

**City of Loveland**  
**Meeting of the Construction Advisory Board**  
**October 26, 2016**  
**City Council Chambers**  
**500 East 3<sup>rd</sup> Street**  
**6:00 PM**

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- I. CALL TO ORDER**
- II. ROLL CALL**
- III. MINUTES: August 24, 2016**

*Anyone in the audience will be given time to speak to any item on the Agenda. Please ask for that item to further discuss. You will be given an opportunity to speak to the item before the CAB acts upon it.*

*Anyone making a comment during any portion of tonight's meeting should come forward to a microphone and identify yourself after being recognized by the Chairperson.*

*Please do not interrupt other speakers. Side conversations should be moved outside the Council Chambers. Please limit your comments to no more than ten minutes.*

- IV. CITIZEN COMMENTS**
- V. REPORTS:**
  - a. Board/Commission Members**
  - b. City Council Liaison, John Fogle**
  - c. Chief Building Official, John Schumacher**
- VI. REGULAR AGENDA:**
  - a. Moses Garcia, Assistant City Attorney - Presentation of Complaint Handling Procedure**
  - b. John Schumacher, Chief Building Official-Drinking Fountains, Discuss and Resolve**
- VII. AJOURNMENT**

**City of Loveland Construction Advisory Board**  
**Meeting Minutes**  
August 24, 2016

**Roll Call:**

**Board Members Present:** Jason Baker, Andrew Ross, Blaine Rappe, Roger Lewis, Christopher Rosenberger, Jon Rudolph, Bob Dehn

**Board Members Absent:** Keith Benner, Adam Trainor

**City Staff Members Present:** Theresa Campbell, Shana Zimmerschied, Moses Garcia, Fank Lindauer, Roger Berg, Jim Lees

**City Council Members Present:** John Fogle

**I. Call to Order:** Christopher Rosenberger called the meeting to order at 6:01 PM

**II. Approval of Minutes:**

Motion to approve ammended June 22, 2016 meeting minutes made by Jon Rudolph, seconded by Roger Lewis. Motion passed unanimously. Minutes have been revised to state that a partial, not final, version of the Complaint Handling Process was given to the Board.

**III. Citizen Comments**

- a. Harrell Cross, owner of the building at 151 E 5<sup>th</sup> Street, spoke to the Construction Advisory Board about Stop Work Orders on his property issued by the Building Division. Mr. Cross was encouraged by the Board to consult a design professional and/or a Licensed Contractor to assist him in navigating the process and aquiring necessary permits from the Building Division.

**IV. Reports**

a. **Board and Commission Members:**

b. **Council Liaison:** John Fogle updated the board on the Downtown Catalyst project, now known as "The Foundry."

c. **Staff:** John Schumacher asked that the Board verify that their emails are current so that everyone is getting the Building Division Newsletter and Updates.

**V. Regular Agenda**

- a. Moses Garcia, Assistant City Attorney- Presentation of Complaint Handling Process – Jon Rudolph and Andrew Ross offered to help Moses in refining the process.
- b. Frank Lindauer and Roger Berg gave updates on Water and Power projects.
- c. Jim Lees gave presentation of 10 year CIPs for growth related projects and proposed impact fees for next year. A motion was made by Jason Baker to recommend Jim Lees

tak the information to City Council. Seconded by Jon Rudolph and the motion passed unanimously.

**VI. Other Business:**

- a. A motion is made by Jason Baker that the Building Division keep board member name plates. Motion is seconded by Blaine Rappe and passed unanimously.

**VII. Adjournment:**

A motion was made by Blaine Rappe and seconded by Jason Baker to adjourn the meeting at 9:05 PM. The motion passed unanimously.



**Development Services  
Building Division**

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## **MEMORANDUM**

**DATE:** September 28, 2016  
**TO:** Members of Construction Advisory Board  
**FROM:** John C. Schumacher, Jr., Chief Building Official  
**SUBJECT:** Request for resolution concerning drinking fountain requirements

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### **Issue:**

At the City Council meeting of August 16, 2016, an explanation from the Building Division of the purpose and need for drinking fountains in accordance with adopted codes was requested by City Council. A memorandum to City Council concerning drinking fountains was subsequently presented and is attached. Consideration of the adopted codes and a resolution of recommendation from the Construction Advisory Board to City Council concerning any possible action on code requirements related to drinking fountains is requested.

### **Background:**

The enforcement of the requirements in the adopted codes for installation of an accessible drinking fountain in occupancies with occupant loads exceeding fifteen triggered a public comment to City Council at the August 16, 2016 meeting. Despite adoption of the 2012 International Codes and local amendments requiring drinking fountains, the enforcement of the drinking fountain requirements prior to April of 2015 was inconsistent. Since April of 2015, the enforcement of the requirement for drinking fountains in occupancies which do not meet the requirements of the adopted codes for exception have been consistently enforced. The public comment on August 16, 2016 in opposition to these requirements is the first and has triggered this request for the Board to examine and consider if a recommendation of changes to the currently adopted codes is warranted.

### **Analysis and Recommendation:**

The enforced requirements for drinking fountains are contained within the International Plumbing Code Table 403.1 and Section 410, which establish requirements based on occupancy type and occupant load, and which provide for exceptions based on occupancy type, occupant load and number of drinking fountains required.

Requirements are also contained within the International Building Code, Sections 1109.5 and 2902 and Table 2902.1. Table 2902.1 of the IBC is identical to Table 403.1 of the International Plumbing Code.

Requirements related to the accessibility of drinking fountains is contained within Chapter 6 of the ANSI A117.1 Standard for Usable and Accessible Buildings. It sets forth height and reach requirements and more for drinking fountains when they are required.

