

<b>DOCKETED</b>	
<b>Docket Number:</b>	22-AAER-05
<b>Project Title:</b>	Appliance Efficiency Regulations for Water Closets
<b>TN #:</b>	263355
<b>Document Title:</b>	Plumbing Manufacturers International Comments - GMP Research Penetration Study, 2022
<b>Description:</b>	N/A
<b>Filer:</b>	System
<b>Organization:</b>	Plumbing Manufacturers International
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	5/26/2025 9:34:30 AM
<b>Docketed Date:</b>	5/27/2025

*Comment Received From: Plumbing Manufacturers International*  
*Submitted On: 5/26/2025*  
*Docket Number: 22-AAER-05*

## **GMP Research Penetration Study, 2022**

GMP Research Penetration Study, 2022

PMI Rethink Water: California Market Penetration of Water-Efficient Plumbing Products Study

Conducted by GMP Research, the California Market Penetration of Water-Efficient Plumbing Products Study finds the residential market penetration of water-efficient 1.28 gallons per flush (gpf)-or-less toilets to range from 22.0% to 25.9% in the five state regions surveyed. The market penetration in disadvantaged communities was even lower, ranging from 19.6% to 22.2% in the five regions.

*Additional submitted attachment is included below.*



# California Market Penetration of Water-Efficient Plumbing Products Study

*Commissioned by Plumbing Manufacturers International*



## Table of Contents

Legacy Product Replacement .....	3
About GMP Research .....	6
Why do a study on Title 20 plumbing fixtures/fittings market penetration? .....	7
Title 20 market penetration tables .....	8
Methodology .....	20
Determining the number of plumbing fixtures and fittings per home .....	21
Determining the number of plumbing fixtures and fittings per non-residential building .....	22
Product replacement assumptions .....	23
Availability of plumbing fixtures and fittings meeting Title 20 requirements .....	24
Regional market segmentation .....	25
Residential buildings in California .....	26
SB535 Disadvantaged communities .....	27
Non-residential / commercial buildings in California .....	28
Northern California Title 20 plumbing fixtures/fittings penetration .....	29
San Francisco Bay Area Title 20 plumbing fixtures/fittings penetration .....	37
Central California Title 20 plumbing fixtures/fittings penetration .....	45
Los Angeles and Orange Counties Title 20 plumbing fixtures/fittings penetration .....	53
Southern California Title 20 plumbing fixtures/fittings penetration .....	61
Non-residential buildings Title 20 plumbing fixtures / fittings penetration .....	69
Copyright and disclaimer notice .....	77

## Legacy product replacement saves a high volume of water quickly

This new Plumbing Manufacturers International (PMI)-commissioned study of the market penetration of mandated water-efficient fixtures in California finds a continuing and strong need to replace older plumbing fixtures, known as legacy products, with new ones. Installing water-efficient plumbing products quickly takes on increased urgency as we seek solutions to water shortages caused by the continuing drought.

Conducted by GMP Research, the California Market Penetration of Water-Efficient Plumbing Products Study finds the residential market penetration of water-efficient 1.28 gallons per flush (gpf)-or-less toilets to range from 22.0% to 25.9% in the five state regions surveyed (Exhibit 1). The market penetration in disadvantaged communities was even lower, ranging from 19.6% to 22.2% in the five regions (Exhibit 2).

## PMI encourages public-private partnerships to replace inefficient toilets and save water in California

This study supports the idea that the direct replacement of older, inefficient toilets and other fixtures can save a high volume of water quickly. Should California do a toilet replacement program focused on disadvantaged communities, 3.2 billion gallons of water can be saved in three to five years by replacing 469,000 3.5+ gpf toilets currently in use with water-efficient 1.28 gpf toilets (Exhibit 2). Statewide, up to 326 billion gallons of water can be saved over 30 years by replacing 26.1 million 1.6+ gpf toilets with 1.28 gpf toilets (Exhibit 1). By accelerating the replacement of these toilets, 65.3 billion gallons can be saved within five years (Exhibit 3), and 95.7 billion gallons within 10 years (Exhibit 4).

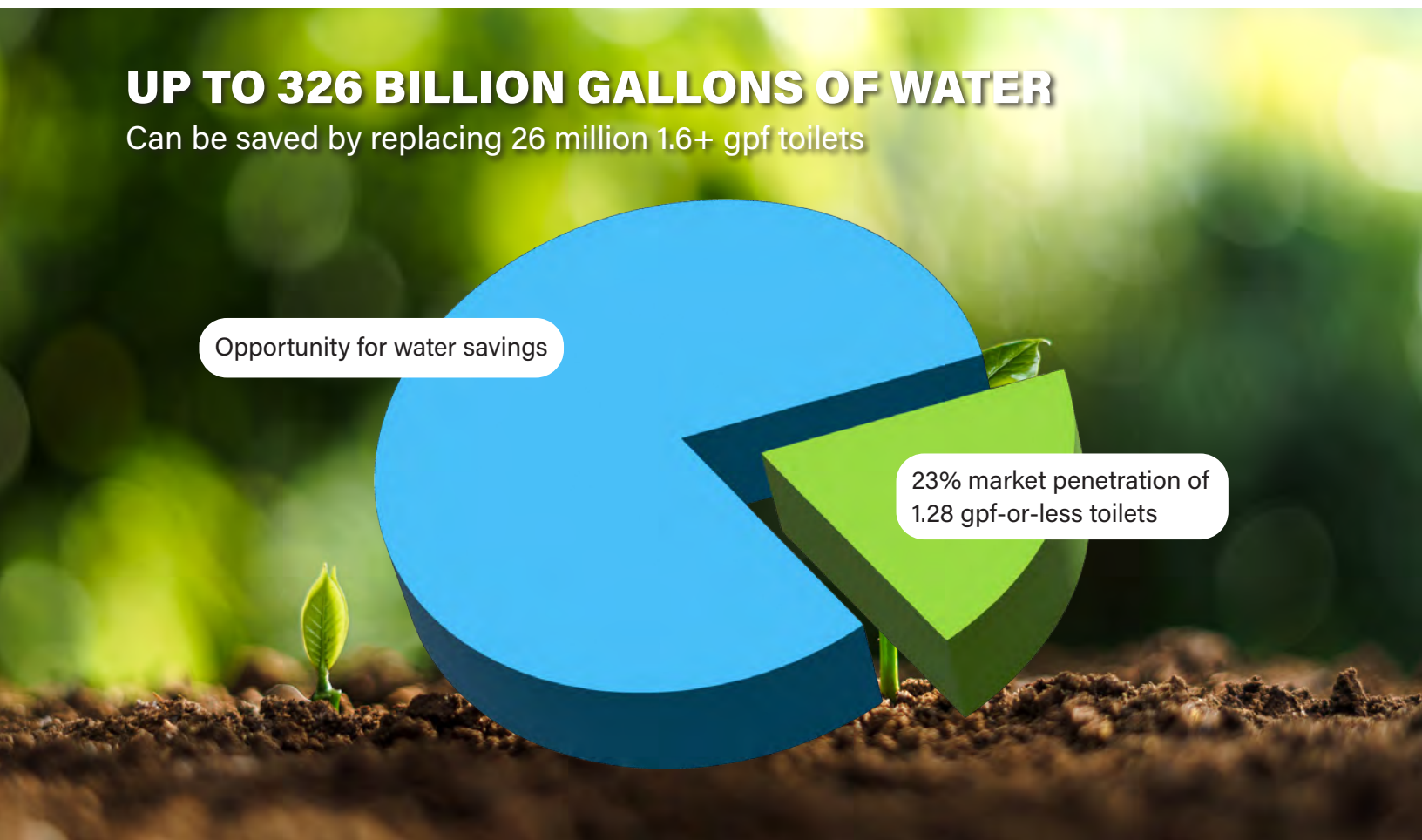
Toilets offer the greatest opportunity for water savings within a home. For this reason, PMI encourages public-private partnerships and incentives to replace inefficient toilets as a response to water shortages caused by climate change, population growth, and continued residential and commercial development.

## UP TO 326 BILLION GALLONS OF WATER

Can be saved by replacing 26 million 1.6+ gpf toilets

Opportunity for water savings

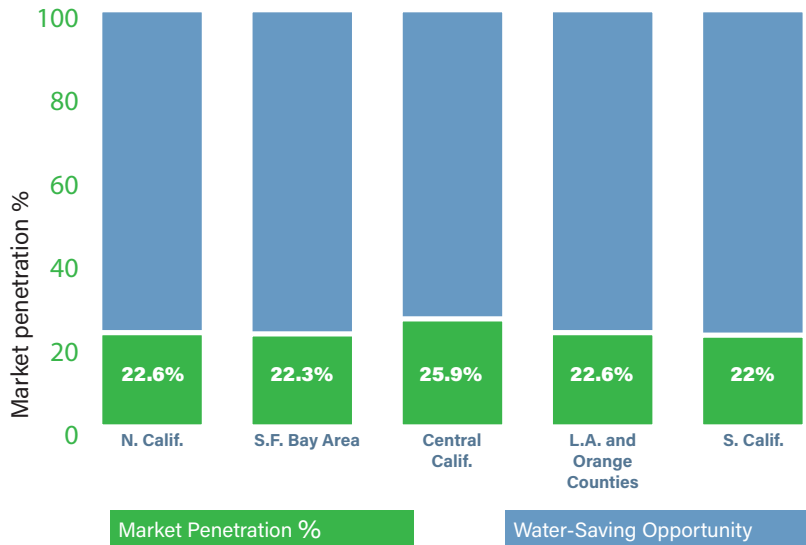
23% market penetration of  
1.28 gpf-or-less toilets



### 3 Benefits of Legacy Product Replacement in California

#### 1. High volumes of water can be saved statewide

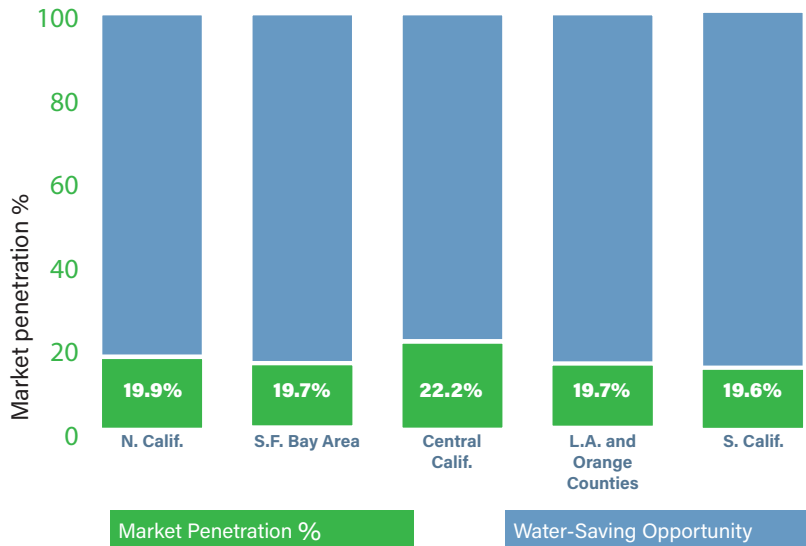
Exhibit 1



**Opportunity to Save  
326 Billion Gallons**

#### 2. Toilet replacement saves water quickly in disadvantaged communities

Exhibit 2



**Opportunity to Save  
3.2 Billion Gallons**

#### 3. Accelerated toilet replacement saves water faster throughout California

Exhibit 3

**65.3B Gallons Saved If Replaced in 5 Years**

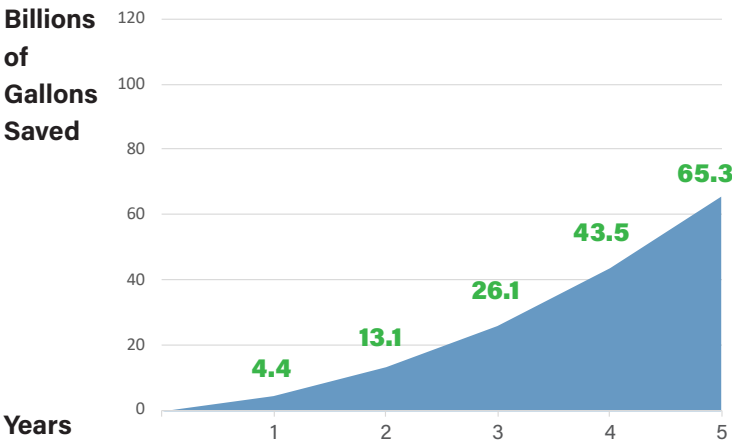
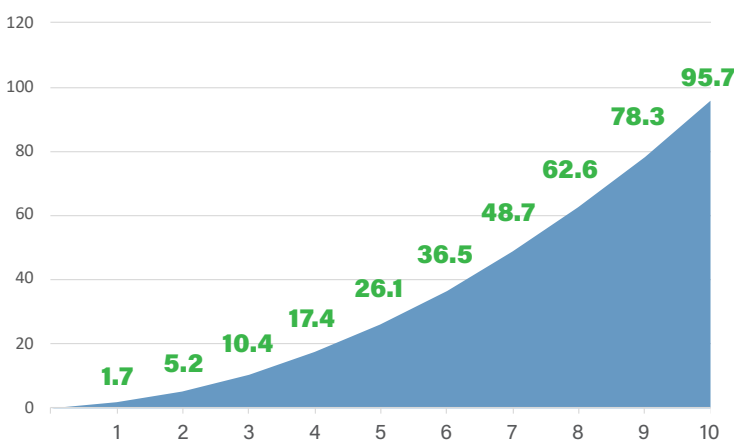


Exhibit 4

**95.7B Gallons Saved if Replaced in 10 Years**





## **Toilet replacement programs have been successful throughout the nation, but more needs to be done**

Water-efficiency grant programs continue to be developed by federal, state and local governmental entities, especially as drought persists and water resources recede. These programs cover both product and installation costs.

In California, toilet replacement or rebate programs have been implemented in Los Angeles, Long Beach, San Francisco, and other municipalities.

San Antonio, Texas, had a decade-long program that delivered and replaced toilets free of charge until virtually no inefficient toilets were left to replace. Programs replacing toilets free of charge or via rebates have been implemented throughout the nation, primarily at the county or municipal level, in places including Dallas/Fort Worth, Maui, New York City, Seattle, and Tucson.

## **Replacing inefficient faucets and showerheads can save even more water**

This study also examined the market penetration of water-efficient kitchen faucets, bathroom faucets and showerheads in residential buildings, as well as the market penetration of water-efficient tank-based toilets, toilets with flushometer valves, urinals, faucets and showerheads in commercial settings. Significant water savings can be achieved in residential and commercial settings by replacing older fixtures in these categories with water-efficient fixtures, as well.

While market penetration for water-efficient faucets, showerheads, urinals and other fixtures is higher than it is for toilets, even more water can be saved by replacing those that do not meet standards mandated in California. Water utilities, home improvement retailers, and government entities have often offered rebates or giveaways to replace these less-expensive products.

## **About Plumbing Manufacturers International**

Plumbing Manufacturers International (PMI) members produce more than 90% of the toilets, showerheads, faucets and urinals used in America. More than 37,000 toilet, showerhead, faucet and urinal products have become WaterSense-certified as meeting high performance standards while being at least 20% more water-efficient than standard products.

Developing safe, reliable and innovative water-efficient plumbing technologies, PMI members contribute more than 464,000 jobs and \$85.5 billion in economic impact to America's economy. With a vision of safe, responsible plumbing – always, PMI advocates for plumbing product performance contributing to water efficiency and savings, sustainability, public health and safety, and consumer satisfaction.



Legacy product replacement is a project of PMI's Rethink Water initiative, an effort to ensure that future generations have reliable access to clean and safe water. Rethink Water addresses the effects of climate change and aging water infrastructure by building a coalition sharing a vision of sustainably managed water.

## About GMP Research

GMP Research is a global full-service business consulting firm located in Mount Pleasant, SC. Our clients are the leaders of their industry and are at the forefront of technology and design.

GMP Research provides leaders in manufacturing, distribution, commercial, public/social sectors, and legislators with **facts and insights** on which to base management and policy decisions.

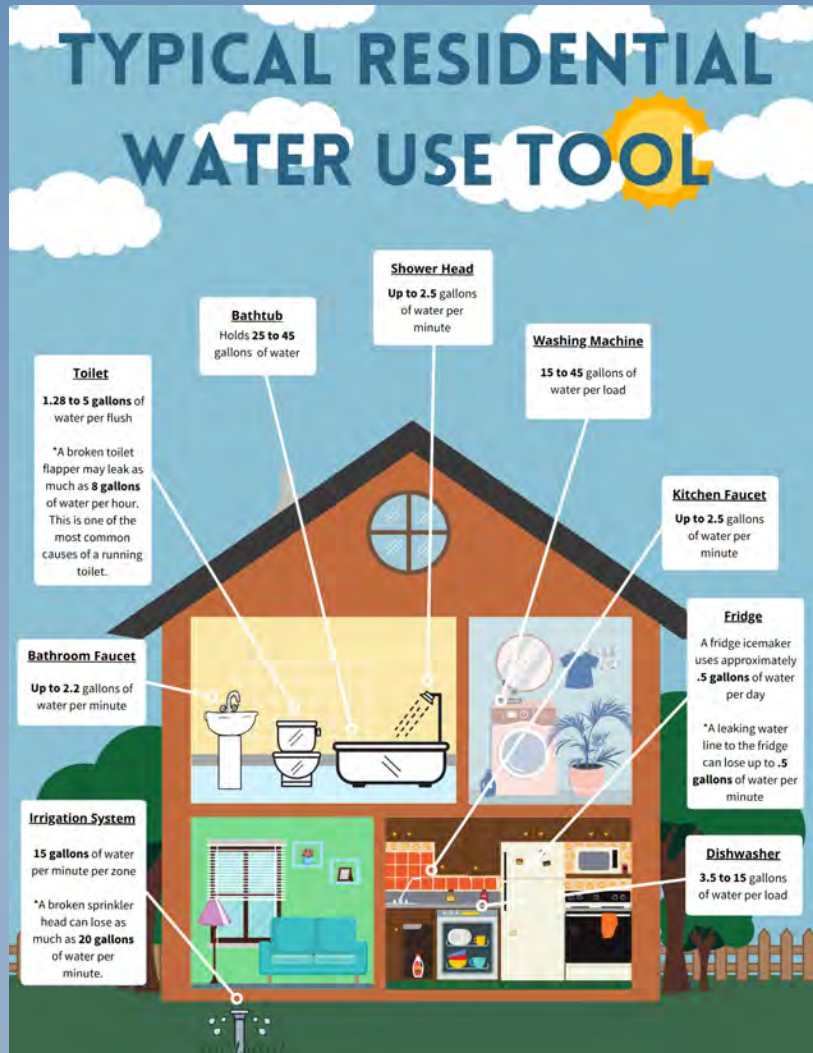
GMP Research combines the disciplines of economics and management, employing proven market analytical tools with the insights of business leaders. GMP Research works with clients in North America, Latin America, Europe, the Middle East, and Asia.

