

**DFU and Sizing Sanitary Piping****Sanitary Sewers and Vents**

Important for maintaining the quality of the indoor environment of a building

Correct sizing is crucial to their proper functioning

Sizing is made easier using the set of charts published in the California Plumbing Code (CPC) or International Plumbing Code (IPC)

**Steps for Properly Sizing Sanitary Sewer Pipes and Vents**

1. Add up the total number of drainage fixture units (DFU) for each sanitary branch
2. Determine the sanitary branch sizes using the DFU values
3. Calculate the size of the main building drain using the total of all DFU values
4. Size the vents using the 2016 CPC Table 703.2 and the DFU values

**TABLE 703.2**  
**MAXIMUM UNIT LOADING AND MAXIMUM LENGTH OF DRAINAGE AND VENT PIPING**

SIZE OF PIPE (inches)	1¼	1½	2	3	4	5	6	8	10	12
<b>Maximum Units</b>										
Drainage Piping <sup>1</sup>										
Vertical	1	2 <sup>2</sup>	16 <sup>3</sup>	48 <sup>4</sup>	256	600	1380	3600	5600	8400
Horizontal	1	1	8 <sup>3</sup>	35 <sup>4</sup>	216 <sup>5</sup>	428 <sup>5</sup>	720 <sup>5</sup>	2640 <sup>5</sup>	4680 <sup>5</sup>	8200 <sup>5</sup>
<b>Maximum Length</b>										
Drainage Piping										
Vertical, (feet)	45	65	85	212	300	390	510	750	—	—
Horizontal (unlimited)										
<b>Vent Piping</b>										
Horizontal and Vertical <sup>6</sup>										
Maximum Units	1	8 <sup>3</sup>	24	84	256	600	1380	3600	—	—
Maximum Lengths, (feet)	45	60	120	212	300	390	510	750		

For SI units: 1 inch = 25 mm, 1 foot = 304.8 mm

**Notes:**

<sup>1</sup> Excluding trap arm.

<sup>2</sup> Except sinks, urinals, and dishwashers – exceeding 1 fixture unit.

<sup>3</sup> Except six-unit traps or water closets.

<sup>4</sup> Only four water closets or six-unit traps allowed on a vertical pipe or stack; and not to exceed three water closets or six-unit traps on a horizontal branch or drain.

<sup>5</sup> Based on ¼ inch per foot (20.8 mm/m) slope. For ⅛ of an inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of 0.8.

<sup>6</sup> The diameter of an individual vent shall be not less than 1¼ inches (32 mm) nor less than one-half the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Table 702.1 and Table 702.2(2). Not to exceed one-third of the total permitted length of a vent shall be permitted to be installed in a horizontal position. Where vents are increased one pipe size for their entire length, the maximum length limitations specified in this table do not apply. This table is in accordance with the requirements of Section 901.3.

**Lavatories in Sets.** Two or three lavatories that are served by one trap.

**Lavatory [HCD 1 & HCD 2].** "Lavatory" shall mean a plumbing fixture used for washing the hands, arms, face and head.

<https://up.codes/viewer/california/ca-plumbing-code-2016/chapter/2/definitions#2>