Generally, drinking fountains are required in all occupancies, with the exception of those that have an occupant load of 15 or less or in food service establishments that provide drinking water free of charge to patrons. The code allows for substitution of water dispensers for drinking fountains at rate of up to fifty-percent of those required, but requires that the first required drinking fountain be a true hard-connected, wall hung drinking fountain.

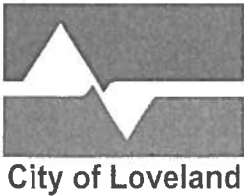
Drinking fountains provide a reliable, safe, healthy and free source of water for building occupants. Drinking fountains in public occupancies such as schools, malls, stadiums, concert halls and similar occupancies are important and are considered by many to be a matter of public health and welfare. There is often a need for building occupants to have ready access to free water due to age, physical condition, and sanitary and health reasons, which is evidenced in extensive empirical data.

For public health and welfare, staff does not recommend alteration of the current building or plumbing codes regarding the need for fountains. The currently adopted codes provide exceptions from drinking fountains for occupancies with occupant loads of 15 and under, which industry experts have deemed to be an acceptable and justifiable trigger level. However, the Construction Advisory Board does have discretion to recommend changes to the adopted building and plumbing codes to City Council. In the event that the Construction Advisory Board chooses to recommend amendments to the codes, staff has provided alternatives below that attempt to minimize any affects to the public health and welfare.

1. Amend sections of both the Building and Plumbing Codes to insure concurrence in drinking fountain requirements
2. Amend the requirements for both drinking fountains and service sinks similarly in both the Building and Plumbing Codes
3. Adopt amendments that exempt B and M occupancies of 15 or less from the drinking fountain requirement by allowing a bottled water dispenser substitution for the required drinking fountain.
4. Adopt amendments that exempt B and M occupancies with occupant loads of 16 to 100 from the drinking fountain requirement by allowing a piped, plumbing system connected water dispensing unit. These units typically require a water supply line that is similar to an ice maker in a refrigerator, with both the unit and supply line being less costly but insuring a ready water supply.
5. Do not alter the drinking fountain requirements for B and M occupancies with occupant loads exceeding 100 or for any other occupancy types as it may adversely affect the occupants of occupancies such as schools, factories, industrial and large assembly occupancies.

**Action:**

Staff respectfully requests consideration and a resolution of recommendation to City Council by the Construction Advisory Board concerning drinking fountain requirements within the adopted codes.



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## **MEMORANDUM**

**DATE:** August 31, 2016

**TO:** Honorable Mayor and Members of City Council;  
Steve Adams, City Manager;  
Rod Wensing, Assistant City Manager; and  
Brett Limbaugh, Development Services Director

**FROM:** John C. Schumacher, Jr., Chief Building Official

**SUBJECT:** Drinking fountains in adopted codes

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**Issue:**

At the City Council meeting of August 16, 2016, the requirement of drinking fountains in the City of Loveland's adopted codes was questioned and an explanation of the purpose and need for such drinking fountains was requested. This memorandum is in response to that request.

**Background:**

Drinking fountains began to enter into building codes in the early 1900's in response to a lack of readily available public water and a growing number of illnesses and deaths directly attributed to the consumption of contaminated water. Uncirculated water or water circulated through contaminable sources resulted in the spread of bacteria, leading to illness and death, and prompting the requirement for installation of drinking fountains in both public buildings and spaces. In the 1950's chilled water drinking fountains began to emerge in public places such as schools, malls, and stadiums. In the 1980's, drinking fountains were adapted to meet the physical challenges of the population and the requirements of the Americans with Disabilities Act. Requirements for the installation of drinking fountains and their associated plumbing piping were incorporated into plumbing codes in the earliest version of the Plumbing Code and have remained in that code since that time. The code dictates the requirements related to drinking fountains, such as the location of those fountains, the number of fountains, the height of the fountains and more. The applicable code requirements are determined by the type and size of the occupancy of a structure.

Under the current International Building and Plumbing Codes, all occupancies are required to provide drinking fountains, with exceptions permitted under certain circumstances. The codes currently provide exceptions for food service occupancies such as bars and restaurants, provided that water is readily provided to patrons free of charge. The code also exempts occupancies in which the occupant load is fifteen or less persons. For business occupancies, such as banks, law and real estate offices, barbers and beauty salons, dentists or similar occupancy types, that occupant load of 15 or less would typically be met when the space occupied is 1,500 square feet or less in size. For mercantile occupancies such as retail stores, markets, drug stores or similar occupancy types, the 15 occupant load would typically be met when the space occupied is 900 square feet or less in size. A 16 person occupant load is the consistent threshold established in the plumbing code that

triggers a number of requirements, including drinking fountains, service sinks, separate sex restrooms, separate employee facilities and more. This trigger level is based on empirical data collected over several decades of code formulation and review.

The ANSI A117.1 Standard for Accessible and Usable Facilities requires drinking fountains to be accessible, when provided. This standard is extracted from the ADA, which establishes guidelines for the construction and alteration of structures in a manner that provides accessibility to those with physical challenges. Drinking fountains, like many other accessible building and plumbing components, are required by the ANSI Standard to comply with requirements for activation, height, approach and more in order to insure that all physically challenged persons are afforded equal opportunity when making use of the fountain. The Building and Plumbing Codes establish the requirement for drinking fountains, while the ANSI Standard establishes the criteria for accessible installation, if a fountain is required.