Our "micro-to-macro" methodology examines forces affecting business strategy and public policy. GMP Research's in-depth industry reports have covered more than 50 countries and various industries related to both the commercial and residential construction markets.

Our mission is to supply our clients with the best market intelligence always. We go to great lengths to research the subject matter at hand, and then spend an equal amount of time validating our data, to ensure our clients are receiving the best possible market intelligence.



# Why do a study on Title 20 plumbing fixtures/fittings market penetration?



Water is a finite resource. Californians use an average of 88 gallons of water each day at home. The average family spends more than \$1,000 per year in water costs but can save more than \$380 annually from retrofitting with Title 20 plumbing fixtures and fittings.

**Bathrooms are the largest user of water in the home, using more than 50% of all indoor water.**

- Approximately 5-10% of the homes have easy-to-fix leaks, that drip away 90 gallons of water per day
- A urinal in a public restroom gets flushed 18x per day.
- The average family can save 13,000 gallons of water per year by replacing all old, inefficient toilets in their home with Title 20 certified low consumption toilets.
- Replacing old, inefficient kitchen and bathroom faucets with Title 20 low consumption faucets can save the average family \$ 250 in water and electricity costs over the faucets' lifetime.
- Replacing old showerheads with Title 20 low consumption showerheads can reduce the average family water consumption by more than 2,700 gallons of water per year, equal to the amount of water needed to wash 88 loads of laundry
- Replacing inefficient flushometer valves for commercial toilets and urinals would result in water savings of more than \$ 500 million annually.

Title 20 water conservation requirements went into effect in 2016. It is important to understand how effective the new regulations have been, and how widespread the products can be found in Californian homes and businesses.

# Northern California –Title 20 residential plumbing fixtures/fittings market penetration

TITLE  
20

All Northern CA	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.125	5.1%	0.086	5.8%	0.211	5.4%
1.6 gpf	1/1/1994 – 12/31/2015	1.750	71.9%	1.078	72.2%	2.828	72.0%
1.28 gpf or less	1/1/2016	0.558	23.0%	0.328	22.0%	0.886	22.6%
Total		2.433	100.0%	1.492	100.0%	3.925	100.00%

All Northern CA	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.019	1.7%	0.013	1.9%	0.032	1.8%
2.2 gpm	1/1/1994 – 12/31/2015	0.511	45.2%	0.331	47.7%	0.842	46.2%
1.8 gpm	1/1/2016	0.600	53.1%	0.349	50.4%	0.949	52.0%
Total		1.130	100.0%	0.693	100.0%	1.823	100.0%

All Northern CA	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	1.625	38.0%	1.098	43.8%	2.723	41.3%
1.5 gpm <sup>(1)</sup>	9/1/2015 – 7/1/2016	0.254	6.2%	0.118	4.7%	0.372	5.6%
1.2 gpm	After 7/1/2016	2.214	54.1%	1.292	51.5%	3.506	53.1%
Total		4.093	100.0%	2.508	100.0%	6.601	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All Northern CA	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.766	42.6%	0.491	35.8%	1.257	34.8%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.450	20.1%	0.291	21.2%	0.741	20.5%
1.8 gpm or less	After 7/1/2018	1.023	45.7%	0.590	43.0%	1.613	44.7%
Total		2.239	100.0%	1.372	100.0%	3.611	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# Northern California SB535 communities –Title 20 residential plumbing fixtures/fittings market penetration

based on the analysis of 73 SB535 communities in the San Francisco Bay Area – home ownership = 40.0%

TITLE  
20

SB535 Northern CA	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.005	6.4%	0.007	5.9%	0.012	6.1%
1.6 gpf	1/1/1994 – 12/31/2015	0.057	73.1%	0.088	74.6%	0.145	74.0%
1.28 gpf or less	1/1/2016	0.016	20.5%	0.023	19.5%	0.039	19.9%
Total		0.078	100.0%	0.118	100.0%	0.196	100.0%

SB535 Northern CA	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.001	2.5%	0.001	1.6%	0.002	2.0%
2.0 gpm	1/1/1994 – 12/31/2015	0.018	44.6%	0.029	47.8%	0.047	46.5%
1.8 gpm	1/1/2016	0.021	52.9%	0.031	50.6%	0.052	51.5%
Total		0.040	100.0%	0.061	100.0%	0.101	100.0%

SB535 Northern CA	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	0.068	40.8%	0.107	42.9%	0.175	41.9%
1.5 gpm <sup>(1)</sup>	9/1/2015 – 7/1/2016	0.011	6.3%	0.016	6.5%	0.027	6.4%
1.2 gpm	After 7/1/2016	0.088	52.9%	0.127	50.6%	0.215	51.6%
Total		0.167	100.0%	0.250	100.0%	0.417	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

SB535 Northern CA	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.025	34.3%	0.039	35.5%	0.064	35.0%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.015	20.5%	0.024	21.8%	0.039	21.3%
1.8 gpm	After 7/1/2018	0.033	45.2%	0.047	42.7%	0.080	43.7%
Total		0.073	100.0%	0.110	100.0%	0.183	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# SF Bay Area – Title 20 residential plumbing fixtures/fittings market penetration

TITLE  
20

All SF Bay Area	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.187	6.0%	0.173	7.0%	0.360	6.4%
1.6 gpf	1/1/1994 – 12/31/2015	2.227	71.2%	1.766	71.3%	3.993	71.3%
1.28 gpf or less	1/1/2016	0.713	22.8%	0.538	21.7%	1.251	22.3%
Total		3.127	100.0%	2.477	100.0%	5.604	100.0%

All SF Bay Area	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.033	2.1%	0.030	2.4%	0.063	2.3%
2.0 gpm	1/1/1994 – 12/31/2015	0.701	45.1%	0.556	45.2%	1.256	45.1%
1.8 gpm	1/1/2016	0.821	52.8%	0.645	52.4%	1.467	52.7%
Total		1.555	100.0%	1.231	100.0%	2.786	100.0%

All SF Bay Area	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	2.411	41.5%	1.933	42.1%	4.344	41.8%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.325	5.7%	0.257	4.3%	0.582	5.6%
1.2 gpm	After 7/1/2016	3.061	52.8%	2.402	52.3%	5.463	52.6%
Total		5.797	100.0%	4.592	100.0%	10.389	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All SF Bay Area	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	1.041	35.8%	0.864	37.5%	1.905	36.6%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.582	20.0%	0.456	19.8%	1.038	19.9%
1.8 gpm	After 7/1/2018	1.285	44.2%	0.984	42.7%	2.269	43.5%
Total		2.908	100.0%	2.304	100.0%	5.212	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# SF Bay Area SB535 communities - Title 20 residential plumbing fixtures/fittings market penetration

based on the analysis of 144 SB535 communities in the San Francisco Bay Area – home ownership = 41.4%

TITLE  
20

SB535 SF Bay Area	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.011	6.1%	0.018	7.0%	0.030	6.9%
1.6 gpf	1/1/1994 – 12/31/2015	0.132	73.4%	0.188	73.5%	0.320	73.4%
1.28 gpf or less	1/1/2016	0.037	20.5%	0.050	19.5%	0.086	19.7%
Total		0.180	100.0%	0.256	100.0%	0.436	100.0%

SB535 SF Bay Area	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.001	1.1%	0.003	2.4%	0.004	1.9%
2.0 gpm	1/1/1994 – 12/31/2015	0.042	47.2%	0.063	49.6%	0.105	48.6%
1.8 gpm	1/1/2016	0.046	51.7%	0.061	48.0%	0.107	49.5%
Total		0.089	100.0%	0.127	100.0%	0.216	100.0%

SB535 SF Bay Area	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	0.151	42.0%	0.223	42.8%	0.374	43.0%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.021	5.8%	0.024	4.7%	0.045	5.2%
1.2 gpm	After 7/1/2016	0.188	52.2%	0.262	51.5%	0.450	51.8%
Total		0.485	100.0%	0.509	100.0%		100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

SB535 SF Bay Area	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.062	36.0%	0.078	33.8%	0.140	34.6%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.035	20.0%	0.053	22.9%	0.088	21.7%
1.8 gpm	After 7/1/2018	0.077	44.0%	0.100	43.3%	0.177	43.7%
Total		0.174	100.0%	0.231	100.0%		100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# Central California –Title 20 residential plumbing fixtures/fittings market penetration

TITLE  
20

All Central California	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.190	6.0%	0.137	6.0%	0.327	6.0%
1.6 gpf	1/1/1994 – 12/31/2015	2.149	67.8%	1.559	68.5%	3.708	68.1%
1.28 gpf or less	1/1/2016	0.831	26.2%	0.580	25.5%	1.411	25.9%
Total		3.170	100.0%	2.276	100.0%	5.446	100.0%

All Central California	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.023	1.6%	0.017	1.7%	0.040	1.6%
2.0 gpm	1/1/1994 – 12/31/2015	0.611	42.4%	0.468	45.2%	1.079	43.6%
1.8 gpm	1/1/2016	0.808	56.0%	0.550	53.1%	1.358	54.8%
Total		1.442	100.0%	1.035	100.0%	2.477	100.0%

All Central California	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	2.037	37.9%	1.582	41.0%	3.619	39.2%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.328	6.1%	0.228	5.9%	0.556	6.0%
1.2 gpm	After 7/1/2016	3.009	56.0%	2.049	53.1%	5.058	54.8%
Total		5.374	100.0%	3.859	100.0%	9.233	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All Central California	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	1.058	35.9%	0.792	37.3%	1.850	36.5%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.600	20.3%	0.428	20.2%	1.028	20.3%
1.8 gpm or less	After 7/1/2018	1.293	43.8%	0.900	42.5%	2.193	43.2%
Total		2.951	100.0%	2.120	100.0%	5.071	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.



# Central California SB535 communities – Title 20 residential plumbing fixtures/fittings market penetration

based on the analysis of 474 SB535 communities in Central California – home ownership = 50.1%

TITLE  
20

SB535 Central California	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.051	6.2%	0.052	6.3%	0.103	6.2%
1.6 gpf	1/1/1994 – 12/31/2015	0.587	70.8%	0.596	72.2%	1.183	71.6%
1.28 gpf or less	1/1/2016	0.191	23.0%	0.177	21.5%	0.368	22.2%
Total		0.829	100.0%	0.825	100.0%	1.654	100.0%

SB535 Central California	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.008	1.8%	0.006	1.9%	0.014	1.9%
2.0 gpm	1/1/1994 – 12/31/2015	0.186	43.1%	0.139	45.1%	0.325	43.9%
1.8 gpm	1/1/2016	0.237	55.1%	0.164	53.0%	0.401	54.2%
Total		0.431	100.0%	0.309	100.0%	0.740	100.0%

SB535 Central California	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	0.431	39.3%	0.586	41.5%	1.017	36.0%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.079	5.6%	0.078	5.5%	0.157	5.5%
1.2 gpm	After 7/1/2016	0.907	55.1%	0.748	53.0%	1.655	58.5%
Total		1.417	100.0%	1.411	100.0%	2.828	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

SB535 Central California	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.284	36.9%	0.301	39.3%	0.585	38.0%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.159	20.6%	0.141	18.3%	0.300	19.5%
1.8 gpm	After 7/1/2018	0.327	42.5%	0.326	42.4%	0.653	42.5%
Total		0.770	100.0%	0.768	100.0%	1.538	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.



# LA + Orange Counties – Title 20 residential plumbing fixtures/fittings market penetration

TITLE  
20

All LA + Orange counties	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.355	6.0%	0.375	6.0%	0.730	6.0%
1.6 gpf	1/1/1994 – 12/31/2015	4.201	71.0%	4.473	71.8%	8.674	71.4%
1.28 gpf or less	1/1/2016	1.361	23.0%	1.384	22.2%	2.745	22.6%
Total		5.917	100.0%	6.232	100.0%	12.149	100.0%

All LA + Orange counties	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.040	1.7%	0.042	1.7%	0.082	1.7%
2.0 gpm	1/1/1994 – 12/31/2015	1.036	43.2%	1.162	46.0%	2.198	44.7%
1.8 gpm	1/1/2016	1.321	55.1%	1.321	52.3%	2.642	53.6%
Total		2.397	100.0%	2.397	100.0%	4.922	100.0%

All LA + Orange counties	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	4.438	39.1%	5.037	42.1%	9.475	40.7%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.647	5.7%	0.658	5.5%	1.305	5.6%
1.2 gpm	After 7/1/2016	6.265	55.2%	6.260	52.4%	12.525	53.7%
Total		11.350	100.0%	11.955	100.0%	23.305	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All LA + Orange counties	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	1.976	35.9%	2.174	37.5%	4.150	36.7%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	1.111	20.2%	1.159	20.0%	2.270	20.1%
1.8 gpm	After 7/1/2018	2.415	43.9%	2.463	42.5%	4.878	43.2%
Total		5.502	100.0%	5.796	100.0%	11.298	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# LA and Orange Counties SB535 communities – Title 20 residential plumbing fixtures/fittings market penetration

– based on the analysis of 1,267 SB535 communities in LA+ Orange Counties –home ownership = 35.5%

TITLE  
20

SB535 LA + Orange Counties	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.086	6.0%	0.156	6.0%	0.242	6.0%
1.6 gpf	1/1/1994 – 12/31/2015	1.051	73.5%	1.941	74.7%	2.992	74.3%
1.28 gpf or less	1/1/2016	0.293	20.5%	0.501	19.3%	0.794	19.7%
Total		1.430	100.0%	2.598	100.0%	4.028	100.0%

SB535 LA + Orange Counties	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.010	1.7%	0.020	2.0%	0.030	1.9%
2.0 gpm	1/1/1994 – 12/31/2015	0.249	44.8%	0.466	46.1%	0.715	45.6%
1.8 gpm	1/1/2016	0.297	53.5%	0.525	51.9%	0.822	52.5%
Total		0.556	100.0%	1.011	100.0%	1.567	100.0%

SB535 LA + Orange Counties	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	1.126	41.5%	2.137	43.9%	3.263	41.7%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.159	5.7%	0.278	5.5%	0.437	5.6%
1.2 gpm	After 7/1/2016	1.496	53.8%	2.638	52.2%	4.134	52.8%
Total		2.781	100.0%	5.053	100.0%	7.834	100.0%

SB535 LA + Orange Counties	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.468	35.2%	0.897	37.1%	1.365	36.4%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.279	21.0%	0.495	20.5%	0.774	20.7%
1.8 gpm	After 7/1/2018	0.583	43.8%	1.024	42.4%	1.607	42.9%
Total		1.330	100.0%	2.416	100.0%	3.746	100.0%

# Southern California – Title 20 residential plumbing fixtures/fittings market penetration

**TITLE  
20**

All Southern California	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.209	6.0%	0.246	7.5%	0.455	6.7%
1.6 gpf	1/1/1994 – 12/31/2015	2.485	71.5%	2.334	71.0%	4.819	71.3%
1.28 gpf or less	1/1/2016	0.782	22.5%	0.707	21.5%	1.489	22.0%
Total		3.476	100.0%	3.287	100.0%	6.763	100.0%

All Southern California	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.024	1.6%	0.026	1.8%	0.050	1.7%
2.0 gpm	1/1/1994 – 12/31/2015	0.688	44.6%	0.643	44.10%	1.331	44.3%
1.8 gpm	1/1/2016	0.830	53.8%	0.789	54.10%	1.619	54.0%
Total		1.542	100.0%	1.458	100.0%	3.000	100.0%

All Southern California	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	2.515	39.7%	2.468	41.2%	4.983	40.4%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.400	6.3%	0.294	4.9%	0.694	5.6%
1.2 gpm	After 7/1/2016	3.421	54.0%	3.229	53.9%	6.650	54.0%
Total		6.336	100.0%	5.991	100.0%	12.327	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All Southern California	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
> 2.2 gpm	Prior to 7/1/2016	1.070	33.1%	1.051	34.4%	2.121	33.7%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.733	22.7%	0.697	23.2%	1.430	22.8%
1.8 gpm	After 7/1/2018	1.428	44.2%	1.308	42.8%	2.736	43.5%
Total		3.231	100.0%	3.056	100.0%	6.287	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# Southern California SB535 communities – Title 20 residential plumbing fixtures/fittings market penetration

– based on the analysis of 350 SB535 communities in Southern California – home ownership rate = 47.8%

TITLE  
20

SB535 Southern California	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.038	7.2%	0.044	7.7%	0.082	7.4%
1.6 gpf	1/1/1994 – 12/31/2015	0.382	72.8%	0.420	73.1%	0.802	73.0%
1.28 gpf or less	1/1/2016	0.105	20.0%	0.110	19.2%	0.215	19.6%
Total		0.525	100.0%	0.574	100.0%	1.099	100.0%

SB535 Southern California	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.003	1.6%	0.005	1.8%	0.008	1.6%
2.0 gpm	1/1/1994 – 12/31/2015	0.106	45.1%	0.116	45.5%	0.222	45.3%
1.8 gpm	1/1/2016	0.125	53.3%	0.135	52.7%	0.260	53.1%
Total		0.234	100.0%	0.256	100.0%	0.490	100.0%

SB535 Southern California	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	0.397	41.1%	0.437	41.3%	0.834	41.2%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.057	5.9%	0.061	5.8%	0.118	5.8%
1.2 gpm	After 7/1/2016	0.513	53.1%	0.560	52.9%	1.073	53.0%
Total		0.967	100.0%	1.058	100.0%	2.025	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.


