

New Code Requirements to the 2012 International Plumbing Code

Chapter 4 Fixtures, Faucets and Fixture Fittings

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CHAPTER 4

Fixtures, faucets and Fixture Fittings

Chapter 4 covers the requirements for plumbing fixtures and the materials used to connect them to the plumbing system. All fixtures and fittings must be manufactured to recognized standards and installed by methods which comply to those listed in this chapter.

Amendments to the 2012 IPC

Chapter 3 of the International Plumbing Code

The following slides detail the significant changes between the 2006 and 2012 International Plumbing Code. These slides show changes made by the International Code Council and amendments that were adopted by the State of Georgia. As per state law, amendments must be used in direct relation with the plumbing code as part of Georgia's State Minimum Standard Plumbing Code. Amendments are written by a task force appointed by the Georgia Department of community affairs and included in the code to reflect changes necessary in the code to make it consistent with Georgia law and to make the code more user-friendly in the field.

Amendments to the 2012 IPC

Chapter 4 of the International Plumbing Code

In some of the new revisions Chapters 3, 4 and 6 of the 2012 Plumbing Code were amended because of a bill passed by the state legislature in 2010. This bill dealt with water conservation and revised the plumbing schedules and requirements for fixtures. They were amended to include the requirements of the "Water Sense" program which was developed by the EPA. Some of the changes on flow requirements are included in Chapter 4.

Changes to the 2012 IPC

Chapter 4 of the International Plumbing Code

There were several changes to Table 403.1. This table dictates the required number of fixtures for a building based on the occupancy (use) of the building and the total occupant load. As you can see by the table 403.1 on the next slide. The table lists the types of buildings that fall in this occupancy classification such as theaters, nightclubs, restaurants, and large structures such as Coliseums and stadiums. It shows the fixtures required for these occupancies using a formula based off one fixture for a certain number of people. For example, in a theater one water closet is required for every 125 males and one for every 65 females. This number will vary from building to building.

As you will see by the next slides changes were made in the numbering of occupants per fixture and some footnotes were added to revise a requirements.

Table 403.1

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a
 (See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN ^{e,f} (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1 ^d	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		A-2 ^d	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		A-3 ^d	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
			Places of worship and other religious services.	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
		A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink

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- **Code Change Table 403.1:** New classifications were added to the tables and the required fixtures for these buildings were changed to include the addition of a bath tub or shower.

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TABLE 403.1 Minimum Number of Required Plumbing Fixtures^a
(See Section 403.2 and 403.3)

No.	Classification	Occupancy	Description	Water Closets	Lavatories	Bathtubs/Showers
5	Institutional	I-4	<u>Adult day care</u> and child care	1 per 15	1 per 15	<u>1</u>

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CHANGE SIGNIFICANCE. The code now requires that a tub or shower be installed in adult day care or child facilities. The code submitters' supporting statement pointed out that the tubs and/or showers were necessary to ensure sanitary conditions for the individuals in this use group (Institutional I-4). The code change submitting association further explained that these fixtures were necessary to bathe clients who had soiled themselves. These bathing fixtures are generally considered to be common tubs and/or showers conforming to the code-required standards found in Chapter 4, Fixtures, faucets and fixture fittings. However, the bathing fixture could be the institutional type that has several additional features, such as flexible spray hoses, disinfection provisions, and cleansing aeration jets.

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*The next change to Table 403.1 was a Georgia Amendment that added the requirement for two hose bibbs on all single family homes and townhouses. It states that one must be located on the rear or side of the home.

CHAPTER 4

Georgia Amendment

*Revise Table 403.1 ‘Minimum Number of Required Plumbing Fixtures^a’ by adding the following requirement under the column labeled ‘Other’ for line number ‘7’ descriptions:

Table 403.1

Minimum Number of Required Plumbing Fixtures^a

‘One- and two-family dwellings’ and ‘Apartment house’:

Detached single-family, duplex and multi-family dwelling structures three stories or less in height shall have not less than two exterior hose bibs, sill cocks or outside hydrants with one being located on the side or rear of the structure.

(Effective January 1, 2014)

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- **Code Change Table 403.1:** Footnote “f” was added to the table stating revising the requirement for drinking fountains. While the footnote “f” deleted the requirement for drinking fountains in occupancies with an occupant load of 15 or less people, Georgia amended this footnote to state that drinking fountains are not required where the occupant load is 25 or less.



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- **Code Change Table 403.1: Footnote “f” added:**
Drinking fountains are no longer required in occupancies where the occupant load does not exceed 25.