#### **Analysis and Recommendation:**

There are a number of reasons for the inclusion of drinking fountains in the requirements of today's codes. Drinking fountains provide a reliable, safe, healthy and free source of water for building occupants. Drinking fountains in public occupancies such as schools, malls, stadiums, concert halls and similar occupancies remain important and are considered by many to be a matter of public health and welfare. There is also often a need for building occupants to have ready access to free water due to age, physical condition, and sanitary and health reasons, which is evidenced in extensive empirical data. By the year 2030, more than 20 percent of the population will be over age 65. This age group is much more likely to experience chronic illness and physical disabilities that require ready access to water and accommodation when accessing that water. The growing trend in use of disposable water bottles has led some municipalities to lessen requirements for drinking fountains, but has resulted in a massive increase in the number of plastic bottles in landfills, creating a new environmental concern. Drinking fountains help to alleviate that concern.

For public health and welfare, staff does not recommend alteration to the current building or plumbing codes regarding the need for fountains. The currently adopted codes provide exceptions from drinking fountains for occupancies with occupant loads of 15 and under, which industry experts have deemed to be an acceptable and justifiable trigger level. However, City Council does have discretion in the decision to utilize drinking fountains. In the event City Council desires to amend the codes staff has provided alternatives below that attempt to achieve the same goal of protecting the public health and welfare.

1. Amend sections of both the Building and Plumbing Codes to insure concurrence in drinking fountain requirements
2. Amend the requirements for both drinking fountains and service sinks similarly in both the Building and Plumbing Codes
3. Adopt amendments that exempt B and M occupancies of 15 or less from the drinking fountain requirement by allowing a bottled water dispenser substitution for the required drinking fountain.
4. Adopt amendments that exempt B and M occupancies with occupant loads of 16 to 100 from the drinking fountain requirement by allowing a piped, plumbing system connected water dispensing unit. These units typically require a water supply line that is similar to an ice maker in a refrigerator, with both the unit and supply line being less costly but insuring a ready water supply.
5. Do not alter the drinking fountain requirements for B and M occupancies with occupant loads exceeding 100 or for any other occupancy types as it may adversely affect the occupants of occupancies such as schools, factories, industrial and large assembly occupancies.

#### **Action:**

Staff respectfully requests direction from City Council regarding any action on codes and amendments related to drinking fountains.

# 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.** Water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge in accordance with ASME A112.19.2/CSA B45.1 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/m<sup>2</sup>).

**402.4 Sheet lead.** Sheet lead for pans shall not weigh less than 4 pounds per square foot (19.5 kg/m<sup>2</sup>) 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 *International Building Code*. *Occupancy* classification shall be determined in accordance with the *International Building Code*.

TABLE 403.1  
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>  
(See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN <sup>a,1</sup> (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1 <sup>d</sup>	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 <sup>d</sup>	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 <sup>d</sup>	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

(continued)



TABLE 403.1 —continued  
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES\*  
(See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN <sup>a,1</sup> (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1 (cont.)	Assembly	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
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink <sup>2</sup>
3	Educational	E	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		(see Section 411)	1 per 400	1 service sink
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		I-2	Hospitals, ambulatory nursing home care recipient	1 per room <sup>c</sup>		1 per room <sup>c</sup>		1 per 15	1 per 100	1 service sink per floor
			Employees, other than residential care <sup>b</sup>	1 per 25		1 per 35		—	1 per 100	—
			Visitors, other than residential care	1 per 75		1 per 100		—	1 per 500	—
		I-3	Prisons <sup>b</sup>	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
			Reformatories, detention centers, and correctional centers <sup>b</sup>	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
			Employees <sup>b</sup>	1 per 25		1 per 35		—	1 per 100	—
		I-4	Adult day care and child day care	1 per 15		1 per 15		1	1 per 100	1 service sink

(continued)

TABLE 403.1 —continued  
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>  
(See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN <sup>b</sup> (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink <sup>a</sup>
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-2	Apartment house	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
		R-3	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-3	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
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouse and freight depots. Low and Moderate Hazard.	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 *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

(continued)

TABLE 403.1 —continued  
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>  
(See Sections 403.2 and 403.3)

- 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.

**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.

**403.1.2 Family or assisted-use toilet and bath fixtures.** Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 of the *International Building Code* are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile *occupancies*.

**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 fewer.
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or fewer.

**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.

**403.3 Required public toilet facilities.** Customers, patrons and visitors shall be provided with *public* toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. Employees shall be provided with toilet

facilities in all *occupancies*. Employee toilet facilities shall be either separate or combined employee and *public* toilet facilities.

**Exception:** Public toilet facilities shall not be required in open or enclosed parking garages. Toilet facilities shall not be required in parking garages where there are no parking attendants.

**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.

**[B] 403.3.2 Toilet room location.** Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

**403.3.3 Location of toilet facilities in occupancies other than malls.** In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

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

**403.3.4 Location of toilet facilities in malls.** In covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 300 feet (91 440 mm). In mall buildings, the required facilities shall be based on total square footage within a covered mall building or within the perimeter line of an open mall building, 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 central toilet facilities in mall buildings shall be measured from the main entrance of any store or tenant space. In mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum travel distance shall be measured from the employees' work area of the store or tenant space.

## SECTION 410 DRINKING FOUNTAINS

**410.1 Approval.** Drinking fountains shall conform to ASME A112.19.1/CSA B45.2 or ASME A112.19.2/CSA B45.1 and water coolers shall conform to ARI 1010. Drinking fountains and water coolers shall conform to NSF 61, Section 9.

**[B] 410.2 Minimum number.** Where drinking fountains are required, 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.

**410.4 Prohibited location.** Drinking fountains, water coolers and bottle water dispensers shall not be installed in *public* restrooms.

## SECTION 411 EMERGENCY SHOWERS AND EYEWASH STATIONS

**411.1 Approval.** Emergency showers and eyewash stations shall conform to ISEA Z358.1.

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

## SECTION 412 FLOOR AND TRENCH DRAINS

**412.1 Approval.** Floor drains shall conform to ASME A112.3.1, ASME A112.6.3 or CSA B79. Trench drains shall comply with ASME A112.6.3.