SB535 Southern California	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
> 2.2 gpm	Prior to 7/1/2016	0.171	35.0%	0.192	36.1%	0.363	35.5%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.102	20.9%	0.115	21.5%	0.217	21.2%
1.8 gpm	After 7/1/2018	0.216	44.1%	0.226	42.4%	0.442	43.3%
Total		0.489	100.0%	0.533	100.0%	1.022	100.0%


<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.


# California – Non-residential/Commercial Title 20 plumbing fixtures/fittings market penetration


TITLE  
20


Tank-based toilets	Million tank-based toilets	% of tank-based toilets
		
3.5 gpf or more	0.134	5.2%
1.6 gpf	1.755	67.9%
1.28 gpf or less	0.695	26.9%
Total	2.584	100.0%

Commercial toilets with flushometer valve	Million commercial toilets with toilet flush valve	% of commercial toilets
		
3.5 gpf or more	0.212	4.5%
1.6 gpf	3.203	68.0%
1.28 gpf or less	1.295	27.5%
Total	4.710	100.0%

Urinals <sup>(1)</sup>	Million urinals with flush valves	% of urinals
		
1.0 gpf or more	1.286	72.7%
0.5 gpf	0.010	0.5%
0.125 gpf	0.474	26.8%
Total	1.770	100.0%

Commercial faucets used in public restrooms <sup>(4)</sup>	Million commercial faucets used in public restrooms	% of commercial faucets used in public restrooms
		
> 0.5 gpm	4.836	70.7%
0.5 gpm or less	2.000	29.3%
Total	6.836	100.0%

Residential faucets <sup>(2)</sup>	Million residential faucets	% of residential faucets
		
2.0 gpm or more	0.065	5.2%
1.5 gpm	0.470	37.4%
1.2 gpm	0.720	57.4%
Total	1.255	100.0%

Showerheads <sup>(3)</sup>	Million showerheads	% of showerheads
		
2.5 gpm or more	0.064	5.0%
2.0 gpm	0.589	47.0%
1.8 gpm	0.602	48.0%
Total	1.255	100.0%

<sup>(1)</sup> According to the California Plumbing code, trough urinals have been prohibited since 2010. According to industry experts approximately 98% of the urinals installed are wall-mount, and 2% are floor-mount

<sup>(2)</sup> Residential faucets are used in hotel guest rooms and in patient rooms of hospitals and other health care facilities

<sup>(3)</sup> Residential showerheads are used in hotel guest rooms and in patient rooms of hospitals and other health care facilities

<sup>(4)</sup> The governing standard and test procedure for non-residential faucets used in public settings is ASME A112.18.1/CSA B125.1. In the early 1990s, this standard was changed to reflect a lower maximum flow rate of 0.5-gallons per minute (1.9 Lpm) for all “public” applications. All the major municipalities have adopted ASME A112.18.1 by reference. The 0.5 gpm standard for non-residential applications has however frequently been neglected, as many are simply unaware of this standard. According to the California Title 20 water efficiency requirements for plumbing fixtures and fittings, all public lavatory faucets and aerators sold or offered for sale on or after 1/1/2016 must comply with the 0.5 gpm at 60 psi requirements. Non-compliant public lavatory faucets and aerators may not be sold or offered for sale on or after 1/1/2016, regardless of manufacture date. The penetration rates indicated for commercial faucets used in public restrooms is based on faucets installed in new commercial construction and the replacement of existing commercial faucets sold after 1/1/2016.



# California Title 20 water efficiency requirements for plumbing fixtures and fittings



Noncompliant kitchen and public lavatory faucets and aerators may not be sold or offered for sale on or after January 1, 2016, regardless of manufacture date.

Appliance	Maximum Flow Rate	
Lavatory faucets and aerators (including residential and commercial)	Manufactured prior to 9/1/2015	2.2 gpm at 60 psi <sup>1,2</sup>
	Manufactured on or after 9/1/2015 and prior to 7/1/2016	1.5 gpm at 60 psi <sup>1,2</sup>
	Manufactured on or after 7/1/2016	1.2 gpm at 60 psi <sup>1,2</sup>
Public lavatory faucets and aerators	Sold or offered for sale on or after 1/1/2016	0.5 gpm at 60 psi
Kitchen faucets and aerators	Sold or offered for sale on or after 1/1/2016	1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi
	Manufactured on or after 1/1/1994 and prior to 7/1/2016	2.5 gpm at 80 psi
	Manufactured on or after 7/1/2016 and prior to 7/1/2018	2.0 gpm at 80 psi <sup>3</sup>
Showerheads	Manufactured on or after 7/1/2018	1.8 gpm at 80 psi <sup>3</sup>

<sup>1</sup> **Sprayheads with independently-controlled orifices and manual controls.** The maximum flow rate of each orifice that manually turns on or off shall not exceed the maximum flow rate for a lavatory faucet.

<sup>2</sup> **Sprayheads with collectively-controlled orifices and manual controls.** The maximum flow rate of a sprayhead that manually turns on or off shall be the product of (a) the maximum flow rate for a lavatory faucet and (b) the number of component lavatories (rim space of the lavatory in inches (millimeters) divided by 20 inches (508 millimeters).

<sup>3</sup> **Maximum flow rate.** The maximum flow rate shall be the highest value obtained through testing at a flowing pressure of  $80 \pm 1$  psi and shall not exceed the maximum flow rate in Title 20, Table H-5. **Minimum flow rate.** The minimum flow rate, determined through testing at a flowing pressure of  $20 \pm 1$  psi, shall not be less than 60 percent of the flow rate reported by the manufacturer pursuant to Section 1606(a). The minimum flow rate determined through testing at flowing pressures of 45 and  $80 \pm 1$  psi shall not be less than 75 percent of the flow rate reported by the manufacturer pursuant to Section 1606(a). **Showerheads with multiple nozzles.** The total flow rate of showerheads with multiple nozzles must be less than or equal to the maximum flow rate in Title 20, Table H-5 when any or all nozzles are in use at the same time.

Table 1: Title 20 Standards for Plumbing Fittings

Noncompliant toilets and urinals may not be sold or offered for sale on or after January 1, 2016, regardless of manufacture date.

Appliance	Maximum Gallons per Flush or Dual-flush Effective Flush Volume
	Sold or offered for sale on or after January 1, 2016
All water closets (toilets)	1.28 <sup>1</sup>
Trough-type urinals	Trough length (inches) 16
Wall mounted urinals	0.125
Other urinals	0.5

<sup>1</sup> Water closets sold or offered for sale after January 1, 2016 shall pass the Waste Extraction Test (Section 7.10) of ASME A112.19.2.

Table 2: Title 20 Standards for Plumbing Fixtures

# Methodology

During the months June and July 2022, GMP Research reviewed the penetration rate of Title 20 residential and commercial plumbing fixtures among the installed base of plumbing fixtures and fittings installed in homes and non-residential properties in the State of California. The penetration rate is defined as the sum of all products installed upon being mandated by the California Title 20 water efficiency requirements for plumbing fixtures and fittings.

According to the US Census Bureau, there are 14.210 million homes in California. According to our research, we believe there are 1.976 million non-residential/commercial buildings in California. We reviewed the number of homes by county and examined when they were constructed. For the non-residential/commercial facilities, we examined the number of hotels/motels, office + mix-use building, retail and wholesale operations, health care facilities, day care centers, schools, universities, places of worship, public safety facilities, leisure and entertainment buildings, airports, passenger terminals, data processing centers, manufacturing facilities and other industrial buildings in all counties.

To determine the number of installed toilets, faucets and showerheads, we first examined how many bathrooms the average home has. The Census Bureau provides data on homes with 1-1/2 baths or less, 2 baths, 2-1/2 baths and 3 baths or more. We supplemented this information by reviewing home descriptions of 20,156 single- family homes, duplexes, townhouses, apartments + condominiums, and mobile homes listed for sale on realtor.com, randomly selected within each California county. In a next step, we reviewed home floorplans to determine the average number of toilets, faucets and showerheads per home.

We worked closely with John Koeller of Koeller & Company of Yorba Linda, CA, to review our assumptions and to ensure they were in line with general industry views.



## Determining the number of plumbing fixtures and fittings per home

To determine the number of plumbing fixtures per type of home, we reviewed the property descriptions of 20,156 single-family homes, duplexes, townhouses, apartments + condominiums, and mobile homes listed for sale on realtor.com, randomly selected within each California county.

The sampling included 13,890 single-family homes and 6,266 multi-family homes and is representative of the population concentration of the State of California. Properties ranged from \$ 24,900 (1 Bedroom/2 Bath Condominium in Kirkwood CA) to \$87,500,000 (12 bedroom/20-bathroom villa in Beverly Hills CA).

In a next step, we examined how many bathrooms there were per home. Each bathroom will have 1 residential toilet. We assumed each full-size bathroom had two lavatory sinks each equipped with a faucet. The half-baths had one sink equipped with a faucet.

In line with industry norms, each full-size bathroom will be equipped with either a tub/shower mixer, or a shower only mixer, resulting in 1 shower head per each full-size bathroom. The powder room (half-bath) typically is not equipped with a shower. Bathtubs – unless it is a freestanding soaker tub or whirlpool bath – are frequently equipped with a tub/shower mixer, allowing the homeowner to use the fixture for bathing and for showering.

## Determining the number of plumbing fixtures and fittings per non-residential building

To determine the market penetration of Title 20 plumbing fixtures and fittings in non-residential properties, we examined the number of non-residential establishments using multiple sources:

[US Census Bureau](#) provides information on the number of companies, establishments and company size by 2-, 3-, 4- and 6-digit NAICS (North American Industry Classification) codes. [Renomy.com](#) – a division of the Altus Group – provides information on building configurations, lot size and age of the building. [Enhanced Commercial Property Database](#) from SMR – provides information on building types and age of the building. [The US Energy Information Administration](#) provides information on building types and sizes. [Federal Reserve Bank of St. Louis](#), [Dodge Data Analytics](#), and the [US Census Bureau](#) provide information on the developments of new non-residential construction by industry segment

Based on the size of the non-residential building in question, we reviewed the maximum floor area allowance per occupant as specified in [Table 1004.5](#) of the California Building Code. Once the number of occupants was defined, we used the most current California plumbing code to determine the number of required plumbing fixtures and fittings per facility. Using the data from renomy.com, the enhanced commercial property database, and the US Energy Information Administration we were able to determine the age of the non-residential buildings, which in turn told which plumbing requirements were in affect, when the buildings were built. plumbing code.

We reviewed our assumptions with [John Koeller](#) of Koeller & Company of Yorba Linda, CA to review our assumptions and to ensure they were in line with general industry views.

# Product replacement assumptions

## Note concerning rental properties:

The State of California Department of Real Estate has published A guide to Residential Tenant’s and Landlord’s Rights and Responsibilities, Rev. 2022. California law stipulates all tenants have a right to a safe rental unit.

A rental unit must be habitable. In legal terms, “habitable” means the rental unit is fit for occupation by human beings, and that it substantially complies with state and local building and health codes, that materially affect a tenant’s health and safety.

Plumbing fixtures and fittings must be in good working order. The law however does not indicate what level of water conservation these products must conform to. Replacements after 2016 must comply to the Title 20 plumbing requirement.

## Note concerning commercial plumbing fixtures/fittings:

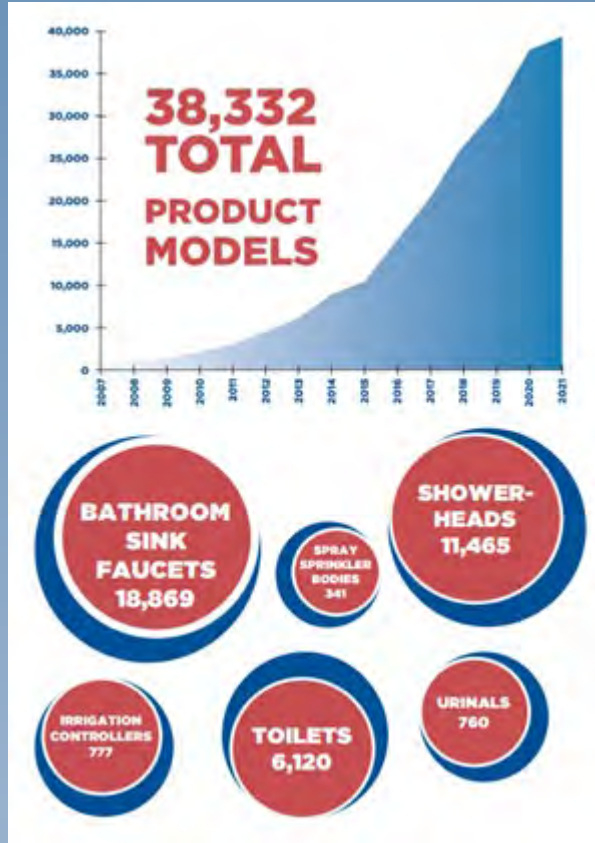
Commercial toilets are frequently replaced well before they are “worn out” or inoperable. In some cases, for tank-type toilets in heavy use commercial areas (e.g., a gas station, theater, etc.) the economic lifetime may be reduced to 20 years or less, just because of physical wear and tear from abuse. For flushometer-valve toilets, replacement is not as frequent, as retrofitting the flushometer valve is often the preferred choice, rather than replacing the entire toilet and flushometer valve.

Many water utilities offering rebate programs geared toward replacing commercial plumbing fixtures/fittings use a 30-year replacement cycle as basis for their rebate program. They typically do not distinguish among the usage within the various commercial/institutional buildings, because there are too many variables at play.

Residential plumbing fixtures/fittings	Owner-occupied home		Rental property	
Product		Home located in a low-income SB535 community		Rental property located in a low-income SB535 community
Residential toilet	30 years	35 years	35 years	40 years
Residential kitchen faucet	12 years	15 years	15 years	20 years
Residential bathroom faucet	12 years	15 years	15 years	20 years
Residential showerhead	15 years	15 years	20 years	25 years
Non-residential / commercial plumbing fixtures/fittings				
Commercial toilet	30 years			
Commercial faucet	20 years			

Sources: NAHB/Bank of America Study of Life Expectancy of Home Components, InterNACHI’s standard life expectancy for home products, from the Guide on the Life Expectancy of Rental Property Items, inputs from plumbing fixture/fittings manufacturers and from rental property managers

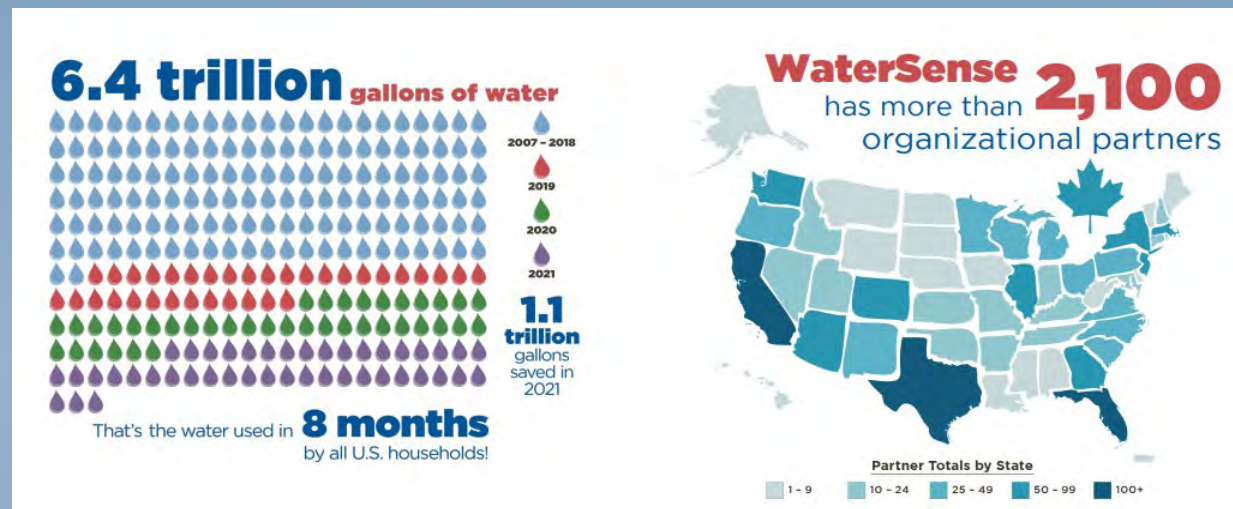
## Availability of plumbing fixtures and fittings meeting Title 20 requirements



Source:  
<https://www.epa.gov/system/files/documents/2022-06/WS-About-Accomplishments-Report-2021.pdf>

According to the US Department of Environment Protection (EPA), there are

- 6,120 residential and non-residential/commercial toilets currently available, which meet the CA Title 20 low consumption flushing requirements
- 18,870 residential faucets currently available, which meet the CA Title 20 low flow requirements
- 11,465 residential showerheads currently available, which meet the CA Title 20 low flow requirements
- 760 flushometer valve products, which meet the CA Title 20 low consumption requirements