- 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 *International Building Code*.
- b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.
- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. The minimum number of required drinking fountains shall comply with Table 403.1 and Chapter 11 of the *International Building Code*.
- f. Drinking fountains are not required for an occupant load of 15 or fewer.
- g. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

Georgia Amendment revised

CHAPTER 4

Georgia Amendment

Code Change Table 403.1: Footnote “f” added: Drinking fountains are no longer required in occupancies where the occupant load does not exceed 25.

*Revise Table 403.1 ‘Minimum Number of Required Plumbing Fixtures^a’ **Footnote ‘f’ to read as follows:**

Table 403.1

Minimum Number of Required Plumbing Fixtures^a

f. Drinking fountains are not required for an occupant load of 25 or fewer. (Effective January 1, 2014)

CHAPTER 4

- **Code Change Table 403.1: Footnote “g” added:** Service sinks are no longer required in Group B and M occupancies where the occupant load does not exceed 15.

CHAPTER 4

- **Code Change Table 403.1:** Service sinks are no longer required in Group B and M occupancies where the occupant load does not exceed 15.

- 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 *International Building Code*.
- b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.
- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. The minimum number of required drinking fountains shall comply with Table 403.1 and Chapter 11 of the *International Building Code*.
- f. Drinking fountains are not required for an occupant load of 15 or fewer.
- g. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

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Reason for Change: 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..

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Reason for Change: While this new footnote deletes requirement or service sinks in small occupancies **the requirement for service sinks in all occupancies had already been deleted from the code through Georgia amendment.** After review by the task force reviewing the plumbing code it was stated that service sinks are rarely used and often the traps go dry and allow sewer gas to enter the building.

It is also important to note that even though the plumbing code has been deleted of these requirements, there are many other state agencies such as the Department of Agriculture and State Fire Marshal's office that still require service sinks in certain occupancies such as grocery stores and day care facilities..

CHAPTER 4

Georgia Amendment

***Revise Table 403.1 ‘Minimum Number of Required Plumbing Fixtures^a’ to delete the requirements for ‘service sink’ without substitution. (Effective January 1, 2014)**

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Table 403.1

Deleted by Georgia
Amendment.



TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a
(See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN ^{e,f} (SEE SECTION 410.1)	OTHER
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		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink

Section 403.1.1 Chapter 4

The next codes change revises section 403.1 .1 dealing with the calculation of fixtures based off the sex of occupants. As you can see by the table in certain occupancies females require more fixtures than males. This is due to the fact it females often take longer in the restrooms and urinals are not an option. When given the occupant load of a building the code uses the formula of simply dividing the occupants in half with 50% being male and 50% being female. In some cases this would not be accurate as the building might have more females than males or vice versa. In these cases the plumbing official or design professional would simply determine the load and the fixtures required based off statistical data. The 2006 code allowed various ways to determine the male or female load. The 2012 code only allows this method to be used making it more consistent.

Section 403.1.1 Chapter 4

403.1.1 Fixture Calculations. To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table 403.1. Fractional numbers resulting from applying the fixture ratios of Table 403.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

Exception: The total occupant load shall not be required to be divided in half where approved statistical data indicates a distribution of the sexes of other than 50 percent of each sex.

Section 403.2 Chapter 4

2012 CODE CHANGE: 403.2 Separate Facilities. Changes the the requirement for separate bathroom facilities in mercantile occupancies. Raises the number of occupants from 50 to 100 before separate facilities are required.

Section 403.2 Chapter 4

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~~ 100 or less.**

Section 403.2 Chapter 4

Reason for Change: 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. In many cases the maximum occupant load would exceed 50 and require the owner to install separate facilities for men and women. This added expense often led to manipulation of the occupant load calculation to keep it at 49 or below for the purpose of avoiding the additional toilet facility.

Section 403.2 Chapter 4

This caused a major safety issue 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.

Section 403.2 Chapter 4

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.

Section 403.2 Chapter 4

Reason for Change: In many buildings the plumbing code requires a separate bathroom facility for each sex due to occupant load. This code change allows each of these restrooms to be designated as unisex. This revision makes the bathroom facilities more usable for employees and customers. In the event one bathroom is occupied or being cleaned a person could use the other restroom. This arrangement is used successfully in a number of buildings and even on airplanes.

Section 403.2 Chapter 4

The following slide shows the revision of the 2012 plumbing code concerning bathrooms found in restaurants. The International Building Code has always included a requirement which stated that the access to these bathrooms could not be through a food prep area. This code change adds this same language and requirement to the Plumbing Code. Also the section was revised to allow an out entrance to the bathroom if the pathway meets the requirements of the Building code.