**412.2 Floor drains.** Floor drains shall have removable strainers. The floor drain shall be constructed so that the drain is capable of being cleaned. *Access* shall be provided to the drain inlet. Ready *access* shall be provided to floor drains.

**Exception:** Floor drains serving refrigerated display cases shall be provided with *access*.

**412.3 Size of floor drains.** Floor drains shall have a drain outlet not less than 2 inches (51 mm) in diameter.

**412.4 Public laundries and central washing facilities.** In public coin-operated laundries and in the central washing facilities of multiple-family dwellings, the rooms containing automatic clothes washers shall be provided with floor drains located to readily drain the entire floor area. Such drains shall have a outlet 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. 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 1½ inches (38 mm) in diameter.

**413.3 Commercial food waste grinder waste outlets.** Commercial food waste grinders shall be connected to a drain not less than 1½ inches (38 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. The water supply shall be protected against backflow by an *air gap* or backflow preventer in accordance with Section 608.

## 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, 608.13.2, 608.13.3, 608.13.5, 608.13.6 or 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/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4.

**415.2 Waste outlet.** Each compartment of a laundry tray shall be provided with a waste outlet not less than 1½ 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/CSA B45.2, ASME A112.19.2/CSA B45.1, or ASME A112.19.3/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 1¼ inches (32 mm) in diameter. A

**1109.2.1.1 Standard.** Family or assisted-use toilet and bathing rooms shall comply with Sections 1109.2.1.2 through 1109.2.1.7.

**1109.2.1.2 Family or assisted-use toilet rooms.** Family or assisted-use toilet rooms shall include only one water closet and only one lavatory. A family or assisted-use bathing room in accordance with Section 1109.2.1.3 shall be considered a family or assisted-use toilet room.

**Exception:** A urinal is permitted to be provided in addition to the water closet in a family or assisted-use toilet room.

**1109.2.1.3 Family or assisted-use bathing rooms.** Family or assisted-use bathing rooms shall include only one shower or bathtub fixture. Family or assisted-use bathing rooms shall also include one water closet and one lavatory. Where storage facilities are provided for separate-sex bathing rooms, *accessible* storage facilities shall be provided for family or assisted-use bathing rooms.

**1109.2.1.4 Location.** Family or assisted-use toilet and bathing rooms shall be located on an *accessible route*. Family or assisted-use toilet rooms shall be located not more than one *story* above or below separate-sex toilet rooms. The *accessible route* from any separate-sex toilet room to a family or assisted-use toilet room shall not exceed 500 feet (152 m).

**1109.2.1.5 Prohibited location.** In passenger transportation facilities and airports, the *accessible route* from separate-sex toilet rooms to a family or assisted-use toilet room shall not pass through security checkpoints.

**1109.2.1.6 Clear floor space.** Where doors swing into a family or assisted-use toilet or bathing room, a clear floor space not less than 30 inches by 48 inches (762 mm by 1219 mm) shall be provided, within the room, beyond the area of the door swing.

**1109.2.1.7 Privacy.** Doors to family or assisted-use toilet and bathing rooms shall be securable from within the room.

**1109.2.2 Water closet compartment.** Where water closet compartments are provided in a toilet room or bathing room, at least one wheelchair-accessible compartment shall be provided. Where the combined total water closet compartments and urinals provided in a toilet room or bathing room is six or more, at least one ambulatory-accessible water closet compartment shall be provided in addition to the wheelchair-accessible compartment.

**1109.2.3 Lavatories.** Where lavatories are provided, at least 5 percent, but not less than one, shall be accessible. Where the total lavatories provided in a toilet room or bathing facility is six or more, at least one lavatory with enhanced reach ranges shall be provided.

**1109.3 Sinks.** Where sinks are provided, at least 5 percent but not less than one provided in *accessible* spaces shall be *accessible*.

**Exception:** Mop or service sinks are not required to be *accessible*.

**1109.4 Kitchens and kitchenettes.** Where kitchens and kitchenettes are provided in *accessible* spaces or rooms, they shall be *accessible*.

**1109.5 Drinking fountains.** Where drinking fountains are provided on an exterior site, on a floor or within a secured area, the drinking fountains shall be provided in accordance with Sections 1109.5.1 and 1109.5.2.

**1109.5.1 Minimum number.** No 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.

**Exceptions:**

1. 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.
2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children shall be permitted to provide the spout at 30 inches (762 mm) minimum above the floor.

**1109.5.2 More than the minimum number.** Where more than the minimum number of drinking fountains specified in Section 1109.5.1 are provided, 50 percent of the total number of drinking fountains provided shall comply with the requirements for persons who use a wheelchair and 50 percent of the total number of drinking fountains provided shall comply with the requirements for standing persons.

**Exceptions:**

1. Where 50 percent of the drinking fountains yields a fraction, 50 percent shall be permitted to be rounded up or down, provided that the total number of drinking fountains complying with this section equals 100 percent of the drinking fountains.
2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children shall be permitted to provide the spout at 30 inches (762 mm) minimum above the floor.

**1109.6 Saunas and steam rooms.** Where provided, saunas and steam rooms shall be *accessible*.

**Exception:** Where saunas or steam rooms are clustered at a single location, at least 5 percent of the saunas and steam rooms, but not less than one, of each type in each cluster shall be *accessible*.

**1109.7 Elevators.** Passenger elevators on an *accessible route* shall be *accessible* and comply with Chapter 30.

## CHAPTER 29

# PLUMBING SYSTEMS

### SECTION 2901 GENERAL

**[P] 2901.1 Scope.** The provisions of this chapter and the *International Plumbing Code* shall govern the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the *International Plumbing Code*. Private sewage disposal systems shall conform to the *International Private Sewage Disposal Code*.

