



# NUMBER OF PLUMBING FIXTURES

# TECHNICAL BULLETIN PLMB-4-1

City of San Diego  
Development Services Department

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The purpose of this technical bulletin is to assist designers on determining the minimum required number of plumbing fixtures. All plumbing fixtures and installations are required to be designed and installed in compliance with California Plumbing Code (CPC) and California Building Code (CBC).

## I. DETERMINATION OF THE NUMBER OF PLUMBING FIXTURES

The minimum number of plumbing fixtures shall be provided in per CPC Table 422.1, except those structures governed by the Office of Statewide Health Planning and Development (OSHPD) shall comply with CPC Table 4-2. The number of plumbing fixtures required is dependent on the occupant load for all areas. Where outdoor areas are used by occupants in addition to the occupants located inside of the building, the required number of plumbing fixtures must be based upon the sum of the occupant loads of the interior areas plus the outdoor areas.

- A. **Occupant Load Determination.** The total occupant load shall be determined in accordance with Occupant Load Factor Table A located in this Technical Bulletin. The occupant load factor for uses not specifically identified in Table A shall be based upon the uses listed in CBC, Table 1004.1.2 multiplied by 2.
- B. **Occupant Load Breakdown.** The occupant load used for determining the minimum number of fixtures must be calculated assuming 50% male and 50% female, except where specifically not applicable to the project. The total number of required water closets for females shall not be less than the total number of required water closets and urinals for males.
- C. **Calculation Method for Mixed Use Buildings.** There are two different methods for calculating the number of required plumbing fixtures per the CPC :
  1. **Standard Method:** Assign each area an occupant load per Table A and then use CPC Table 422.1 to determine the required number of fixtures for each use. Add all required fixtures for all uses to determine the total number of plumbing fixtures.
  2. **Fractional Method:** Assign each area an occupant load per Table A. Divide the calculated occupant load by the allowable fixtures per person in CPC Table 422.1. To determine the total number of plumbing fixtures, sum all of the area use fractions and round up to the nearest whole number. See [EXAMPLE](#) on page 4.
- D. **Urinal Counts.** When single occupancy toilet facilities are provided for each sex in a Group A or E occupancy with an occupant load less than 50, the urinal is permitted to be omitted or the urinal will not require a second water closet for the female restroom

If a urinal is provided in addition to the minimum required, one water closet shall be permitted to be deducted from the male count. The number of water closets shall not be reduced to less than two-thirds (2/3) of the minimum requirement.

## II. SEPARATE FACILITIES

- A. **General.** Separate toilet facilities must be provided for each sex, except for the following:
  1. Residential units
  2. Spaces with a total occupant load of 10 or less, including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be

permitted for use by both sexes.

3. Business and mercantile occupancies, as defined in the CBC, with a total occupant load of 50 or less including customers and employees, one toilet facility designed for use by no more than one person at a time shall be permitted for used by both sexes. This occupant load shall include both indoor and outdoor seating. This exception can be used for assembly use spaces with less than 50 occupants per the CBC.
- B. **Family or Assisted-Use Toilet Facilities.** When separate toilet facilities are required for each sex and each toilet facility is required to have only one water closet, two assisted-use or family toilet facilities are permitted instead of the required separate toilet facilities.

### III. FACILITIES SERVING EMPLOYEES AND CUSTOMERS

- A. **Shopping Centers and Malls.** Required toilet facilities for employees and customers in shopping malls or shopping centers may be met by providing a centrally located toilet facility accessible to several stores. The maximum travel distance from the entry to any store to the toilet facility shall not exceed 300 feet. Occupant load calculations shall be provided to show that the number of toilet facilities meets the minimum required number of plumbing facilities per CPC Table 422.1 for all stores served.
- B. **Other Shared Facilities.** Required toilet facilities for employees and customers in other than shopping malls or centers shall be located at a maximum travel distance that does not exceed 500 feet. The occupant load calculation shall be provided to show the number of toilet facilities meets the minimum required plumbing facilities per CPC Table 422.1. The sharing of facilities is only allowed when the owner is the same for all structures utilizing the shared facilities.
- C. **Drive-Thru, Take Out and Drive-In Restaurants.** For drive-thru and take out restaurants, toilet facilities shall be provided for employees. If seating is provided for customers, toilet facilities shall be provided for the dining areas as specified above. For drive-in restaurants, the number of occupants shall be the number of parking stalls.

### IV. ACCESS TO TOILET FACILITIES

- A. **Multi-story Buildings.** Access to toilet facilities shall not exceed one vertical story.
- B. **Location.** Access to required toilet facilities for customers shall not pass through areas designated as for employee use only such as kitchens, food preparation areas, storage rooms, closets, or similar areas.
- C. **Private Toilets.** Toilets accessible only to private offices shall not be counted towards required plumbing fixture counts.

### V. PORTABLE RESTROOMS

Portable restrooms do not satisfy the required number of plumbing fixtures with the exception for temporary sales offices. Required plumbing fixtures must be connected to water and sewer service.

### VI. PRIVACY

Privacy partitions for water closets and urinals utilized by the public or employees are required and shall comply with CBC Section 1210.3.