Section 403.3.1 Chapter 4

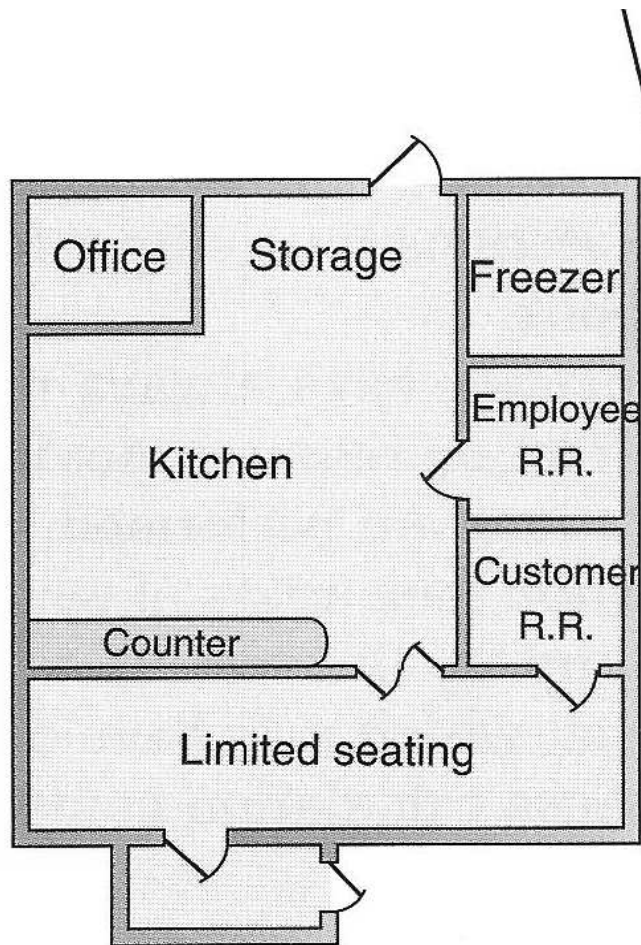
2012 CODE: 403.3.1 Toilet Room Ingress and Egress. Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

Reason for Change: 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

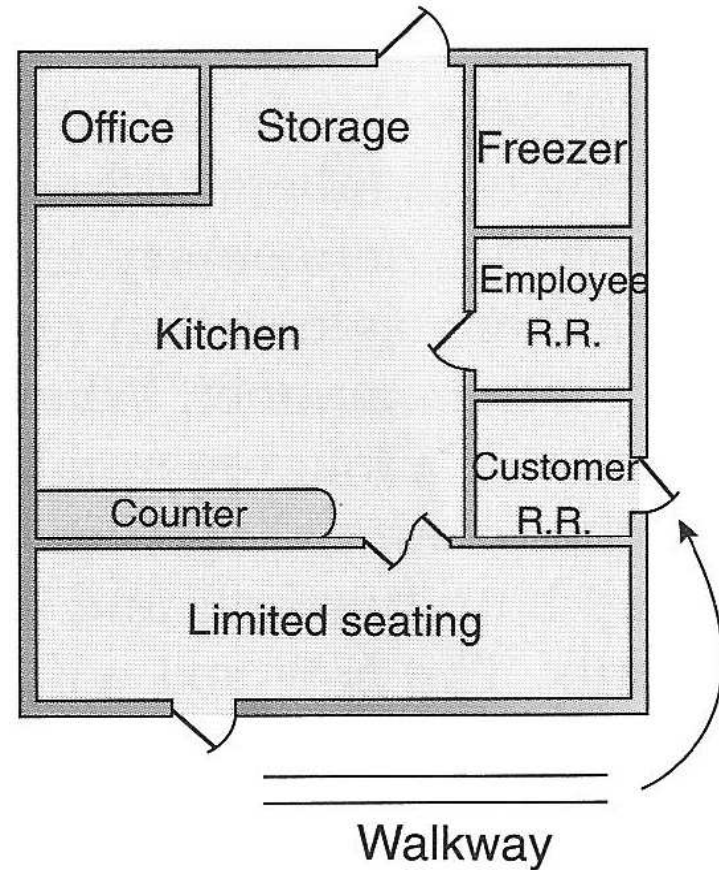
Section 403.3.1 Chapter 4

403.3.1 Access. The route to the public toilet facilities required by Section 403.3 shall not pass through kitchens, storage rooms or closets. Access to the required facilities shall be from within the building or from the exterior of the building. All routes shall comply with the accessibility requirements of the *International Building Code*. The public shall have access to the required toilet facilities at all times that the building is occupied.