### SECTION 2902 MINIMUM PLUMBING FACILITIES

**[P] 2902.1 Minimum number of fixtures.** Plumbing fixtures shall be provided for the type of occupancy and in the minimum number shown in Table 2902.1. Types of occupancies not shown in Table 2902.1 shall be considered individually by the *building official*. The number of occupants shall be determined by this code. Occupancy classification shall be determined in accordance with Chapter 3.

**[P] 2902.1.1 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 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 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 indicate a distribution of the sexes of other than 50 percent of each sex.

**[P] 2902.1.2 Family or assisted-use toilet and bath fixtures.** Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.

**[P] TABLE 2902.1  
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>  
(See Sections 2902.2 and 2902.3)**

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE INTERNATIONAL PLUMBING CODE)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS <sup>a,1</sup> (SEE SECTION 410.1 OF THE INTERNATIONAL PLUMBING CODE)	OTHER
				MALE	FEMALE	MALE	FEMALE			
I	Assembly (continued)	A-1 <sup>d</sup>	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 <sup>d</sup>	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 <sup>d</sup>	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

(continued)

[P] TABLE 2902.1—(continued)  
 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>  
 (See Sections 2902.2 and 2902.3)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE INTERNATIONAL PLUMBING CODE)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS <sup>a,1</sup> (SEE SECTION 410.1 OF THE INTERNATIONAL PLUMBING CODE)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	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
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink <sup>a</sup>
3	Educational	E	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		See Section 411 of the International Plumbing Code	1 per 400	1 service sink
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		I-2	Hospitals, ambulatory nursing home care recipient <sup>b</sup>	1 per per room <sup>a</sup>		1 per per room <sup>c</sup>		1 per 15	1 per 100	1 service sink
			Employees, other than residential care <sup>b</sup>	1 per 25		1 per 35		—	1 per 100	—
			Visitors, other than residential care	1 per 75		1 per 100		—	1 per 500	—
		I-3	Prisons <sup>b</sup>	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
		I-3	Reformatories, detention centers and correctional centers <sup>b</sup>	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
			Employees <sup>b</sup>	1 per 25		1 per 35		—	1 per 100	—
		I-4	Adult day care and child day care	1 per 15		1 per 15		1	1 per 100	1 service sink

(continued)

[P] TABLE 2902.1—continued  
 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>  
 (See Sections 2902.2 and 2902.3)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE INTERNATIONAL PLUMBING CODE)		LAVATORIES		BATHTUBS OR SHOWERS	DRINKING FOUNTAINS <sup>e,f</sup> (SEE SECTION 410.1 OF THE INTERNATIONAL PLUMBING CODE)	OTHER
				MALE	FEMALE	MALE	FEMALE			
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink <sup>g</sup>
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-2	Apartment house	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
		R-3	One- and two-family dwellings	1 per dwelling unit		1 per 10		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit
		R-3	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100		1 per 100		See Section 411 of the International Plumbing Code	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 this 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 2902.1 and Chapter 11.
- 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.



## Chapter 6. Plumbing Elements and Facilities

❖ Chapter 6 deals with fixtures that would be connected to a building's water supply. This includes plumbing fixtures, as well as the requirements for other related items such as water closet stalls, laundry equipment, etc. Section 804 ("Kitchens and kitchenettes") references the sink requirements in Section 606.

Chapter 6 is also referenced from Chapter 10 for some of the criteria for toilet rooms or bathrooms located within or serving dwelling units or sleeping units (e.g., congregate residences, apartments, hotel rooms, assisted living, nursing homes, hospitals, etc.). However, users should first follow the provisions in Chapter 10 for the appropriate level of accessibility, and only look at Chapter 6 if it is referenced or if desiring to provide a higher level of access.

- Section 601 is a general scoping provision to indicate that the requirements in this chapter are applicable when referenced by the authority having jurisdiction.
- Section 602 deals with built-in drinking fountains.
- Section 603 contains the general requirements for the rooms that contain toilet and/or bathing facilities.
- Section 604 deals with the water closets (toilets) themselves. This includes the stall requirements for wheelchair-accessible and ambulatory stalls.
- Section 605 contains the technical requirements for accessible urinals.
- Section 606 contains criteria for both lavatories and sinks. Lavatories are typically used for hand washing. Sinks are typically used for other types of cleanup or work (lab sink, kitchen sink).
- Section 607 covers bathtub requirements. Bathtubs may include portable seats or built-in seats.
- Section 608 contains information for transfer, roll-in and an alternate roll-in shower compartment.
- Section 609 contains general grab bar information, which is referenced in the sections dealing with water closets, bathtubs and showers.
- Section 610 provides general information for the seats found in bathtubs and showers.
- Section 611 contains criteria for laundry equipment, both washers and dryers.
- Section 612 addresses the technical criteria for accessible saunas and steam rooms.

There are specific exemptions for toilet or bathing rooms accessed only through a private office. These can be found in Sections 603.2.2, 604.4, 604.5, 606.2, 606.3, 607.4, 608.2.1.3, 608.2.2.3, 608.2.3.2 and 608.3. The exceptions allow for adaptable features in this portion of an individual's work space, which includes reversal of the door to the toilet room; any height for the water closet; blocking for future installation of grab bars at the water closet, bathtub or shower, or seats in the shower; and no clear floor space or height restrictions for the lavatory. The

room and fixtures must also meet other provisions for accessibility.