# Regional market segmentation



	Northern CA	SF Bay Area	Central CA	LA + Orange County	Southern CA	Total California
Counties within each region	Butte, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sonoma, Sutter, Tehama, Trinity, Yolo, Yuba	Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Solano	Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Stanislaus, Tulare, Tuolumne, Ventura	Los Angeles, Orange	Imperial, Riverside, San Bernardino, San Diego	
Population	4.1 million	6.3 million	6.6 million	13.0 million	8.1 million	38.1 million
% of total	10.8%	16.5%	17.3%	34.2%	21.2%	100.0%

Source: US Census Bureau








# Residential buildings in California



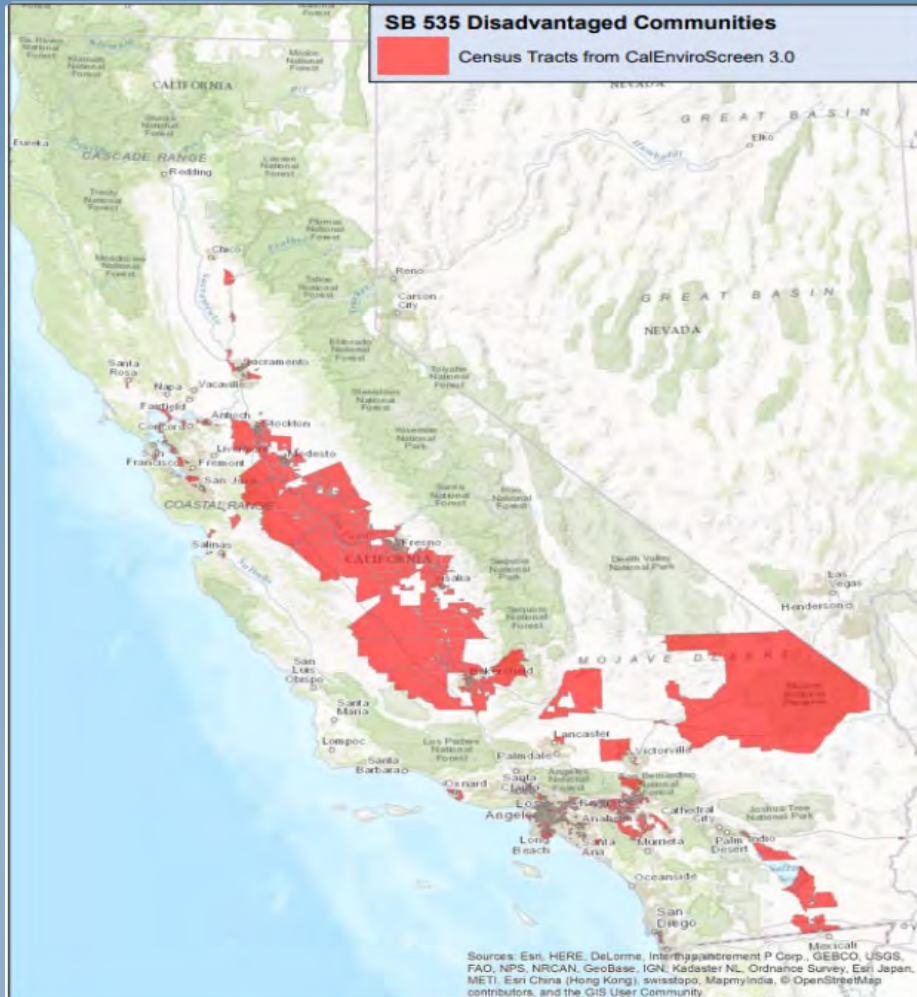
According to the US Census Bureau, there are 14.210 million existing homes in the state of California.

- 12.1% are in Northern California
- 18.6% are in the San Francisco Bay Area
- 16.5% are in Central California
- 32.8% are in Los Angeles and Orange Counties
- 20.0% are in Southern California

	Northern CA	SF Bay Area	Central CA	LA + Orange County	Southern CA	Total California	% of total
							
Single family home	1,276,291	1,605,891	1,749,126	2,643,339	1,941,462	9,216,109	64.9%
2 units	34,149	90,678	56,836	112,574	45,609	339,846	2.4%
3 or 4 units	76,287	167,988	121,294	282,802	125,623	773,994	5.4%
5 to 9 units	76,912	151,210	105,693	348,622	157,859	840,296	5.9%
10 to 19 units	51,585	144,653	66,436	329,332	129,126	721,132	5.1%
20 or more units	105,065	433,326	119,614	854,802	275,890	1,788,697	12.6%
Mobile home	102,834	42,357	123,101	86,653	160,721	515,666	3.6%
Boat, RV, van, etc.	3,225	2,370	3,165	2,910	3,535	15,205	0.1%
Total existing homes	1,726,348	2,638,473	2,345,265	4,661,034	2,839,825	14,210,945	100.0%
% of total	12.1%	18.6%	16.5%	32.8%	20.0%	100.0%	

Source: US Census Bureau

# SB535 Disadvantaged communities



Disadvantaged communities in California are specifically targeted for investment of proceeds from the state’s Cap-and-Trade Program. These investments are aimed at improving public health, quality of life and economic opportunity in California’s most burdened communities, and at the same time, reducing pollution that causes climate change.

In 2012, Senate Bill 535 (De León, Chapter 830, Statutes of 2012) established initial requirements for minimum funding levels to “Disadvantaged Communities” (DACs). The legislation also gives CalEPA the responsibility for identifying those communities, stating that CalEPA’s designation of disadvantaged communities must be based on “geographic, socioeconomic, public health, and environmental hazard criteria.”

	Northern CA	SF Bay Area	Central CA	LA + Orange County	Southern CA	Total California
Census tracts with SB535 disadvantaged communities	73	144	474	1,267	350	2,308
% of total	3.2%	6.2%	20.5%	54.9%	15.2%	100.0%

Sources: [oeha.ca.gov/calenviroscreen/sb535](http://oeha.ca.gov/calenviroscreen/sb535)



# Non-residential / commercial buildings in California



Sources: [www.reonomy.com](http://www.reonomy.com), world-airport-codes.com, American Hotel & Lodging Association, California Restaurant Association, CA Department of Education, CA Manufacturers & Technology Association, CA Department of Public Health, [www.gsa.gov](http://www.gsa.gov)

Building category	Non-residential / commercial building type	Number of buildings in California	% of all non-residential / commercial buildings
Office + mix-use buildings	Office and mix-use buildings	532,026	26.9%
Retail + wholesale operations	Retail buildings	173,239	8.8%
	Shopping centers and strip malls	15,285	0.8%
	Gas stations with and without mini-mart	357,101	18.1%
	Wholesale operations	60,768	3.1%
Lodging + restaurants + drinking places	Hotels, motels, resorts	12,442	0.6%
	Restaurants + drinking places	76,201	3.9%
Education	K-12 private and public schools	45,204	2.3%
	College buildings	1,460	0.1%
	University buildings	480	0.0%
	Child-care centers	169,726	8.6%
Health care	Hospitals	353	0.0%
	Auxiliary buildings on hospital campus	3,530	0.2%
Places of worship	Churches, mosques, synagogues	23,558	1.2%
Transportation	International airports	8	0.0%
	Regional / municipal airports	42	0.0%
	Small airports	233	0.0%
	Airport support buildings	1,373	0.1%
	Train, subway, rapid transit, bus stations	224	0.0%
	Bowling centers	250	0.0%
Leisure + Entertainment	Cinemas	694	0.0%
	Golf clubs	921	0.0%
	Performing arts centers	66	0.0%
	Theme park buildings	2,640	0.1%
	Sports stadiums	178	0.0%
Manufacturing	Manufacturing + auxiliary buildings at manufacturing site	353,210	17.9%
Industrial non-manufacturing	Data centers	194	0.0%
	Self-storage	2,132	0.1%
	Warehouses + distribution centers	36,695	1.9%
	Flex buildings, showrooms, and other industrial buildings	100,801	5.1%
Mining, Quarrying, Oil + Gas extraction	Mining, quarrying, oil + gas extraction	654	0.0%
Public safety	Police + fire stations	1,321	0.1%
Utilities	Utilities	1,237	0.1%
Federal, state and municipal buildings	Federal and state buildings	536	0.0%
	Public libraries	181	0.0%
	Post offices	1,634	0.1%
Total non-residential / commercial buildings in California		1,976,597	100.00%





## Northern California demographics

Northern California includes Butte, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sonoma, Sutter, Tehama, Trinity, Yolo, and Yuba Counties.

Population	4.178 million	Number of homes	1,726,348
Age	% of Northern CA population	Average number of people per home	2.42
< 18 years	21.0%	Average household income	\$61,503
18-65 years	58.3%	Percent of population living in poverty	13.2%
> 65 years	20.7%	Census tracts with SB535 disadvantaged communities (DACs)	73

Housing Units	Single Family	Duplex	3-4 Unit Town House	5-9-unit Apartment or Condominium Building	10-19-unit Apartment or Condominium Building	20 or More Unit Apartment or Condominium Building	Mobile Home, Boat, RV, Van, other	Total
								
	1,276,291	34,149	76,287	76,912	51,585	105,065	106,059	1,726,348
	Single Family 73.9%			Multi-Family 20.0%			Other 6.1%	

Source: [https://data.census.gov/cedsci/table?q=DPo4&g=04000E1USo6\\_0500000USo6019&tid=ACSDP5Y2020.DPo4](https://data.census.gov/cedsci/table?q=DPo4&g=04000E1USo6_0500000USo6019&tid=ACSDP5Y2020.DPo4)





## Northern California average home sizes

Home type	Single-family	Multi-family
Number of homes examined	1,480	780
Price range	\$100,000 - \$ 35,000,000	\$ 110,000 - \$ 5,750,000
Average price	\$783,038.24	\$230,703.35
Average size in sq. ft.	2,064.8 sq. ft	1,133.5 sq. ft.
Average number of bedrooms	3.46	3.12
Average number of bathrooms	2.29	2.07

Single family homes

Multi-family homes



\$ 35,000,000 / 7 bed / 5.5 bath /  
44.72 acres 7,154 sq ft lot



\$100,000 / 1,053 sq ft / 4 bed / 1 bath /



\$5,750,000 / 2,363 sq ft / 4 bed / 4 bath  
Condominium

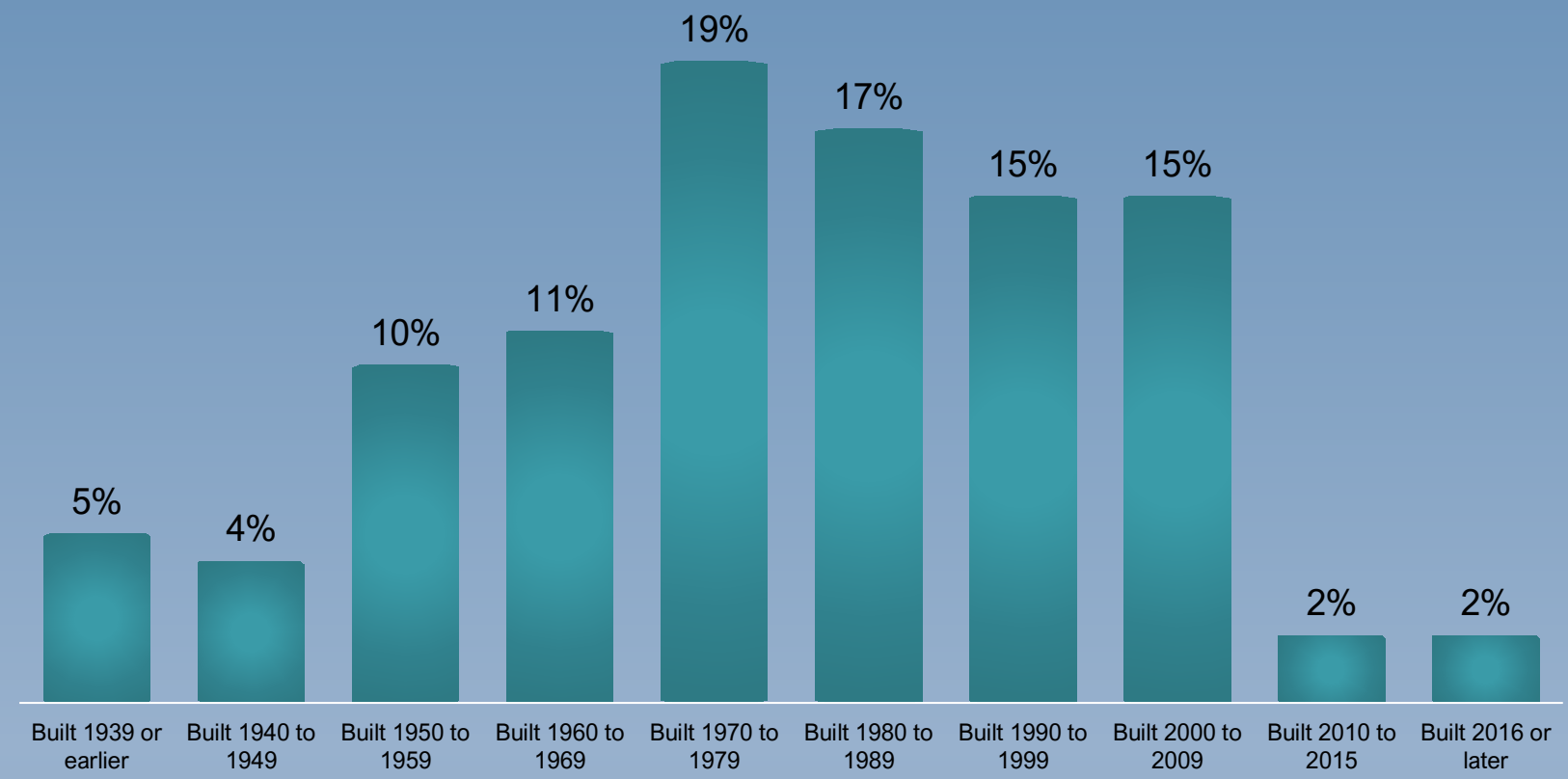
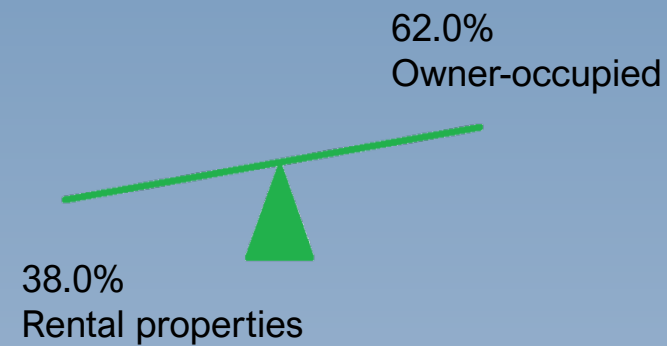


\$ 110,000 / 1,574 sq ft / 4 bed / 3 bath  
Mobile home on 0.24 acres

Source: realtor.com



## Northern California – Rental vs. owner-occupied properties + age of home



Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)



## Northern California – Installed residential plumbing fixtures and fittings



According to the US Census Bureau there are 1.726 million existing homes in Northern California.

- 1.823 million installed kitchen/bar faucets
- 6.601 million installed bathroom faucets
- 3.925 million installed toilets
- 3.611 million installed showerheads

County		Butte	Colusa	Del Norte	El Dorado	Glenn	Humboldt	Lake	Lassen	Mendocino	Modoc	Napa	Nevada	Placer	Plumas	Sacramento	Shasta	Sierra	Siskiyou	Sonoma	Sutter	Tehama	Trinity	Yolo	Yuba	Total
SF-homes		61,366	6,587	7,562	75,262	7,728	46,285	24,292	9,851	31,365	4,497	40,920	45,624	135,071	12,963	410,318	56,619	2,092	18,070	154,996	26,411	19,207	6,502	51,567	21,136	1.276
MF- + other homes		32,602	1,566	3,787	16,307	3,482	16,718	10,185	2,915	9,509	762	14,419	8,281	31,012	2,910	162,598	21,869	245	6,107	51,502	7,983	8,411	2,393	26,998	7,496	0.450
Owner-occupied		59.5%	63.5%	68.4%	75.5%	58.4%	56.8%	67.7%	68.6%	60.3%	76.6%	64.8%	74.8%	73.4%	72.9%	57.4%	65.3%	73.4%	65.9%	61.3%	59.1%	66.0%	68.5%	51.3%	60.9%	62.0%
Rental		40.5%	36.5%	31.6%	24.5%	41.6%	43.2%	32.3%	31.4%	39.7%	23.4%	35.2%	25.2%	26.6%	27.1%	42.6%	34.7%	26.6%	34.1%	38.7%	40.9%	34.0%	31.5%	48.7%	39.1%	38.0%
Bathrooms per home	SF	2.27	2.45	2.16	2.41	1.78	2.30	2.39	2.05	2.21	1.98	2.33	2.57	2.90	2.38	2.23	2.12	2.55	2.22	2.33	2.35	2.23	2.47	2.47	2.30	2.29
	MF	2.00	2.16	1.90	2.13	1.57	2.03	2.11	1.81	1.95	1.75	2.05	2.27	2.56	2.10	1.97	1.87	2.25	1.96	2.05	2.07	1.97	2.18	2.18	2.03	2.07
		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Total installed kitchen faucets		99,230	8,610	11,985	96,697	11,838	66,531	36,408	13,481	43,163	5,554	58,438	56,924	175,384	16,762	604,999	82,883	2,468	25,531	218,062	36,320	29,165	9,393	82,965	30,235	1.823
Total installed bathroom faucets		404,636	37,633	34,047	425,231	33,630	281,579	152,015	38,298	122,622	15,777	247,857	252,963	768,391	73,545	171,874	235,464	111,95	72,531	929,486	156,004	82,854	39,689	338,829	128,168	6.601
Total installed toilets		204,382	19,521	23,547	216,037	19,221	140,363	79,524	25,464	87,848	10,235	124,702	136,021	471,013	36,959	123,475	160,916	5,886	52,071	466,960	78,609	59,372	21,272	186,176	63,816	3.925
Total installed showerheads		190,075	18,155	21,900	200,915	17,865	130,537	73,960	23,680	81,700	9,520	115,970	126,500	438,040	34,370	111,280	149,650	5,295	46,865	434,270	73,105	55,215	19,780	173,145	59,350	3.611

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)



## Northern California – SB535 Communities - Installed plumbing fixtures and fittings

According to CalEPA, there are 73 SB535 disadvantaged communities in Northern California.