Section 403.3.1 Chapter 4



Indoor Access Acceptable
Customer Restroom
Northern Location



Exterior Access Acceptable
Customer Restroom
Southern Location

The two small buildings illustrate a single occupant toilet facility accessible from the interior and the exterior of the structure.

Section 403.3.3 Chapter 4

Location of toilet facilities in occupancies other than malls.

The code limits this distance to 500 feet. This Georgia Amendment was added to allow the local building official to grant a waiver on the maximum travel distance in three occupancies where this restriction can be a problem due to the layout of the building. The code already allowed this waiver on Industrial and factories so the Georgia amendment added storage. Many times the shelving in storage warehouses has to be rearranged to accommodate new items and that can change the travel distance.

Section 403.3.3 Chapter 4

Georgia Amendment

***Revise exception of Section 403.3.3 ‘Location of toilet facilities in occupancies other than malls’ to read as follows:**

403.3.3 Location of toilet facilities in occupancies other than malls.

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

(Effective January 1, 2014)

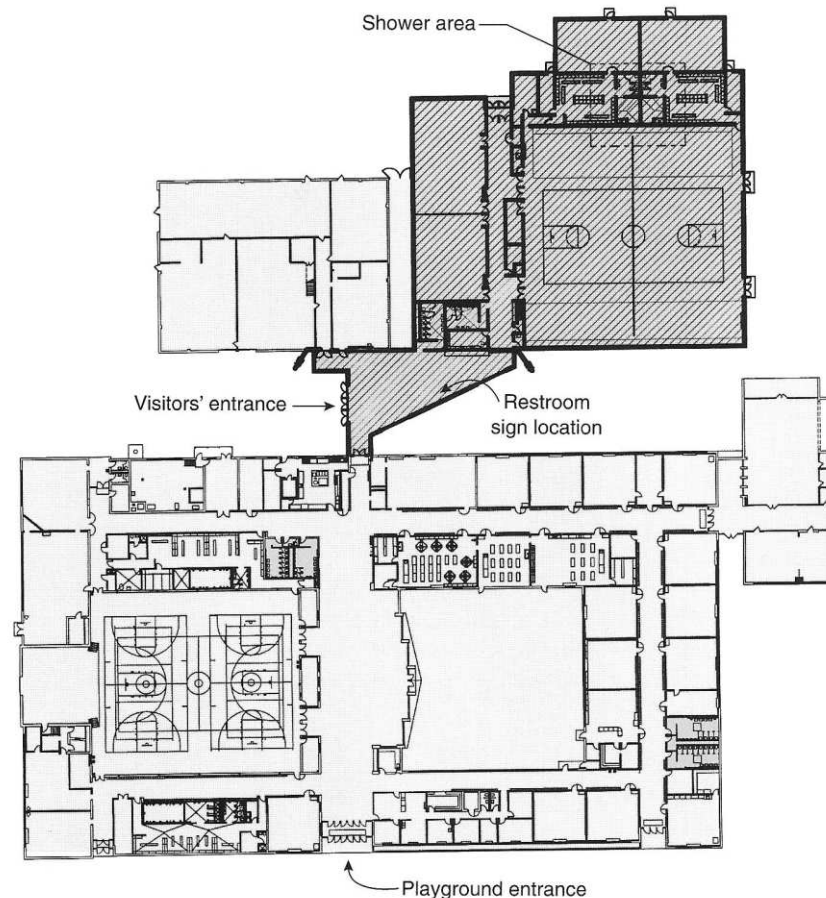
Section 403.4.1 Chapter 4

Section 403.4 .1 was added to include the requirement for directional signage replaced outside a public restroom when other bathroom facilities are available in the same building. When people are unaware that other facilities are located in the same building they will needlessly wait in line to use the restroom. The directional signage will make them aware of the other facilities within the building.



Section 403.4.1 Chapter 4

2009 CODE: 403.4.1 Directional Signage. Directional signage indicating the route to the public facilities shall be posted in accordance with Section 3107 of the *International Building Code*. Such signage shall be located in a corridor or aisle, at the entrance to the facilities for customers and visitors.



Proper signage to aid visitors in locating public restrooms when necessary assures users that the code is effective in addressing their needs.

Section 403.3.6 Chapter 4

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.