There are specific requirements for drinking fountains and toilet rooms sized for children. The standard does not require a designer to use child sized provisions, but once the choice is made for the drinking fountain or toilet room, all the pieces of the package must be followed. For example, the water closet would not be as usable if the child-sized seat height was used with the adult height for grab bars (see Sections 602.2, 604.1, 604.9.2.2, 604.9.5.2, 604.11 through 604.11.8, 606.2 and 609.4.2). Section 602.2 contains technical criteria for children's accessible drinking fountains. Provisions for child sized toilet rooms call for water closets closer to the wall with the grab bar, lower water closet seat height, lower flush controls, a lower reach range for the toilet paper dispenser, lower lavatories (including a possible side approach) and lower grab bars. Provisions for child sized toilet compartments also include higher toe clearance requirements for stall partitions, as well as larger compartment sizes for stalls with wall-hung water closets.

### 601 General

**601.1 Scope.** Plumbing elements and facilities required to be accessible by scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 6.

- ❖ The provisions in this chapter are intended to cover the requirements for plumbing fixtures found in general use toilet rooms and bathrooms. Toilet rooms and bathrooms associated with Accessible, Type A and Type B dwelling and sleeping units are more specifically addressed in Chapter 10. Chapter 10 references Chapter 6 when applicable. Note that these provisions apply to plumbing elements required by the scoping documents (see Section 201).

### 602 Drinking Fountains

- ❖ This standard does not require drinking fountains, but once they are provided, the percentages specified by the scoping document must meet the requirements in this section. Typically, the locally adopted plumbing code specifies the number of required drinking fountains based on the number of occupants and use of the space. This section includes provisions for drinking fountains for standing persons, as well as accessible drinking fountains for adults and children who use wheelchairs.

**602.1 General.** Accessible drinking fountains shall comply with Sections 602 and 307.

- ❖ This section is not intended to cover bottle-type water coolers, which generally rely on paper cups and are not permanently piped. This section is intended to address the clear floor space and access to the controls and water for

built-in drinking fountains. Please be aware that accessible drinking fountains by their clearance requirements are not within the detectable range for a cane user; therefore, provisions for protruding objects and alcoves are additional concerns. This is may be even more of a concern for the drinking fountains raised for standing persons. Drinking fountains may be located in an alcove or provide adjacent barriers that are detectable by a person with a long cane (see Commentary Figure C602.1 and Section 307).

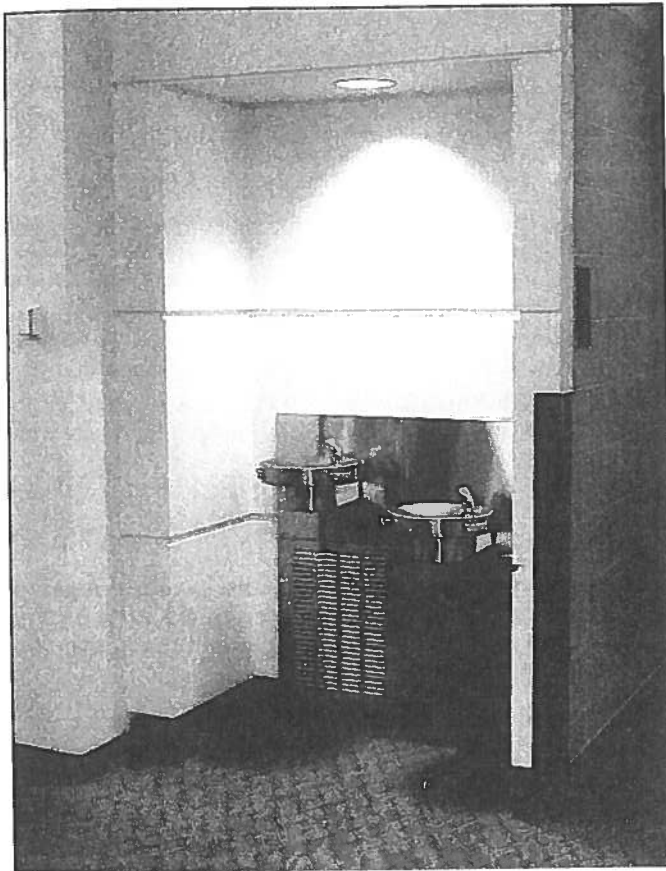


FIGURE C602.1  
DRINKING FOUNTAINS IN ALCOVE

**602.2 Clear Floor Space.** A clear floor space complying with Section 305, positioned for a forward approach to the drinking fountain, shall be provided. Knee and toe space complying with Section 306 shall be provided. The clear floor space shall be centered on the drinking fountain.

**EXCEPTIONS:**

1. Drinking fountains for standing persons.
2. Drinking fountains primarily for children's use shall be permitted where the spout outlet is 30 inches (760 mm) maximum above the floor, a parallel approach complying with Section 305 is provided and the clear floor space is centered on the drinking fountain.

❖ In addition to having accessible spout design and controls, a water fountain must be located on an accessible route, have appropriate knee and toe clearance and have clear floor space. The space required in Section 305 must be provided to ensure that the person can maneuver from the accessible route directly to the water fountain or into an alcove to get into position to drink [see Commentary Figure C602.2(a) and (b)].

The height and shape of the drinking fountain must permit an individual in a wheelchair to access the fixture. A cantilevered unit at least 17 inches (430 mm) deep allows the legs and feet of the user to be positioned under the unit. The knee and toe clearances required in Sections 306.2 and 306.3 are consistently required throughout the standard for a forward approach.

Drinking fountains for standing persons are not required to meet the clear floor space and knee and toe clearance requirements in this section (Exception 1).

Accessible drinking fountains with the spout at 36 inches (915 mm) (Section 602.4) have been found to be outside of the reach of children using wheelchairs. However, if the spout outlet height is installed at 30 inches (760 mm) maximum, the knee and toe clearances typically are not available. Therefore, a parallel side approach, centered on the drinking fountain, is required (Exception 2) (see Figure 602.2).

