility of inappropriate activities that are more likely to occur when an occupant can restrict entry to the toilet room. Such locking potential can also restrict immediate egress from the toilet room when it may be necessary.

Acceptable nonlockable door installation for a multiple-occupant toilet room
**CHANGE TYPE:**  Addition

**CHANGE SUMMARY:** Where drinking fountains are required, the permitted locations of the fountains have been specified regarding their placement in multi-tenant facilities, similar to the permitted locations for required public toilet facilities.

**2012 CODE:**  **403.5 Required Drinking Fountains.** Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a travel distance of 500 feet of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet. Drinking fountains shall be located on an accessible route.

**CHANGE SIGNIFICANCE:** The sharing of public restroom facilities in multi-tenant facilities has historically been permitted under Section 403.3 of the IPC, but the code was silent on the sharing of drinking fountains. The new provision recognizes that if employees and the public can share public restroom facilities, then they should be able to also share drinking fountains if located within a reasonable distance. The travel distance restriction of 500 feet maximum between a public drinking fountain and the most remote location in the tenant space, as well as the limitation requiring placement of the fountain not more than one story above or below the tenant space, is almost identical to the language used in Section 403.3.2 for toilet facilities. The limiting distance of 300 feet in covered mall buildings is the same distance required for toilet facilities.
**CHANGE TYPE:** Modification

**CHANGE SUMMARY:** The minimum depth of a water closet compartment containing a wall-hung water closet has been reduced from 60 inches to 56 inches.

**2012 CODE:** 405.3.1 Water Closets, Urinals, Lavatories, and Bidets. A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction, or closer than 30 inches (762 mm) center to center between adjacent fixtures. There shall be at least a 21-inch (533-mm) clearance in front of the water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall be not less than 30 inches (762 mm) in width and 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 (see Figure 405.3.1).

**CHANGE SIGNIFICANCE:** A wall-hung nonaccessible water closet compartment is now permitted to be 56 inches in depth, which is 4 inches shorter in length than required for a compartment containing a floor-mounted water closet. The IPC is now closer in alignment with the accessible water closet compartment depth requirements set forth in Section 604.8.2 of ICC/ANSI A117.1 2009, where wall-hung water closets are provided in accessible water closet compartments.

*405.3.1 continues*
### 405.3.1 continued

**Wall-mounted WC compartment**
- 15" clearance from the WC to the wall
- 60" floor-to-floor distance
- 56" height

**Floor-mounted WC compartment**
- 15" clearance from the WC to the wall
- 60" floor-to-floor distance
- 60" height

**Fixture clearance**
- 15" clearance from the WC to the wall
- 60" floor-to-floor distance
- 60" height

**Tub**
- 60" length
- 30" width

**Lav**
- 30" width

**UR**
- 30" width
CHANGE TYPE: Modification

CHANGE SUMMARY: The use of a waste connector and sealing gasket is now permitted as an acceptable means to connect floor outlet plumbing fixtures, allowing for water closet installations that are provided with a gasketed waste tube outlet connection.

2012 CODE: 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 installation 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.

CHANGE SIGNIFICANCE: Historically, a “flanged” outlet connection for floor-mounted water closets has been the only acceptable method for making the connection between the drain and a floor outlet plumbing fixture. Connections of this type are typical of water closets designed for the North American market. The recognition of a waste connector and sealing gasket allows for another acceptable type of water closet connection method that will make more water closet products available to designers and installers. The new allowance recognizes this commonly used international method of connection. The connection arrangement consists of a waste tube connector on the water closet that is inserted into an elastomeric gasket. The waste tube and gasket are then inserted into the drain pipe opening at the floor line, and the gasket provides the seal between the water closet’s waste tube and the drain pipe. The water closet fixture is then anchored directly to the floor using mounting brackets or fasteners. These anchors are often concealed to allow for a smooth, sanitary exterior interface to the floor.

This design is used almost exclusively in Europe and other locations worldwide, and offers many advantages over wax-ring flange seals. ASME A112.4.3, a standard already referenced in the IPC and the International Residential Code (IRC), requires that the connection be leak-tight to pressures up to 10 psi. Such water closet designs are available in a wide range of rough-in dimensions.
407.2
Bathtub Waste Outlets and Overflows

CHANGE TYPE: Modification

CHANGE SUMMARY: Bathtubs are now required to be equipped with an overflow, and the required stopper must be watertight.