- 0.101 million installed kitchen faucets
- 0.417 million installed bathroom faucets
- 0.196 million installed toilets
- 0.183 million installed showerheads

Northern California County		Butte	Glenn	Sacramento	Sonoma	Sutter	Yolo	Yuba	Total
<b>SB535 Disadvantaged communities</b>		2	1	57	2	5	4	2	73
Existing SB535 single-family homes		2,358	1,561	41,398	2,800	5,357	2,477	2,414	58,365
Existing SB535 multi-family + other homes		942	1,478	30,287	1,147	3,985	2,549	2,495	42,883
SB535 Owner-occupied		52.1%	50.3%	40.1%	47.7%	34.1%	39.4%	30.5%	40.0%
SB535 Rental properties		47.9%	49.7%	59.9%	52.3%	65.9%	60.6%	69.5%	60.0%
Bathrooms per SB535 home	Single-family	2.26	1.77	2.24	2.32	2.35	2.47	2.30	2.25
	Multi-family	1.50	1.20	1.50	1.53	1.55	1.63	1.52	1.49
		↓	↓	↓	↓	↓	↓	↓	↓
Total installed kitchen faucets in SB535		3,300	3,039	71,685	3,947	9,342	5,026	4,909	101,248
Total installed bathroom faucets in SB535		14,616	9,117	297,851	17,441	38,740	20,032	19,555	417,352
Total installed toilets in SB535		6,742	4,537	138,135	8,251	18,766	10,226	9,345	196,002
Total installed showerheads in SB535		6,270	4,219	128,465	7,675	17,452	9,910	8,690	182,681

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)



# Northern California –Title 20 residential plumbing fixtures/fittings market penetration

TITLE  
20

All Northern CA	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.125	5.1%	0.086	5.8%	0.211	5.4%
1.6 gpf	1/1/1994 – 12/31/2015	1.750	71.9%	1.078	72.2%	2.828	72.0%
1.28 gpf or less	1/1/2016	0.558	23.0%	0.328	22.0%	0.886	22.6%
Total		2.433	100.0%	1.492	100.0%	3.925	100.00%

All Northern CA	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.019	1.7%	0.013	1.9%	0.032	1.8%
2.2 gpm	1/1/1994 – 12/31/2015	0.511	45.2%	0.331	47.7%	0.842	46.2%
1.8 gpm	1/1/2016	0.600	53.1%	0.349	50.4%	0.949	52.0%
Total		1.130	100.0%	0.693	100.0%	1.823	100.0%

All Northern CA	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	1.625	38.0%	1.098	43.8%	2.723	41.3%
1.5 gpm <sup>(1)</sup>	9/1/2015 – 7/1/2016	0.254	6.2%	0.118	4.7%	0.372	5.6%
1.2 gpm	After 7/1/2016	2.214	54.1%	1.292	51.5%	3.506	53.1%
Total		4.093	100.0%	2.508	100.0%	6.601	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All Northern CA	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.766	42.6%	0.491	35.8%	1.257	34.8%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.450	20.1%	0.291	21.2%	0.741	20.5%
1.8 gpm or less	After 7/1/2018	1.023	45.7%	0.590	43.0%	1.613	44.7%
Total		2.239	100.0%	1.372	100.0%	3.611	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# Northern California SB535 communities – Title 20 residential plumbing fixtures/fittings market penetration

based on the analysis of 73 SB535 communities in the San Francisco Bay Area – home ownership = 40.0%

TITLE  
20

SB535 Northern CA	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.005	6.4%	0.007	5.9%	0.012	6.1%
1.6 gpf	1/1/1994 – 12/31/2015	0.057	73.1%	0.088	74.6%	0.145	74.0%
1.28 gpf or less	1/1/2016	0.016	20.5%	0.023	19.5%	0.039	19.9%
Total		0.078	100.0%	0.118	100.0%	0.196	100.0%

SB535 Northern CA	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.001	2.5%	0.001	1.6%	0.002	2.0%
2.0 gpm	1/1/1994 – 12/31/2015	0.018	44.6%	0.029	47.8%	0.047	46.5%
1.8 gpm	1/1/2016	0.021	52.9%	0.031	50.6%	0.052	51.5%
Total		0.040	100.0%	0.061	100.0%	0.101	100.0%

SB535 Northern CA	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	0.068	40.8%	0.107	42.9%	0.175	41.9%
1.5 gpm <sup>(1)</sup>	9/1/2015 – 7/1/2016	0.011	6.3%	0.016	6.5%	0.027	6.4%
1.2 gpm	After 7/1/2016	0.088	52.9%	0.127	50.6%	0.215	51.6%
Total		0.167	100.0%	0.250	100.0%	0.417	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

SB535 Northern CA	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.025	34.3%	0.039	35.5%	0.064	35.0%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.015	20.5%	0.024	21.8%	0.039	21.3%
1.8 gpm	After 7/1/2018	0.033	45.2%	0.047	42.7%	0.080	43.7%
Total		0.073	100.0%	0.110	100.0%	0.183	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

A photograph of the Golden Gate Bridge in San Francisco, taken from a high vantage point on a hill. The bridge's iconic red-orange towers and suspension cables are visible, stretching across a bay filled with thick, white fog. The sky is a mix of soft purple, blue, and yellow, indicating a sunset or sunrise. The foreground shows some dry, golden-brown grass and dark green shrubs.

# San Francisco Bay Area


## Title 20 plumbing fixtures/fittings penetration



# San Francisco Bay Area demographics

San Francisco Bay Area includes Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara and Solano Counties.

Population	6,325 Million	Number of homes	2,638,473
Age	% of San Francisco Bay Area population	Average number of people per home	2.4
< 5 years	5.5%	Average household income	\$113,046
18-65 years	78.0%	Percent of population living in poverty	8.0%
> 65 years	16.5%	Census tracts with SB535 disadvantaged communities (DACs)	144

Housing Units	Single Family	Duplex	3-4 Unit Town House	5-9-unit Apartment or Condominium Building	10-19-unit Apartment or Condominium Building	20 or More Unit Apartment or Condominium Building	Mobile Home, Boat, RV, Van, other	Total
								
	1,605,891	90,678	167,988	151,210	144,653	433,326	44,727	2,638,473
	Single Family 60.9%		Multi-Family 37.4%			Other 1.7%		100.0%

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)



## San Francisco Bay Area – average home sizes

Home type	Single-family	Multi-family
Number of homes examined	2,580	960
Price range	\$235,000 – \$39,500,000	\$ 125,000 - \$ 4,705,000
Average price	\$1,902,437.04	\$896,644.17
Average size in sq. ft.	2,081.7 sq. ft	1,288.4 sq. ft.
Average number of bedrooms	3.5	2.3
Average number of bathrooms	2.45	1.60

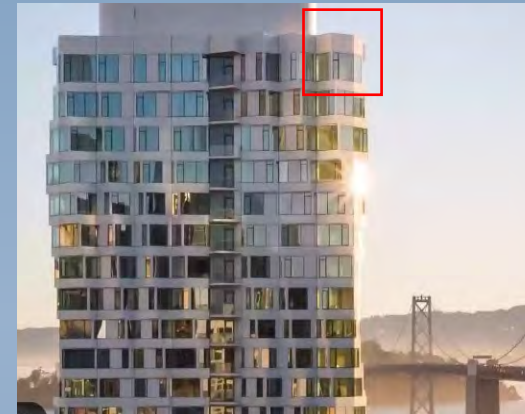
Single family homes   Multi-family homes



\$ 39,500,000 / 11,200 sq ft / 6 bed / 7.5 bath /  
1.15 acres



\$235,000 / 1,176 sq ft / 3 bed / 2 bath /  
0.25-acre lot



\$4,750,000 / 2,192 sq ft / 3 bed / 2.5 bath  
Condominium

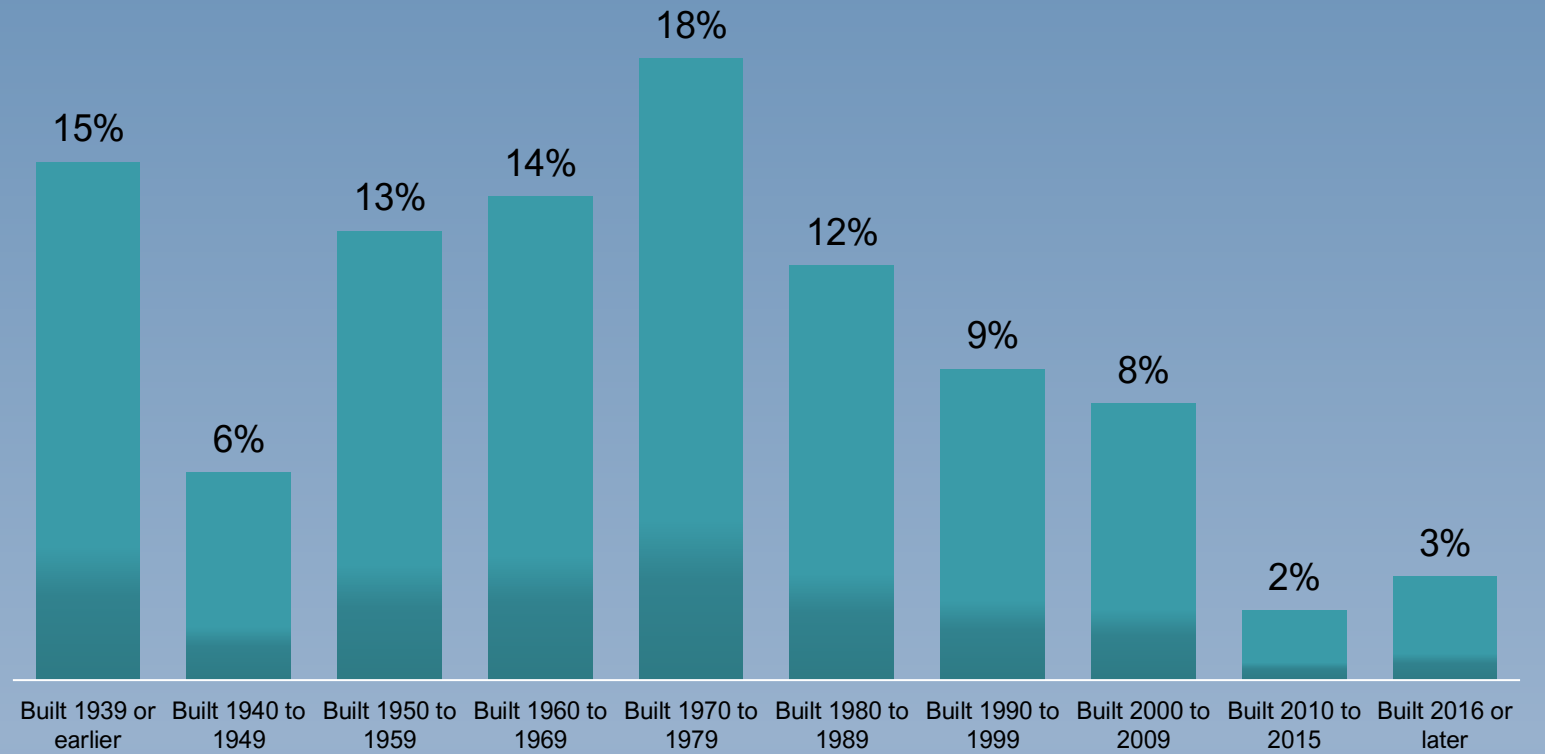
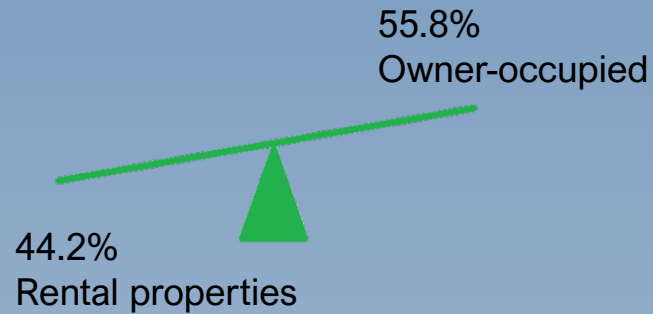


\$ 125,000 / 674 sq ft / 1 bed / 1 bath  
Condominium

Source: realtor.com



## San Francisco Bay Area – Rental vs. owner-occupied properties + age of home



Source: [https://data.census.gov/cedsci/table?q=DPo4&g=04000E1USo6\\_0500000USo6o19&tid=ACSDP5Y2020.DPo4](https://data.census.gov/cedsci/table?q=DPo4&g=04000E1USo6_0500000USo6o19&tid=ACSDP5Y2020.DPo4)





## San Francisco Bay Area – Installed residential plumbing fixtures and fittings



There are 2.638 million existing homes in the San Francisco Bay Area.

- 2.786 million installed kitchen faucets
- 10.389 million installed bathroom faucets
- 5.604 million installed toilets
- 5.212 million installed showerheads

San Francisco Bay Area County		Alameda	Contra Costa	Marin	San Francisco	San Mateo	Santa Clara	Solano	Total
Single-family homes		368,994	312,209	80,091	124,177	181,038	419,971	119,411	1,605,891
Multi-family + other homes		236,773	102,858	32,228	274,436	97,718	248,925	39,644	1,032,582
Owner-occupied		53.6%	66.8%	63.6%	38.0%	59.9%	56.4%	62.1%	55.8%
Rental properties		46.6%	33.2%	36.4%	62.0%	40.1%	43.6%	37.9%	44.2%
Bathrooms per home	Single-family	2.20	2.40	2.79	2.46	2.54	2.47	2.34	2.45
	Multi-family	1.54	1.68	2.0	1.72	1.78	1.73	1.64	1.71
		↓	↓	↓	↓	↓	↓	↓	↓
Installed kitchen faucets		639,690	438,311	118,609	420,935	294,366	706,354	167,962	2,786,227
Installed bathroom faucets		1,817,301	1,869,619	497,139	1,444,193	1,198,344	2,846,630	715,987	10,389,213
Installed toilets		1,176,417	922,103	282,175	777,505	633,956	1,467,969	344,080	5,604,204
Installed showerheads		1,094,068	857,556	262,423	723,080	589,579	1,365,210	319,994	5,211,910

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)



## San Francisco Bay Area – SB535 Communities - Installed plumbing fixtures and fittings

There are 144 SB535 disadvantaged communities in the San Francisco Bay Area.

- 0.216 million installed kitchen faucets
- 0.869 million installed bathroom faucets
- 0.436 million installed toilets
- 0.405 million installed showerheads

San Francisco Bay County		Alameda	Contra Costa	San Francisco	San Mateo	Santa Clara	Solano	Total
SB535 Disadvantaged communities		47	37	16	9	22	13	144
Single-family homes		24,926	41,646	9,525	8,137	12,898	13,879	111,011
Multi-family + other homes		35,247	17,008	21,833	6,165	15,420	8,936	104,609
Owner-occupied		32.2%	50.7%	31.0%	47.7%	41.0%	48.8%	40.5%
Rental properties		67.8%	49.3%	69.0%	52.3%	59.0%	51.2%	59.5%
Bathrooms per SB535 home	Single-family	2.20	2.40	2.46	2.54	2.47	2.34	2.45
	Multi-family	1.54	1.68	1.72	1.78	1.73	1.64	1.71
		↓	↓	↓	↓	↓	↓	↓
Installed kitchen faucets		60,173	58,654	31,358	14,302	28,318	22,815	215,620
Installed bathroom faucets		230,371	259,254	113,124	59,180	110,750	96,203	868,882
Installed toilets		109,117	128,524	60,984	31,642	58,535	47,132	435,934
Installed showerheads		101,480	119,525	56,715	29,430	54,440	43,835	405,425

# SF Bay Area – Title 20 residential plumbing fixtures/fittings market penetration

**TITLE  
20**

All SF Bay Area	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.187	6.0%	0.173	7.0%	0.360	6.4%
1.6 gpf	1/1/1994 – 12/31/2015	2.227	71.2%	1.766	71.3%	3.993	71.3%
1.28 gpf or less	1/1/2016	0.713	22.8%	0.538	21.7%	1.251	22.3%
Total		3.127	100.0%	2.477	100.0%	5.604	100.0%

All SF Bay Area	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.033	2.1%	0.030	2.4%	0.063	2.3%
2.0 gpm	1/1/1994 – 12/31/2015	0.701	45.1%	0.556	45.2%	1.256	45.1%
1.8 gpm	1/1/2016	0.821	52.8%	0.645	52.4%	1.467	52.7%
Total		1.555	100.0%	1.231	100.0%	2.786	100.0%

All SF Bay Area	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	2.411	41.5%	1.933	42.1%	4.344	41.8%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.325	5.7%	0.257	4.3%	0.582	5.6%
1.2 gpm	After 7/1/2016	3.061	52.8%	2.402	52.3%	5.463	52.6%
Total		5.797	100.0%	4.592	100.0%	10.389	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All SF Bay Area	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	1.041	35.8%	0.864	37.5%	1.905	36.6%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.582	20.0%	0.456	19.8%	1.038	19.9%
1.8 gpm	After 7/1/2018	1.285	44.2%	0.984	42.7%	2.269	43.5%
Total		2.908	100.0%	2.304	100.0%	5.212	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# SF Bay Area SB535 communities - Title 20 residential plumbing fixtures/fittings market penetration

based on the analysis of 144 SB535 communities in the San Francisco Bay Area – home ownership = 41.4%

TITLE  
20

SB535 SF Bay Area	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.011	6.1%	0.018	7.0%	0.030	6.9%
1.6 gpf	1/1/1994 – 12/31/2015	0.132	73.4%	0.188	73.5%	0.320	73.4%
1.28 gpf or less	1/1/2016	0.037	20.5%	0.050	19.5%	0.086	19.7%
Total		0.180	100.0%	0.256	100.0%	0.436	100.0%

SB535 SF Bay Area	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.001	1.1%	0.003	2.4%	0.004	1.9%
2.0 gpm	1/1/1994 – 12/31/2015	0.042	47.2%	0.063	49.6%	0.105	48.6%
1.8 gpm	1/1/2016	0.046	51.7%	0.061	48.0%	0.107	49.5%
Total		0.089	100.0%	0.127	100.0%	0.216	100.0%

SB535 SF Bay Area	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	0.151	42.0%	0.223	42.8%	0.374	43.0%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.021	5.8%	0.024	4.7%	0.045	5.2%
1.2 gpm	After 7/1/2016	0.188	52.2%	0.262	51.5%	0.450	51.8%
Total		0.485	100.0%	0.509	100.0%		100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

SB535 SF Bay Area	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.062	36.0%	0.078	33.8%	0.140	34.6%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.035	20.0%	0.053	22.9%	0.088	21.7%
1.8 gpm	After 7/1/2018	0.077	44.0%	0.100	43.3%	0.177	43.7%
Total		0.174	100.0%	0.231	100.0%		100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.