There are some existing drinking fountains having a parallel approach. Where a parallel approach drinking fountain is replaced, either due to renovation or as part of improvements to the accessible route, the new drinking fountain should be a front approach drinking fountain unless there is difficulty with the placement. For example, if the front approach drinking fountain would block the route or means of egress past the drinking fountain, a par-

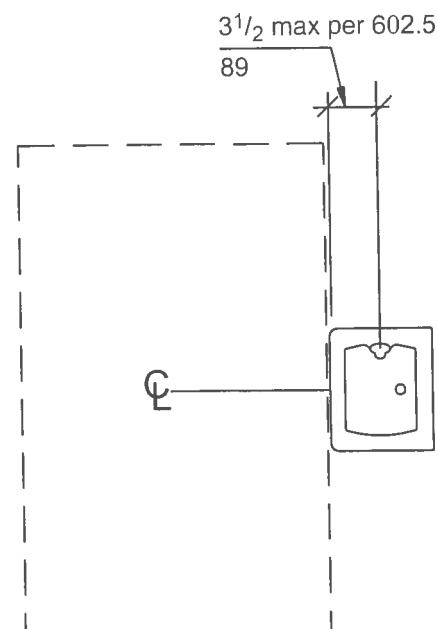


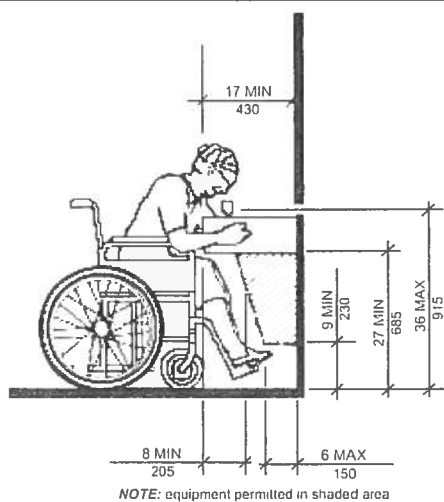
FIGURE 602.2  
PARALLEL APPROACH AT DRINKING FOUNTAINS  
PRIMARILY FOR CHILDREN'S USE—(EXCEPTION 2)

allel approach drinking fountain may be approved by the local building official (see Commentary Figure C602.2(c)).

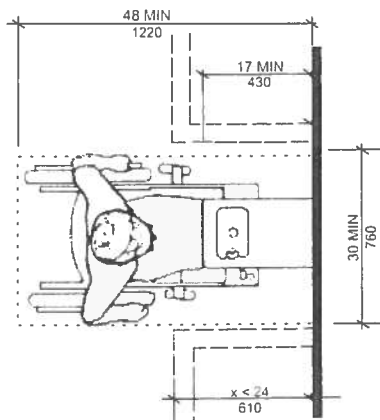
**602.3 Operable Parts.** Operable parts shall comply with Section 309.

- ❖ Operable parts of the drinking fountain include controls to activate the water flow. These controls must comply with Section 309 for height and operation. The clear floor space can be the same as that provided for the drinking fountain itself.

Although it is the intent for drinking fountains for standing persons to meet the height and operation requirements in Sections 309.3 and 309.4, the clear floor spaces required in Section 309.2 are not literally needed by standing persons. The specific exemption from Section 602.2, Exception 1, should be used to eliminate the clear floor space requirement instead of imposing the requirement from Section 309.2. The operable parts requirements are beneficial for persons with limited use of their hands.



(a)



(b)

FIGURE C602.2(a) and (b)  
DRINKING FOUNTAINS WITH FORWARD APPROACH

Although not specifically required, it may be desirable when designing for children to use the reach ranges indicated in Table C308.1.

**602.4 Spout Outlet Height.** Spout outlets of wheelchair accessible drinking fountains shall be 36 inches (915 mm) maximum above the floor. Spout outlets of drinking fountains for standing persons shall be 38 inches (965 mm) minimum and 43 inches (1090 mm) maximum above the floor.

- ❖ The height of 36 inches (915 mm) has been established as the maximum for a person to be able to drink water from a spout from a seated position. For persons who have difficulty bending over, the 43-inch (1090 mm) maximum height results in a higher level of comfort.

This requirement is not intended to require two drinking fountains—there is a choice of providing separate drinking fountains or combined drinking fountains. There are commercially available drinking fountains that have two spouts at varying heights which are ideally suited both for people in wheelchairs and people who find it difficult or awkward to bend low. One spout is located at the 36-inch (915 mm) height and the higher spout at the 43 inch (1090 mm) height.