Section 403.3.6 Chapter 4

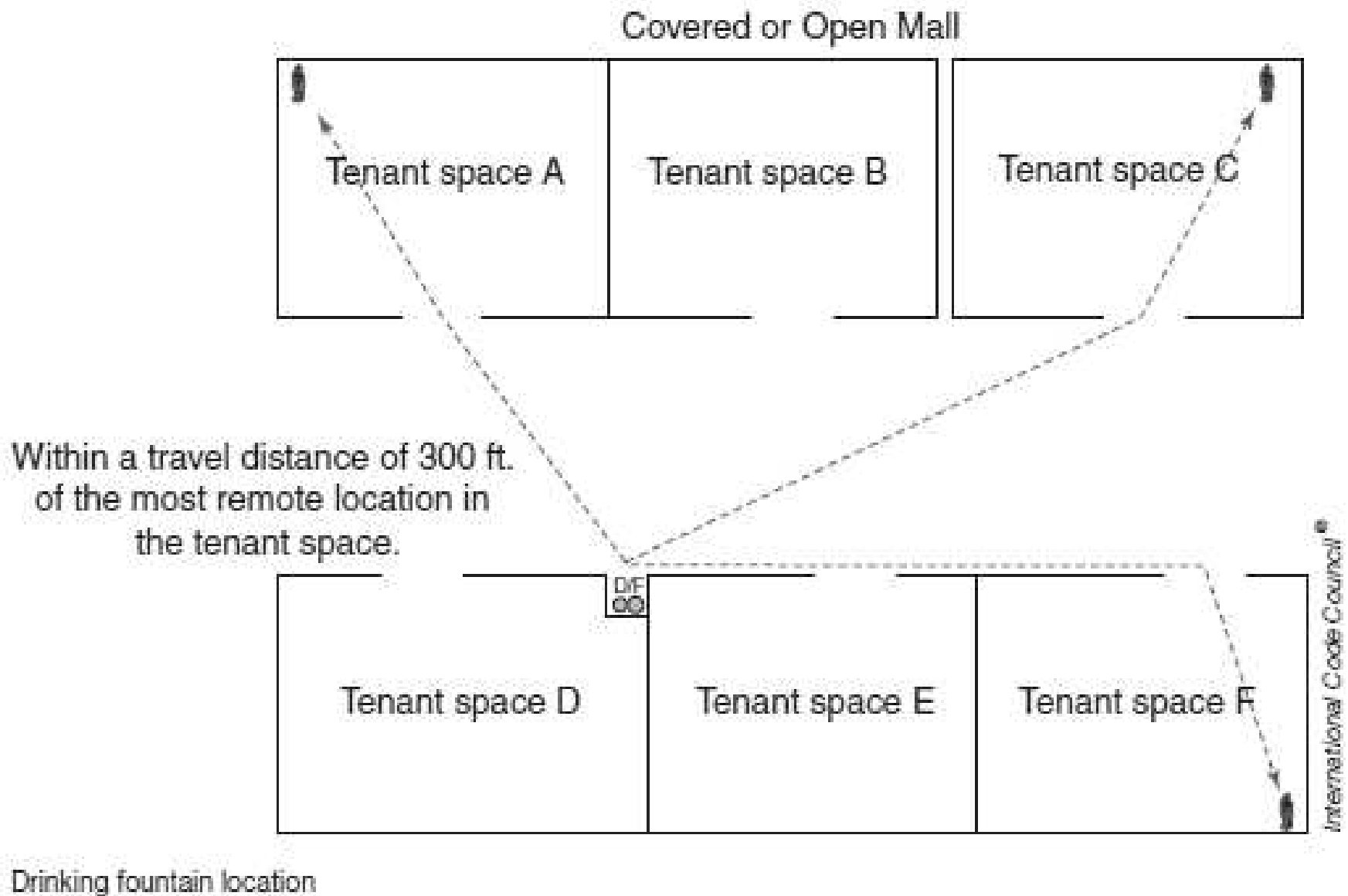
Reason for Change: The doors of multiple-occupant toilet rooms must no longer be capable of being locked from the inside of the room. Restricting the egress door in this way will reduce the possibility of inappropriate activities that are more likely to occur when an occupant can restrict entry to the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

Section 403.5 Chapter 4

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.

Section 403.5 Chapter 4



Section 403.5 Chapter 4

Reason for Change: 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

Changes to the 2012 International Plumbing Code.

**This is the End of Part One of the Code
Changes to Chapter 4.**

(One hour Credit)