# Central California


## Title 20 plumbing fixtures/fittings penetration



## Central California demographics

Central California includes Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Stanislaus, Tulare, Tuolumne, and Ventura Counties

Population	6.601 Million	Number of homes	2,345,265
Age	% of Central CA population	Average number of people per home	2.8
< 18 years	23.0%	Average household income	\$66,920
18-65 years	60.3%	Percent of population living in poverty	12.8%
> 65 years	16.7%	Census tracts with SB535 disadvantaged communities (DACs)	474

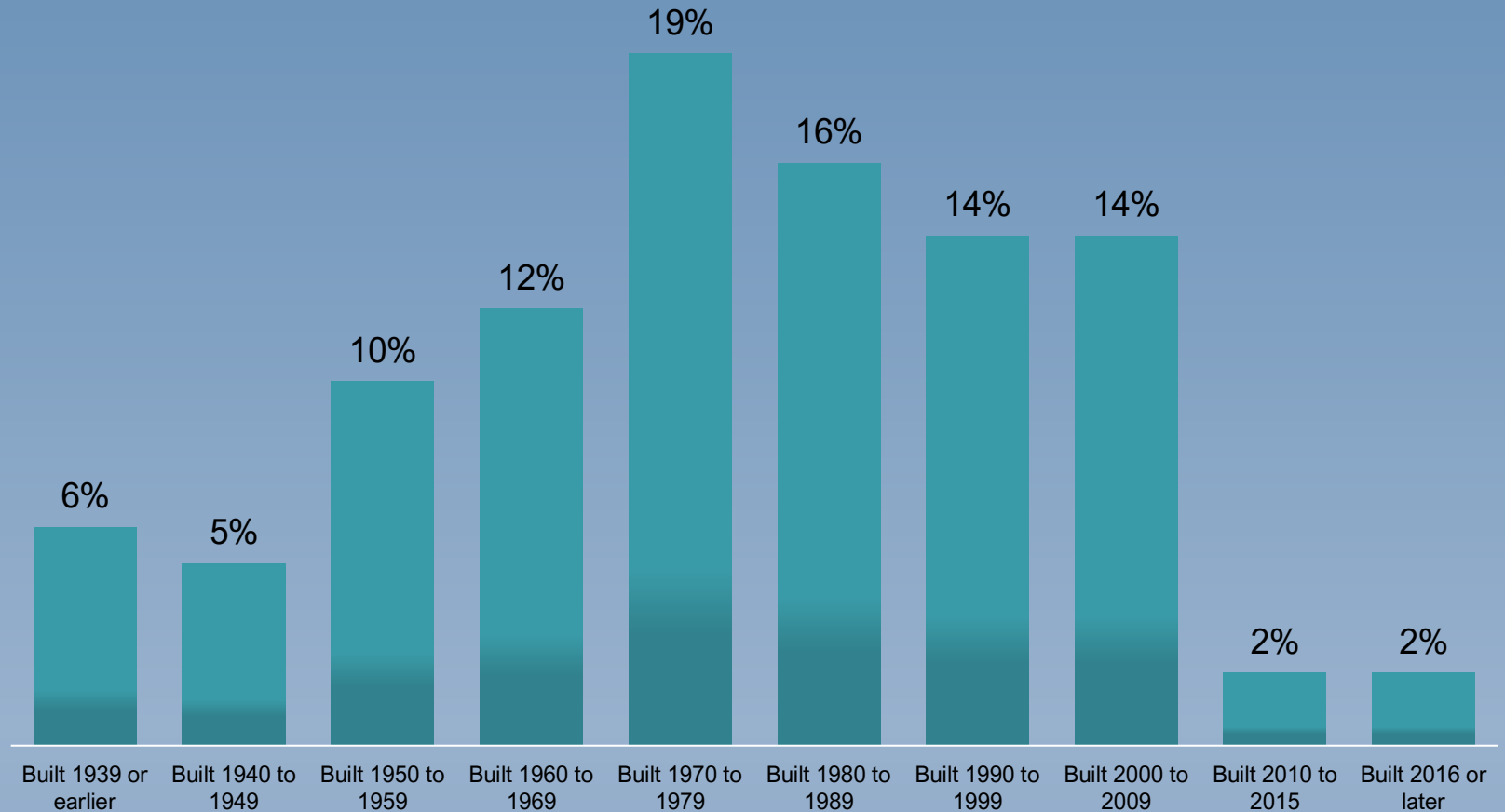
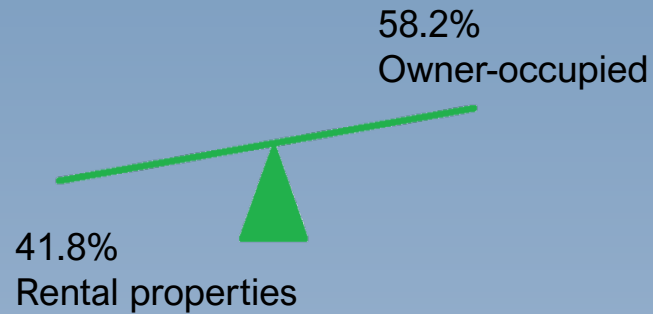
Housing Units	Single Family	Duplex	3-4 Unit Town House	5-9-unit Apartment or Condominium Building	10-19-unit Apartment or Condominium Building	20 or More Unit Apartment or Condominium Building	Mobile Home, Boat, RV, Van, other	Total
								
	1,749,126	56,836	121,294	105,693	66,436	119,614	126,266	2,345,265
	Single Family 74.6%			Multi-Family 20%			Other 5.4%	100.0%

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)





## Central California – Rental vs. owner-occupied properties + age of home



Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)



## Central California – average home sizes

Home type	Single-family	Multi-family
Number of homes examined	3,345	1,395
Price range	\$87,999 – \$65,000,000	\$ 24,900 - \$ 5,900,000
Average price	\$846,790.99	\$655,079.60
Average size in sq. ft.	1,982.2 sq. ft.	1,614.14 sq. ft.
Average number of bedrooms	3.32	3.28
Average number of bathrooms	2.33	2.30

Single family homes

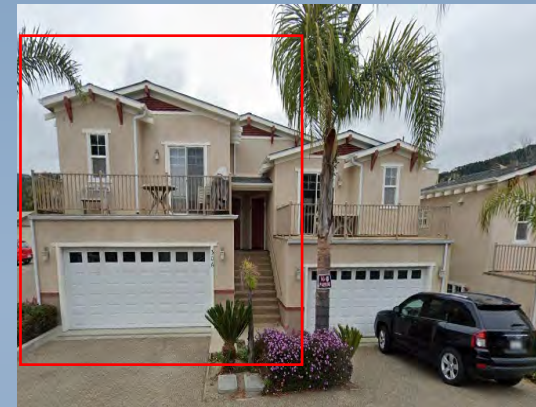
Multi-family homes



\$ 65,000,000 / 10,585 sq ft / 7 bed / 8 bath /  
1.95 acres



\$87,999 / 512 sq ft / 1 bed / 1 bath /  
03,484 sq. ft. lot



\$5,900,000 / 4,495 sq ft / 5 bed / 3 bath  
Townhouse



\$ 24,900 / 660 sq ft / 1 bed / 2 bath  
Condominium time-share

Source: realtor.com



## Central California – Installed residential plumbing fixtures and fittings



According to the US Census Bureau there are 2.345 million existing homes in Central California

- 2.477 million installed kitchen/bar faucets
- 9.233 million installed bathroom faucets
- 5.446 million installed toilets
- 5.071 million installed showerheads

County		Alpine	Amador	Calaveras	Fresno	Inyo	Kern	Kings	Madera	Mariposa	Merced	Mono	Monterey	San Benito	San Joaquin	San Luis Obispo	Santa Barbara	Santa Cruz	Stanislaus	Tulare	Tuolumne	Ventura	Total
SF-homes		1,178	15,280	24,459	235,143	5,952	223,934	35,700	41,475	7,872	66,974	7,728	98,637	15,985	192,865	90,359	102,704	76,289	145,203	116,944	26,120	218,325	1.749
MF- + other homes		616	2,966	3,637	98,214	3,562	75,245	10,567	9,005	2,653	19,717	6,364	43,273	3,230	52,327	31,897	56,613	29,530	37,036	33,135	5,452	71,100	0.596
Owner-occupied		80.9%	76.8%	79.6%	53.7%	65.0%	58.9%	53.6%	65.8%	70.4%	52.2%	68.0%	51.8%	65.3%	57.7%	62.7%	52.3%	60.3%	58.7%	57.1%	73.6%	63.3%	58.2%
Rental		19.1%	23.2%	20.4%	46.3%	35.0%	41.1%	46.4%	34.2%	29.6%	47.8%	32.0%	48.2%	34.7%	42.3%	37.3%	47.7%	39.7%	41.3%	42.9%	26.4%	36.7%	41.8%
Bathrooms per home	SF	2.80	2.26	2.20	2.24	1.98	2.09	2.14	2.35	2.22	2.11	2.74	2.36	2.51	2.40	2.47	2.60	2.33	2.22	2.32	2.37	2.56	2.33
	MF	2.76	2.23	2.17	2.21	1.95	2.06	2.11	2.32	2.19	2.08	2.70	2.33	2.48	2.37	2.44	2.57	2.30	2.19	2.29	2.34	2.53	2.30
		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Total installed kitchen faucets		1,894	19,268	29,669	352,025	10,047	315,933	48,858	53,307	11,114	91,546	14,881	149,857	20,291	258,923	129,102	168,239	111,745	192,444	158,483	33,340	305,633	2.477
Total installed bathroom faucets		8,970	54,738	84,288	1,000,071	28,542	897,537	138,801	252,400	31,575	260,073	57,732	709,500	96,075	840,230	611,280	796,585	529,095	546,717	684,125	157,860	144,7125	9.233
Total installed toilets		4,999	41,147	61,702	743,773	18,731	623,027	98,694	118,358	23,286	182,327	38,358	333,609	48,133	586,891	301,015	412,526	245,672	403,460	347,189	74,662	738,795	5.446
Total installed showerheads		4,655	38,270	57,385	691,710	17,420	579,420	97,792	110,070	21,660	169,560	35,675	310,260	44,768	545,810	279,940	383,650	228,473	375,220	322,897	69,440	687,080	5.071



# Central California – SB535 Communities -Installed plumbing fixtures and fittings

According to CalEPA, there are 474 SB535 disadvantaged communities in the Central California

- 0.740 million installed kitchen faucets
- 2.828 million installed bathroom faucets
- 1.654 million installed toilets
- 1.538 million installed showerheads

Central California County		Fresno	Kern	Kings	Madera	Merced	Monterey	San Joaquin	Santa Barbara	Santa Cruz	Stanislaus	Tulare	Ventura	Total
SB535 Disadvantaged communities		125	78	14	13	39	4	75	2	2	63	48	11	474
Single-family homes		126,198	55,295	16,036	14,435	31,440	3,561	96,318	808	2,065	69,424	48,756	8,378	472,714
Multi-family + other homes		70,968	85,844	5,293	16,853	13,230	1,994	29,722	2,034	1,940	19,948	16,377	5,230	269,433
Owner-occupied		43.8%	50.3%	50.6%	66.3%	46.9%	37.6%	52.6%	28.2%	26.9%	52.7%	51.3%	46.3%	49.4%
Rental properties		56.2%	49.7%	49.4%	33.7%	53.1%	62.4%	47.4%	71.8%	73.1%	47.3%	48.7%	53.7%	50.6%
Bathrooms per home	Single-family	2.24	2.09	2.14	2.35	2.11	2.36	2.40	2.60	2.33	2.22	2.32	2.56	2.33
	Multi-family	2.21	2.06	2.11	2.32	2.08	2.33	2.37	2.57	2.30	2.19	2.29	2.53	2.30
		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Installed kitchen faucets		197,166	141,139	19,259	31,288	44,670	5,555	126,040	2,842	4,005	89,372	65,133	13,608	740,077
Installed bathroom faucets		843,894	423,417	57,777	122,734	134,010	23,787	570,756	10,142	12,015	268,116	292,911	68,040	2,827,599
Installed toilets		439,523	292,405	41,065	73,021	93,857	13,050	301,604	7,328	9,273	197,807	150,617	34,680	1,654,230
Installed showerheads		408,755	271,940	38,190	67,910	87,290	12,140	280,492	6,815	8,624	183,960	140,074	32,250	1,538,440

# Central California –Title 20 residential plumbing fixtures/fittings market penetration

TITLE  
20

All Central California	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.190	6.0%	0.137	6.0%	0.327	6.0%
1.6 gpf	1/1/1994 – 12/31/2015	2.149	67.8%	1.559	68.5%	3.708	68.1%
1.28 gpf or less	1/1/2016	0.831	26.2%	0.580	25.5%	1.411	25.9%
Total		3.170	100.0%	2.276	100.0%	5.446	100.0%

All Central California	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.023	1.6%	0.017	1.7%	0.040	1.6%
2.0 gpm	1/1/1994 – 12/31/2015	0.611	42.4%	0.468	45.2%	1.079	43.6%
1.8 gpm	1/1/2016	0.808	56.0%	0.550	53.1%	1.358	54.8%
Total		1.442	100.0%	1.035	100.0%	2.477	100.0%

All Central California	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	2.037	37.9%	1.582	41.0%	3.619	39.2%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.328	6.1%	0.228	5.9%	0.556	6.0%
1.2 gpm	After 7/1/2016	3.009	56.0%	2.049	53.1%	5.058	54.8%
Total		5.374	100.0%	3.859	100.0%	9.233	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All Central California	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	1.058	35.9%	0.792	37.3%	1.850	36.5%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.600	20.3%	0.428	20.2%	1.028	20.3%
1.8 gpm or less	After 7/1/2018	1.293	43.8%	0.900	42.5%	2.193	43.2%
Total		2.951	100.0%	2.120	100.0%	5.071	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.



# Central California SB535 communities – Title 20 residential plumbing fixtures/fittings market penetration

based on the analysis of 474 SB535 communities in Central California – home ownership = 50.1%

TITLE  
20

SB535 Central California	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.051	6.2%	0.052	6.3%	0.103	6.2%
1.6 gpf	1/1/1994 – 12/31/2015	0.587	70.8%	0.596	72.2%	1.183	71.6%
1.28 gpf or less	1/1/2016	0.191	23.0%	0.177	21.5%	0.368	22.2%
Total		0.829	100.0%	0.825	100.0%	1.654	100.0%

SB535 Central California	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.008	1.8%	0.006	1.9%	0.014	1.9%
2.0 gpm	1/1/1994 – 12/31/2015	0.186	43.1%	0.139	45.1%	0.325	43.9%
1.8 gpm	1/1/2016	0.237	55.1%	0.164	53.0%	0.401	54.2%
Total		0.431	100.0%	0.309	100.0%	0.740	100.0%

SB535 Central California	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	0.431	39.3%	0.586	41.5%	1.017	36.0%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.079	5.6%	0.078	5.5%	0.157	5.5%
1.2 gpm	After 7/1/2016	0.907	55.1%	0.748	53.0%	1.655	58.5%
Total		1.417	100.0%	1.411	100.0%	2.828	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

SB535 Central California	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.284	36.9%	0.301	39.3%	0.585	38.0%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.159	20.6%	0.141	18.3%	0.300	19.5%
1.8 gpm	After 7/1/2018	0.327	42.5%	0.326	42.4%	0.653	42.5%
Total		0.770	100.0%	0.768	100.0%	1.538	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.



An aerial photograph of Los Angeles, showing the dense urban landscape with numerous skyscrapers in the background and residential neighborhoods in the foreground. The text is overlaid on the image.