2012 CODE: 407.2 Bathtub Waste Outlets and Overflows. Bathtubs shall have be equipped with a waste outlet and an overflow outlet. The minimum outlets shall be connected to waste tubing or piping not less than 1 ½ inches (38 mm) in diameter, and the waste outlet shall be equipped with an approved watertight stopper.

CHANGE SIGNIFICANCE: Even though most bathtubs are installed with overflows, the code text has not previously been clear as to whether or not an overflow was required. New language specifically states that bathtubs must be provided with an overflow outlet. Overflows for bathtubs are a safeguard to prevent flooding and are now required to be installed in addition to the waste outlet. The insertion of the term “watertight” regarding the required waste outlet stopper clarifies that the purpose of the stopper is to allow the tub to be filled with water and hold the water in place.

Bathtub waste outlet and overflow
Significant Changes to the IPC 2012 Edition

**CHANGE TYPE:** Modification

**CHANGE SUMMARY:** The IBC provisions addressing the minimum required number of drinking fountains have been replicated in the IPC to provide clarity and consistency of application.

**2012 CODE:**

**410.1 Approval.** Drinking fountains shall conform to ASME A112.19.1M/CSA B45.2 or ASME A112.19.2M/CSA B45.1 or ASME A112.19.9M and water coolers shall conform to ARI 1010. Drinking fountains and water coolers shall conform to NSF 61, Section 9. Where water is served in restaurants, drinking fountains shall not be required. In other occupancies, where drinking fountains are required, water coolers or bottled water dispensers shall be permitted to be substituted for not more than 50 percent of the required drinking fountains.

**410.2 Minimum Number.** Not fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.

**Exception:** A single drinking fountain that complies with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.

**410.3 Substitution.** Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In other occupancies, where drinking fountains are required, water coolers or bottled water dispensers shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.

**CHANGE SIGNIFICANCE:** Although the minimum required number of drinking fountains for each type of occupancy has historically been addressed in the IPC, Section 1109.5 of the IBC went into more detail concerning the requirements for people who use a wheelchair. The IBC criteria have now been brought into the IPC to give it more clarity and to provide consistency with the IBC. No fewer than two drinking fountains shall be provided where a drinking fountain is required. At least one drinking fountain shall comply with the requirements for people who use a wheelchair and at least one drinking fountain shall comply with the requirements for standing persons. The seated and standing drinking fountains that serve a facility need not be provided at the same location in the facility. The exception allows for the use of a single fixture that accommodates both seated and standing persons. Technical criteria for both wheelchair-accessible fountains and standing-person fountains are located in Section 602 of ICC A117.1.

Restaurants have historically been exempted from the requirement for drinking fountains, provided water service is available to the customers. This exemption is now only applicable where the water is provided in a container free of charge. Those restaurants that only provide water at a cost to the customer must have complying drinking fountains.

*410 continues*
Where the plumbing code requires this number of drinking fountains:

The building code requires either of these configurations:

- Combo “Hi-Lo Units”
- Combo “Hi-Lo Units”
- Combo “Hi-Lo Units”
- Combo “Hi-Lo Units”

Minimum required number of drinking fountains
Significant Changes to the IPC 2012 Edition

**417.5.2.6 Shower Pan Liner Materials**

**CHANGE TYPE:** Addition

**CHANGE SUMMARY:** Recognition of an acceptable shower pan liner system using liquid-type, trowel-applied, load-bearing, bonded waterproof materials has been added to the current listing of acceptable shower floor liner methods.

**2012 CODE:** 417.5.2.6 Liquid Type, Trowel Applied, Load Bearing, Bonded Waterproof Materials. Liquid type, trowel applied load bearing, bonded waterproof materials shall meet the requirements of ANSI A118.10 and shall be applied in accordance with the manufacturer's installation instructions.

**CHANGE SIGNIFICANCE:** Another acceptable form of waterproofing has been recognized for the on-site construction of shower floors. The membrane that is applied is a thin, load-bearing waterproofing designed specifically for the special requirements of ceramic tile, stone, and brick installations. A self-curing liquid rubber polymer and a reinforcing fabric are quickly applied to form a flexible, seamless waterproofing membrane that bonds to a wide variety of substrates. The membrane must be applied in accordance with the manufacturer's installation instructions.

ANSI A118.10 waterproof membrane
(Courtesy of Laticrete International)