TABLE A—OCCUPANT LOAD FOR PLUMBING FIXTURES

Use	Occupant Load (square feet unless noted)
<b>Assembly Uses*</b>	
Auditoriums, convention centers, dance floors, stadiums, casinos	15
Conference rooms, exhibit rooms, lounges, meeting rooms, recreation rooms, gymnasiums and multipurpose rooms, stages	30
Pool	100
Pool deck	30
Restaurants, dining rooms, drinking establishments, sidewalk cafe	30
Workout areas, yoga studios, game rooms	30
Worship places, including principal assembly area, educational and activity areas	30
<b>Business Uses</b>	
Banks, clinics, dry cleaning, post offices	200
Barbershops, hair salons, beauty salons, tanning salons	100
Cashier areas, check rooms	200
Classrooms for educational facilities	50
Computer training rooms with fixed workstations	100
Laboratories	200
Offices, open office areas	200
<b>Educational Uses</b>	
Schools for daycare, elementary and secondary	50
<b>Factory and Hazardous Uses</b>	
Commercial kitchens	400
Factories, manufacturing, workshops, hazardous materials storage	2,000
<b>Institutional Uses</b>	
Hospital areas, healthcare facilities	200
* For areas with fixed seats, use 1/2 the number of fixed seating to calculate the occupant load.	

Use	Occupant Load (square feet unless noted)
Mercantile Uses	
Retail or wholesale sales	200
Residential Uses	
Congregate residence or Group R-1 occupancies	200
Storage Uses	
Storage rooms and warehouses	5,000

**EXAMPLE:** Calculate number of plumbing fixtures for a mixed use building with 8,020 sf indoor dining area, 1,230 sf patio dining, 845 sf kitchen, 10,650 sf storage and 4,350 sf office

Step 1— Calculate Occupant Load for Each Space

- Kitchen:  $845 / 400 = 2.1$
- Dining area:  $(8,020+1,230) / 30 = 308.3$
- Storage:  $10,650 / 5,000 = 2.13$
- Office:  $4,350 / 200 = 21.75$

Step 2—Determine Occupant Load for Each Sex

- Dining and Kitchen:  $2.1+308.3 = 310.4 / 2=155.2$ , round up to 156 Male and 156 Female
- Storage:  $2.13/2=1$ , 1 Male and 1 Female.
- Office:  $21.75/2=10.8$ , round up to 11 Male and 11 Female

Step 3A—**Standard Method**—Determine total number of fixtures in CPC Table 422.1 and sum for the total for the building.

Standard Method	Type of Occupancy	Water Closets		Urinals	Lavatories	
		M	F		M	F
Dining + Kitchen	A-2	3	4	1	2	2
Storage	S	1	1	0	1	1
Office	B	1	1	1	1	1
<b>Total</b>		<b>5</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>4</b>

**OR**

Step 3B—**Fractional Method**—Determine total number of fixtures by dividing the calculated occupant load by the allowable fixtures per person in CPC Table 422.1.

- a. A-2 Occupancy
  - i. Water Closet (M): 150 occupants = 2 WC with  $156-150=6$  Remaining Male Occupants,  $6 \times 1/(300-150)=0.04$ , Total WC= 2.04
  - ii. Water Closet (F): 100 occupants =3 WC with  $156-100=56$  Remaining Female occupants,  $56 \times 1/(200-100)=0.56$ , Total WC= 3.56
  - iii. Urinals: 156 occupants  $\times 1/200=0.78$  Total Urinals
  - iv. Lavatory (M): 150 occupants = 1 Lavatory with  $156-150=6$  Remaining Male occupants,  $6 \times 1/(200-150)=0.12$ , Total Lavatory =1.12
  - v. Lavatory (F): 150 occupants = 1 Lavatory with  $156-150=6$  Remaining Female occupants,  $6 \times 1/(200-150)=0.12$ , Total Lavatory =1.12
  
- b. Storage Occupancy
  - i. Water Closet (M): 1 occupant  $\times 1/100=0.01$  WC
  - ii. Water Closet (F): 1 occupant  $\times 1/100=0.01$  WC
  - iii. Lavatory (M): 1 occupant  $\times 1/200=0.01$  Lavatory
  - iv. Lavatory (F): 1 occupant  $\times 1/200=0.01$  Lavatory
  
- c. Office B Occupancy
  - i. Water Closet (M): 11 occupants  $\times 1/50=0.22$  WC
  - ii. Water Closet (F): 11 (F)  $\times 1/15= 0.74$  WC
  - iii. Urinal: 11 occupants  $\times 1/100=0.11$  UR
  - iv. Lavatory (M): 11 (M)  $\times 1/75=0.15$  Lavatory
  - v. Lavatory (F): 11 (F)  $\times 1/50= 0.22$  Lavatory
  
- d. Sum up all required fixtures
  - i. Water Closet (M):  $2.04+0.01+0.22 =2.27$ , round up to 3
  - ii. Water Closet (F):  $3.56+0.01+0.74= 4.31$ , round up to 5
  - iii. Urinal:  $0.78+0.11= .89$ , round up to 1
  - iv. Lavatory (M):  $1.12+0.01+0.15 = 1.28$ , round up to 2
  - v. Lavatory (F):  $1.12+0.01+0.22 =1.35$ , round up to 2

FRACTIONAL METHOD	Water Closets		Urinals	Lavatories	
	M	F		M	F
<b>Total</b>	<b>3</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>2</b>

**REFERENCES**

- California Building Code
- California Plumbing Code