# Los Angeles and Orange Counties

## Title 20 plumbing fixtures/fittings penetration



## Los Angeles + Orange Counties demographics

Population	12.997 million	Number of homes	4,661,034
Age	% of LA + Orange Counties population	Average number of people per home	2.8
< 18 years	21.6%	Average household income	\$82,900
18-65 years	63.7%	Percent of population living in poverty	11.1%
> 65 years	14.7%	Census tracts with SB535 disadvantaged communities (DACs)	1,267

Housing Units	Single Family	Duplex	3-4 Unit Town House	5-9 Unit Apartment or Condominium Building	10-19 unit Apartment or Condominium Building	20 or More Unit Apartment or Condominium Building	Mobile Home, Boat, RV, Van, other	Total
								
	2,643,339	112,574	282,802	348,622	329,332	854,802	89,563	4,661,034
	Single Family 56.7%			Multi-Family 41.3%			Other 1.9%	100.0%

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)





## Los Angeles + Orange Counties – average home sizes

Home type	Single-family	Multi-family
Number of homes examined	4,965	2,300
Price range	\$175,000 – \$87,500,000	\$30,000 - \$39,500,000
Average price	\$1,768,874.17	\$896,644.17
Average size in sq. ft.	2,210.86 sq. ft.	1,842.0 sq. ft.
Average number of bedrooms	3.62	3.43
Average number of bathrooms	2.66	2.5

Single family homes

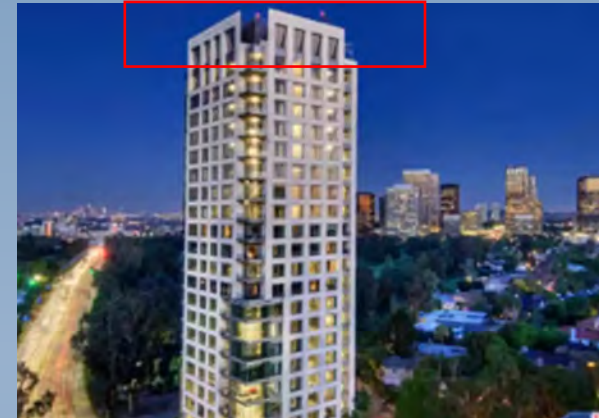


\$ 87,500,000 / 30,500 sq ft / 12 bed / 20 bath /  
6.2 acres

Multi-family homes



\$175,000 / 902 sq ft / 2 bed / 1 bath /  
6,354 sq. ft. lot



\$39,500,000 / 7,975 sq ft / 4 bed / 4.5 bath  
Condominium

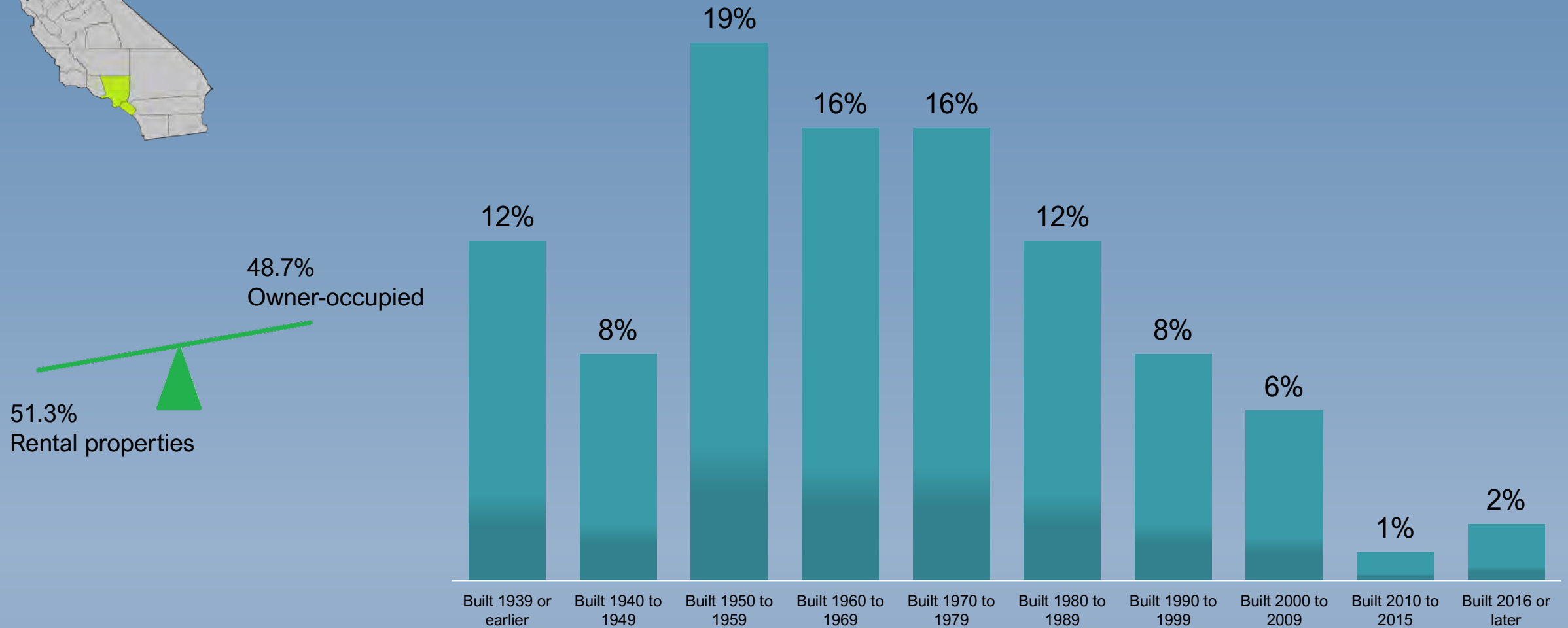


\$ 30,000 / 960 sq ft / 2 bed / 1 bath  
Mobile home

Source: realtor.com



## Los Angeles and Orange Counties – Rental vs. owner-occupied properties + age of home



Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)



## Los Angeles and Orange Counties – Installed residential plumbing fixtures and fittings



According to the US Census Bureau there are 4.661 million existing homes in Los Angeles and Orange Counties

- 4.922 million installed kitchen/bar faucets
- 23.305 million installed bathroom faucets
- 12.149 million installed toilets
- 11.298 million installed showerheads

Los Angeles and Orange Counties		Los Angeles	Orange	Total
Single-family homes		1,948,166	695,173	2,643,339
Multi-family + other homes		1,611,624	406,071	2,017,695
Owner-occupied		46.0%	57.2%	48.7%
Rental properties		54.0%	42.8%	51.3%
Bathrooms per home	Single-family	2.61	2.80	2.66
	Multi-family	2.50	2.68	2.50
		↓	↓	↓
Installed kitchen faucets		3,759,138	1,162,914	4,992,052
Installed bathroom faucets		17,798,950	5,506,220	23,305,170
Installed toilets		9,113,773	3,034,755	12,148,528
Installed showerheads		8,475,810	2,822,320	11,298,130

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)





## Los Angeles and Orange Counties SB535 Communities - Installed plumbing fixtures and fittings

According to CalEPA, there are 1,267 SB535 disadvantaged communities in Los Angeles and Orange Counties

- 1.567 million installed kitchen faucets
- 7.834 million installed bathroom faucets
- 4.028 million installed toilets
- 3.746 million installed showerheads

Los Angeles and Orange Counties		Los Angeles	Orange	Total
SB535 Disadvantaged communities		1,173	94	1,267
Single-family homes		702,790	67,606	770,623
Multi-family + other homes		723,329	73,116	796,445
Owner-occupied		35.1%	40.1%	35.5%
Rental properties		64.9%	59.9%	64.5%
Bathrooms per SB535 home	Single-family	2.61	2.80	2.66
	Multi-family	2.50	2.68	2.50
		↓	↓	↓
Installed kitchen faucets		1,426,119	140,722	1,566,841
Installed bathroom faucets		7,130,595	703,610	7,834,205
Installed toilets		3,642,604	385,248	4,027,852
Installed showerheads		3,387,620	358,280	3,745,900

Source: [https://data.census.gov/cedsci/table?q=DPo4&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DPo4](https://data.census.gov/cedsci/table?q=DPo4&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DPo4)

# LA + Orange Counties – Title 20 residential plumbing fixtures/fittings market penetration

TITLE  
20

All LA + Orange counties	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.355	6.0%	0.375	6.0%	0.730	6.0%
1.6 gpf	1/1/1994 – 12/31/2015	4.201	71.0%	4.473	71.8%	8.674	71.4%
1.28 gpf or less	1/1/2016	1.361	23.0%	1.384	22.2%	2.745	22.6%
Total		5.917	100.0%	6.232	100.0%	12.149	100.0%

All LA + Orange counties	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.040	1.7%	0.042	1.7%	0.082	1.7%
2.0 gpm	1/1/1994 – 12/31/2015	1.036	43.2%	1.162	46.0%	2.198	44.7%
1.8 gpm	1/1/2016	1.321	55.1%	1.321	52.3%	2.642	53.6%
Total		2.397	100.0%	2.397	100.0%	4.922	100.0%

All LA + Orange counties	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	4.438	39.1%	5.037	42.1%	9.475	40.7%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.647	5.7%	0.658	5.5%	1.305	5.6%
1.2 gpm	After 7/1/2016	6.265	55.2%	6.260	52.4%	12.525	53.7%
Total		11.350	100.0%	11.955	100.0%	23.305	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All LA + Orange counties	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	1.976	35.9%	2.174	37.5%	4.150	36.7%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	1.111	20.2%	1.159	20.0%	2.270	20.1%
1.8 gpm	After 7/1/2018	2.415	43.9%	2.463	42.5%	4.878	43.2%
Total		5.502	100.0%	5.796	100.0%	11.298	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.

# LA and Orange Counties SB535 communities – Title 20 residential plumbing fixtures/fittings market penetration

– based on the analysis of 1,267 SB535 communities in LA+ Orange Counties –home ownership = 35.5%

TITLE  
20

SB535 LA + Orange Counties	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.086	6.0%	0.156	6.0%	0.242	6.0%
1.6 gpf	1/1/1994 – 12/31/2015	1.051	73.5%	1.941	74.7%	2.992	74.3%
1.28 gpf or less	1/1/2016	0.293	20.5%	0.501	19.3%	0.794	19.7%
Total		1.430	100.0%	2.598	100.0%	4.028	100.0%

SB535 LA + Orange Counties	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.010	1.7%	0.020	2.0%	0.030	1.9%
2.0 gpm	1/1/1994 – 12/31/2015	0.249	44.8%	0.466	46.1%	0.715	45.6%
1.8 gpm	1/1/2016	0.297	53.5%	0.525	51.9%	0.822	52.5%
Total		0.556	100.0%	1.011	100.0%	1.567	100.0%

SB535 LA + Orange Counties	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	1.126	41.5%	2.137	43.9%	3.263	41.7%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.159	5.7%	0.278	5.5%	0.437	5.6%
1.2 gpm	After 7/1/2016	1.496	53.8%	2.638	52.2%	4.134	52.8%
Total		2.781	100.0%	5.053	100.0%	7.834	100.0%

SB535 LA + Orange Counties	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
2.5 gpm or more	Prior to 7/1/2016	0.468	35.2%	0.897	37.1%	1.365	36.4%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.279	21.0%	0.495	20.5%	0.774	20.7%
1.8 gpm	After 7/1/2018	0.583	43.8%	1.024	42.4%	1.607	42.9%
Total		1.330	100.0%	2.416	100.0%	3.746	100.0%



# Southern California

## Title 20 plumbing fixtures/fittings penetration



# Southern California demographics

Southern California includes Imperial, Riverside, San Bernardino, and San Diego Counties.

Population	8.119 million	Number of homes	2,839,825
Age	% of Southern CA population	Average number of people per home	2.9
< 18 years	25.2%	Average household income	\$66,285
18-65 years	61.2%	Percent of population living in poverty	13.3%
> 65 years	13.6%	Census tracts with SB535 disadvantaged communities (DACs)	350

Housing Units	Single Family	Duplex	3-4 Unit Town House	5-9-unit Apartment or Condominium Building	10-19-unit Apartment or Condominium Building	20-or-more-unit Apartment or Condominium Building	Mobile Home, Boat, RV, Van, other	Total
								
	1,941,462	45,609	125,623	157,859	129,126	275,890	164,256	2,839,825
	Single Family 68.4%		Multi-Family 25.8%			Other 5.8%		100.0%

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)





## Southern California – average home sizes

Home type	Single-family	Multi-family
Number of homes examined	1,520	831
Price range	\$30,000 – \$19,995,000	\$125,000 - \$3,250,000
Average price	\$966,192.30	\$669,205.10
Average size in sq. ft.	2,212.0 sq. ft.	1,501.1 sq. ft.
Average number of bedrooms	3.55	2.71
Average number of bathrooms	2.52	1.9

Single family homes



\$ 19,995,000 / 9,383 sq ft / 6 bed / 6.5 bath / 9.2 acres

Multi-family homes



\$30,000 / 1,670 sq ft / 2 bed / 3 bath / 4-week timeshare



\$3,250,000 / 7,975 sq ft / 8 bed / 5.5 bath Duplex

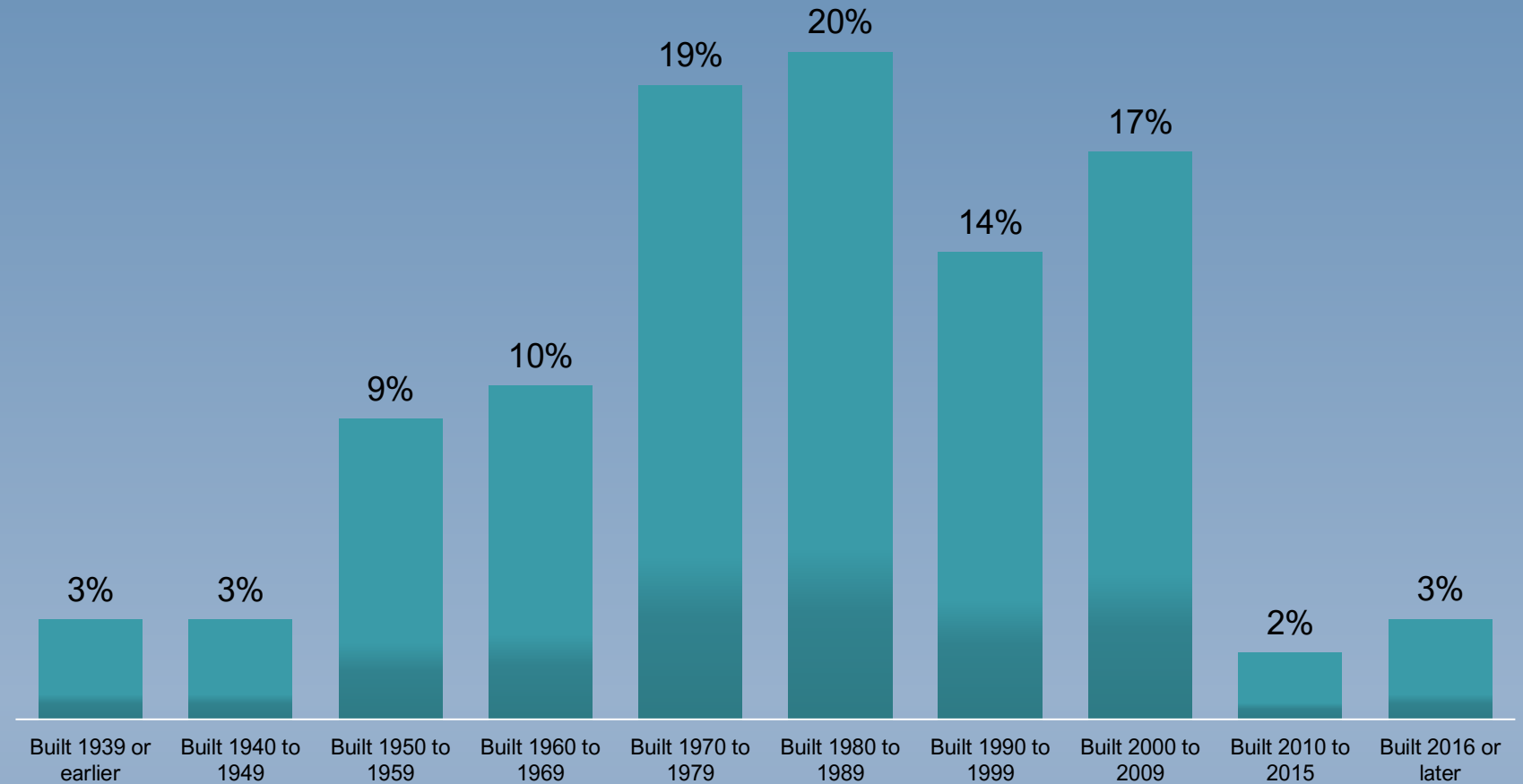
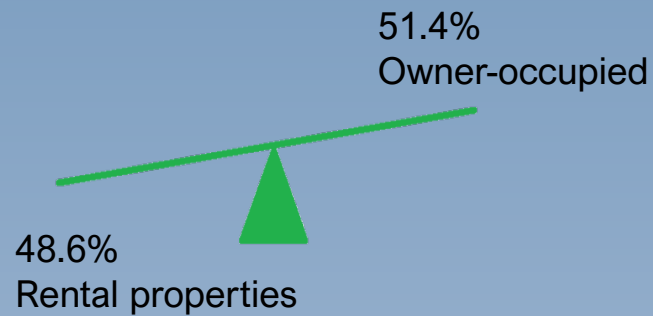


\$ 125,000 / 950 sq ft / 2 bed / 1.5 bath Townhouse

Source: realtor.com



## Southern California – Rental vs. owner-occupied properties + age of home



Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)



## Southern California – Installed residential plumbing fixtures and fittings

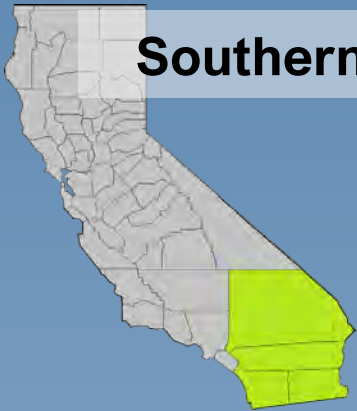


According to the US Census Bureau there are 2.840 million existing homes in Southern California

- 3.000 million installed kitchen/bar faucets
- 12.327 million installed bathroom faucets
- 6.760 million installed toilets
- 6.287 million installed showerheads