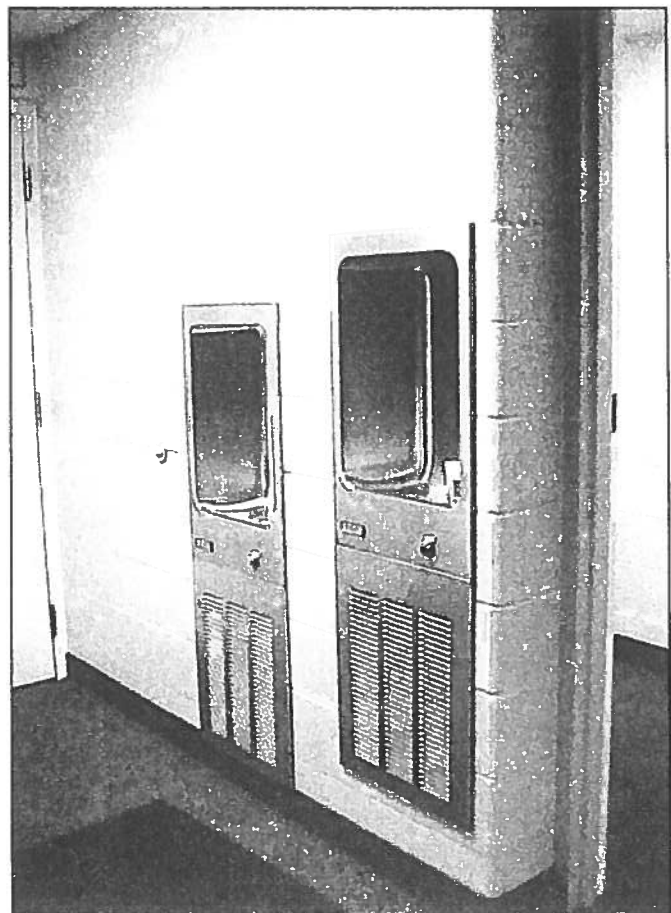
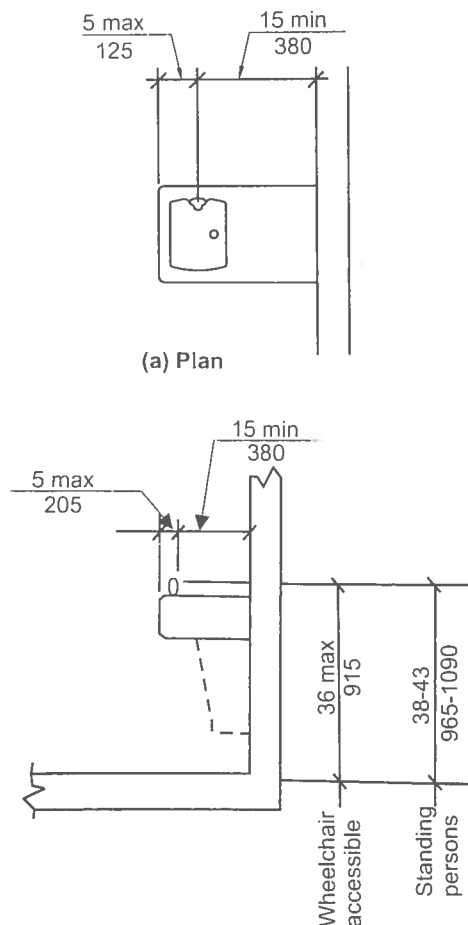


FIGURE C602.2(c)  
EXISTING DRINKING FOUNTAINS  
WITH PARALLEL SIDE APPROACH

If designing an accessible drinking fountain for children, the maximum spout outlet height is 30 inches (760 mm) as stated in Exception 2, Section 602.2.

**602.5 Spout Location.** The spout shall be located 15 inches (380 mm) minimum from the vertical support and 5 inches (125 mm) maximum from the front edge of the drinking fountain, including bumpers. Where only a parallel approach is provided, the spout shall be located 3½ inches (90 mm) maximum from the front edge of the drinking fountain, including bumpers.

- ❖ Criteria are provided for both a parallel and a forward approach. See Section 602.2, Exception 2, regarding when a parallel approach is permitted. For a parallel approach, it is difficult to lean laterally over the wheelchair arms, and the spout must be located within 3½ inches (89 mm) of the front edge of the unit. Because it is less difficult to lean forward than to twist and lean laterally, this dimension may be increased to 5 inches (125 mm) in a forward approach. If the spout is located lower or farther forward or both, the maximum distance from the front edge becomes less critical. The front edge is the unit edge, not the location of the controls.



(b) Elevation

FIGURE 602.5  
DRINKING FOUNTAIN SPOUT LOCATION

Knee and toe clearances are also needed for a forward approach. The 15-inch (380 mm) dimension from the vertical support locates the spout far enough away from the wall so the user's knees and toes may extend below the unit (see Figure 602.5).

While literally this would also apply to drinking fountains for standing persons, because no clearances are required for drinking fountains for standing persons, the spout location requirements may be considered more of a feature of ease of use.

**602.6 Water Flow.** The spout shall provide a flow of water 4 inches (100 mm) minimum in height. The angle of the water stream from spouts within 3 inches (75 mm) of the front of the drinking fountain shall be 30 degrees maximum, and from spouts between 3 inches (75 mm) and 5 inches (125 mm) from the front of the drinking fountain shall be 15 degrees maximum, measured horizontally relative to the front face of the drinking fountain.

- ❖ This requirement permits the drinking fountain to serve the greatest number of individuals. It is difficult, if not impossible, for some individuals to lean and drink from the spout. These requirements allow for the insertion of a cup or glass under the flow of water. The position of the spout dictates the angle that the stream of water should project. The farther the spout is from the user, the smaller the angle must be.

### 603 Toilet and Bathing Rooms

- ❖ This section addresses toilet and bathing rooms for all uses other than within Accessible, Type A and Type B dwelling and sleeping units. For toilet and bathing rooms in Accessible, Type A and Type B units, see the more specific criteria in Chapter 10. Chapter 10 references back to Sections 604 through 610, as applicable.

Toilet rooms typically include water closets and lavatories. The room can also contain urinals. Bathing rooms may include water closets, urinals, lavatories and bathing fixtures (bathtubs or showers). Sometimes some of the plumbing fixtures are located in a separate room or area. For example, in locker rooms the showers may be in a separate area from the lavatories and water closets; some elementary schools are placing the lavatories in the hall immediately outside the room with the water closets so teachers can monitor hand washing. Separating the fixtures into different areas is not prohibited, but the room requirements may need to be applied in both locations. Section 603 contains general provisions for these rooms or spaces. See Sections 604 through 608 for individual plumbing fixture requirements.

**603.1 General.** Accessible toilet and bathing rooms shall comply with Section 603.

- ❖ When required to be accessible, all of these facilities must be located on an accessible route and have doors, clear floor space and operable parts that meet the requirements established and discussed in the following sections. Other amenities that commonly occur in these rooms (mirrors, coat hooks, diaper changing tables and shelves) are also addressed.