Southern California County		Imperial	Riverside	San Bernardino	San Diego	Total
Single-family homes		37,924	626,329	535,922	741,287	1,941,462
Multi-family + other homes		19,931	218,737	185,454	474,241	898,363
Owner-occupied		52.7%	53.4%	50.2%	27.8%	51.4%
Rental properties		47.3%	46.6%	49.8%	72.2%	48.6%
Bathrooms per home	Single-family	2.26	2.59	2.31	2.75	2.52
	Multi-family	1.72	2.00	1.78	2.12	1.90
		↓	↓	↓	↓	↓
Installed kitchen faucets		61,380	892,675	762,060	1,283,885	3,000,000
Installed bathroom faucets		173,565	3,787,856	3,235,972	5,129,157	12,326,550
Installed toilets		116,670	2,049,335	1,560,980	3,032,825	6,759,810
Installed showerheads		108,503	1,905,882	1,451,711	2,820,527	6,286,620

Source: [https://data.census.gov/cedsci/table?q=DPo4&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DPo4](https://data.census.gov/cedsci/table?q=DPo4&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DPo4)



## Southern California - SB535 Communities - Installed plumbing fixtures and fittings

According to CalEPA, there are 350 SB535 disadvantaged communities in Southern California

- 0.490 million installed kitchen faucets
- 2.025 million installed bathroom faucets
- 1.099 million installed toilets
- 1.022 million installed showerheads

Southern California County		Imperial	Riverside	San Bernardino	San Diego	Total
SB535 Disadvantaged communities		21	106	166	57	350
Single-family homes		23,901	87,929	152,167	35,139	299,136
Multi-family + other homes		13,944	44,917	82,011	50,082	190,954
Owner-occupied		52.7%	53.4%	50.2%	27.8%	51.4%
Rental properties		47.3%	46.6%	49.8%	72.2%	48.6%
Bathrooms per home	Single-family	2.26	2.59	2.31	2.75	2.52
	Multi-family	1.72	2.00	1.78	2.12	1.90
		↓	↓	↓	↓	↓
Installed kitchen faucets		37,729	132,846	234,178	85,221	489,974
Installed bathroom faucets		113,187	574,396	1,011,782	325,941	2,025,306
Installed toilets		77,782	317,570	500,401	202,806	1,098,559
Installed showerheads		72,335	295,340	465,375	188,610	1,021,660

Source: [https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06\\_0500000US06019&tid=ACSDP5Y2020.DP04](https://data.census.gov/cedsci/table?q=DP04&g=04000E1US06_0500000US06019&tid=ACSDP5Y2020.DP04)

# Southern California – Title 20 residential plumbing fixtures/fittings market penetration

**TITLE  
20**

All Southern California	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.209	6.0%	0.246	7.5%	0.455	6.7%
1.6 gpf	1/1/1994 – 12/31/2015	2.485	71.5%	2.334	71.0%	4.819	71.3%
1.28 gpf or less	1/1/2016	0.782	22.5%	0.707	21.5%	1.489	22.0%
Total		3.476	100.0%	3.287	100.0%	6.763	100.0%

All Southern California	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.024	1.6%	0.026	1.8%	0.050	1.7%
2.0 gpm	1/1/1994 – 12/31/2015	0.688	44.6%	0.643	44.10%	1.331	44.3%
1.8 gpm	1/1/2016	0.830	53.8%	0.789	54.10%	1.619	54.0%
Total		1.542	100.0%	1.458	100.0%	3.000	100.0%

All Southern California	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	2.515	39.7%	2.468	41.2%	4.983	40.4%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.400	6.3%	0.294	4.9%	0.694	5.6%
1.2 gpm	After 7/1/2016	3.421	54.0%	3.229	53.9%	6.650	54.0%
Total		6.336	100.0%	5.991	100.0%	12.327	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

All Southern California	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
> 2.2 gpm	Prior to 7/1/2016	1.070	33.1%	1.051	34.4%	2.121	33.7%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.733	22.7%	0.697	23.2%	1.430	22.8%
1.8 gpm	After 7/1/2018	1.428	44.2%	1.308	42.8%	2.736	43.5%
Total		3.231	100.0%	3.056	100.0%	6.287	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.



# Southern California SB535 communities – Title 20 residential plumbing fixtures/fittings market penetration

– based on the analysis of 350 SB535 communities in Southern California – home ownership rate = 47.8%

TITLE  
20

SB535 Southern California	Effective date	Owner occupied properties		Rental properties		All properties	
Toilets used in residential homes		Million toilets	% of toilets	Million toilets	% of toilets	Million toilets	% of toilets
3.5 gpf or more	Prior to 1/1/1994	0.038	7.2%	0.044	7.7%	0.082	7.4%
1.6 gpf	1/1/1994 – 12/31/2015	0.382	72.8%	0.420	73.1%	0.802	73.0%
1.28 gpf or less	1/1/2016	0.105	20.0%	0.110	19.2%	0.215	19.6%
Total		0.525	100.0%	0.574	100.0%	1.099	100.0%

SB535 Southern California	Effective date	Owner occupied homes		Rental properties		All properties	
Kitchen faucets used in residential homes		Million kitchen faucets	% of kitchen faucets at owner owned homes	Million kitchen faucets	% of kitchen faucets at rental properties	Million kitchen faucets	% of all kitchen faucets
> 2.2 gpm	Prior to 1/1/1994	0.003	1.6%	0.005	1.8%	0.008	1.6%
2.0 gpm	1/1/1994 – 12/31/2015	0.106	45.1%	0.116	45.5%	0.222	45.3%
1.8 gpm	1/1/2016	0.125	53.3%	0.135	52.7%	0.260	53.1%
Total		0.234	100.0%	0.256	100.0%	0.490	100.0%

SB535 Southern California	Effective date	Owner occupied home		Rental properties		All properties	
Bathroom faucets used in residential homes		Million bathroom faucets	% of bathroom faucets at owner owned homes	Million bathroom faucets	% of bathroom faucets at rental properties	Million bathroom faucets	% of all bathroom faucets
2.2 gpm or more	Prior to 9/1/2015	0.397	41.1%	0.437	41.3%	0.834	41.2%
1.5 gpm <sup>(1)</sup>	9/1/2-15 – 7/1/2016	0.057	5.9%	0.061	5.8%	0.118	5.8%
1.2 gpm	After 7/1/2016	0.513	53.1%	0.560	52.9%	1.073	53.0%
Total		0.967	100.0%	1.058	100.0%	2.025	100.0%

<sup>(1)</sup> Bathroom faucets with 1.5 gpm were mandated from 9/1/2015 to 7/1/2016 (9 months) with 1.2 gpm being mandated after 7/1/2016 (4 ½ years), hence the market penetration rate for 1.5 gpm faucets is much lower.

SB535 Southern California	Effective date	Owner occupied home		Rental properties		All properties	
Showerheads used in residential homes		Million showerheads	% of showerheads at owner owned homes	Million showerheads	% of showerheads at rental properties	Million showerheads	% of all showerheads
> 2.2 gpm	Prior to 7/1/2016	0.171	35.0%	0.192	36.1%	0.363	35.5%
2.0 gpm <sup>(2)</sup>	7/1/2016 – 7/1/2018	0.102	20.9%	0.115	21.5%	0.217	21.2%
1.8 gpm	After 7/1/2018	0.216	44.1%	0.226	42.4%	0.442	43.3%
Total		0.489	100.0%	0.533	100.0%	1.022	100.0%

<sup>(2)</sup> Showerheads with 2.0 gpm were mandated from 7/1/2016 – 7/1/2018 (2 years) with 1.8 gpm flow rates being mandated after 7/1/2018 (3 ½ years), hence the market penetration for 2.0 gpm showerheads is much lower.



# Non-residential building

Title 20 plumbing fixtures / fittings penetration



# California Title 20 water efficiency requirements for plumbing fixtures and fittings



Noncompliant kitchen and public lavatory faucets and aerators may not be sold or offered for sale on or after January 1, 2016, regardless of manufacture date.

Appliance	Maximum Flow Rate	
Lavatory faucets and aerators (including residential and commercial)	Manufactured prior to 9/1/2015	2.2 gpm at 60 psi <sup>1,2</sup>
	Manufactured on or after 9/1/2015 and prior to 7/1/2016	1.5 gpm at 60 psi <sup>1,2</sup>
	Manufactured on or after 7/1/2016	1.2 gpm at 60 psi <sup>1,2</sup>
Public lavatory faucets and aerators	Sold or offered for sale on or after 1/1/2016	0.5 gpm at 60 psi
Kitchen faucets and aerators	Sold or offered for sale on or after 1/1/2016	1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi
	Manufactured on or after 1/1/1994 and prior to 7/1/2016	2.5 gpm at 80 psi
Showerheads	Manufactured on or after 7/1/2016 and prior to 7/1/2018	2.0 gpm at 80 psi <sup>3</sup>
	Manufactured on or after 7/1/2018	1.8 gpm at 80 psi <sup>3</sup>

<sup>1</sup> **Sprayheads with independently-controlled orifices and manual controls.** The maximum flow rate of each orifice that manually turns on or off shall not exceed the maximum flow rate for a lavatory faucet.

<sup>2</sup> **Sprayheads with collectively-controlled orifices and manual controls.** The maximum flow rate of a sprayhead that manually turns on or off shall be the product of (a) the maximum flow rate for a lavatory faucet and (b) the number of component lavatories (rim space of the lavatory in inches (millimeters) divided by 20 inches (508 millimeters).

<sup>3</sup> **Maximum flow rate.** The maximum flow rate shall be the highest value obtained through testing at a flowing pressure of  $80 \pm 1$  psi and shall not exceed the maximum flow rate in Title 20, Table H-5. **Minimum flow rate.** The minimum flow rate, determined through testing at a flowing pressure of  $20 \pm 1$  psi, shall not be less than 60 percent of the flow rate reported by the manufacturer pursuant to Section 1606(a). The minimum flow rate determined through testing at flowing pressures of 45 and  $80 \pm 1$  psi shall not be less than 75 percent of the flow rate reported by the manufacturer pursuant to Section 1606(a). **Showerheads with multiple nozzles.** The total flow rate of showerheads with multiple nozzles must be less than or equal to the maximum flow rate in Title 20, Table H-5 when any or all nozzles are in use at the same time.

Table 1: Title 20 Standards for Plumbing Fittings

Noncompliant toilets and urinals may not be sold or offered for sale on or after January 1, 2016, regardless of manufacture date.

Appliance	Maximum Gallons per Flush or Dual-flush Effective Flush Volume Sold or offered for sale on or after January 1, 2016
All water closets (toilets)	1.28 <sup>1</sup>
Trough-type urinals	Trough length (inches) 16
Wall mounted urinals	0.125
Other urinals	0.5

<sup>1</sup> Water closets sold or offered for sale after January 1, 2016 shall pass the Waste Extraction Test (Section 7.10) of ASME A112.19.2.

Table 2: Title 20 Standards for Plumbing Fixtures











# California - Non-residential/commercial building inventory



Sources: [www.reonomy.com](http://www.reonomy.com), world-airport-codes.com, American Hotel & Lodging Association, California Restaurant Association, CA Department of Education, CA Manufacturers & Technology Association, CA Department of Public Health, [www.gsa.gov](http://www.gsa.gov)

Building category	Non-residential / commercial building type	Number of buildings in California	% of all non-residential / commercial buildings
Office + mix-use buildings	Office and mix-use buildings	532,026	26.9%
Retail + wholesale operations	Retail buildings	173,239	8.8%
	Shopping centers and strip malls	15,285	0.8%
	Gas stations with and without mini-mart	357,101	18.1%
	Wholesale operations	60,768	3.1%
Lodging + restaurants + drinking places	Hotels, motels, resorts	12,442	0.6%
	Restaurants + drinking places	76,201	3.9%
Education	K-12 private and public schools	45,204	2.3%
	College buildings	1,460	0.1%
	University buildings	480	0.0%
	Child-care centers	169,726	8.6%
Health care	Hospitals	353	0.0%
	Auxiliary buildings on hospital campus	3,530	0.2%
Places of worship	Churches, mosques, synagogues	23,558	1.1%
Transportation	International airports	8	0.0%
	Regional / municipal airports	42	0.0%
	Small airports	233	0.0%
	Airport support buildings	1,373	0.1%
	Train, subway, rapid transit, bus stations	224	0.0%
Leisure + Entertainment	Bowling centers	250	0.0%
	Cinemas	694	0.0%
	Golf clubs	921	0.0%
	Performing arts centers	66	0.0%
	Theme park buildings	2,640	0.1%
	Sports stadiums	178	0.0%
Manufacturing	Manufacturing + auxiliary buildings at manufacturing site	353,210	17.9%
Industrial non-manufacturing	Data centers	194	0.0%
	Self-storage	2,132	0.1%
	Warehouses + distribution centers	36,695	1.9%
	Flex buildings, showrooms, and other industrial buildings	100,801	5.1%
Mining, Quarrying, Oil + Gas extraction	Mining, quarrying, oil + gas extraction	654	0.0%
Public safety	Police + fire stations	1,321	0.1%
Utilities	Utilities	1,237	0.1%
Federal, state and municipal buildings	Federal and state buildings	536	0.0%
	Public libraries	181	0.0%
	Post offices	1,634	0.1%
Total non-residential / commercial buildings in California		1,976,597	100.00%









# California – Non-residential/Commercial - Installed plumbing fixtures and fittings

Category	Non-residential / commercial building type	Number of buildings in California	% of all non-residential / commercial buildings	Toilet		Urinals <sup>(1)</sup>	Faucets		Shower -head	Flushometer valve	
				Tank-type	Commercial		Commercial faucets used in public restrooms	Residential faucets used in commercial buildings		Toilet	Urinal
											
Office + Mix Use	Office + mix-use commercial buildings	532,026	26.91%	215,467	1,077,337	497,577	2,255,258			1,077,337	497,577
Retail + Wholesale	Retail	173,239	8.76%	91,145	364,585	168,386				364,585	168,386
	Gas stations	357,101	18.06%	665,636	724,859	267,826	1,071,303			724,859	267,826
	Shopping malls	15,285	0.77%		58,049	21,449	95,821			58,049	21,449
	Wholesale	60,768	3.07%		182,530	67,442	224,948			182,530	67,442
Lodging + Restaurants + Drinking Places	Hotels, motels, resorts	12,442	0.63%	1,206,874	49,768	18,663	37,326	1,206,874	1,206,874	49,768	18,663
	Restaurants + drinking places	76,201	3.85%	71,653	309,352	114,302	228,603			309,352	114,302
Education	K-12 schools	45,204	2.29%		97,688	36,095	287,051			97,688	36,095
	College buildings	1,460	0.07%		17,781	6,570	58,400			17,781	6,570
	University buildings	480	0.02%		5,846	2,160	15,840			5,846	2,160
	Childcare centers	169,726	8.59%		1,346,656	497,571	848,630			1,346,656	497,571
Health Care	Hospital patient rooms	353	0.02%	48,100				48,100	48,100		
	Hospital public restrooms	353	0.02%	3,530			4,236				
	Auxiliary buildings on hospital campus	3,530	0.18%	4,359	8,935	3,302	18,493			8,935	3,302







(1) Trough urinals



# California – Nonresidential/Commercial - Installed plumbing fixtures and fittings

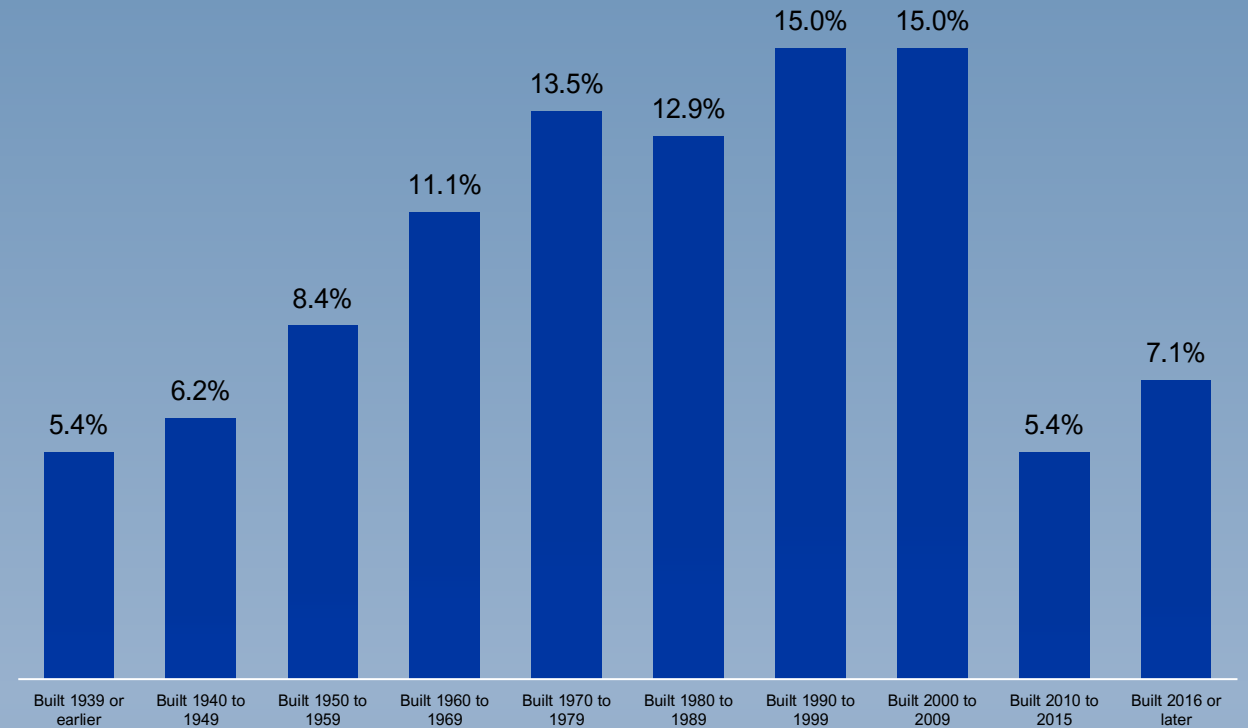
Category	Non-residential / commercial building type	Number of buildings in California	% of all non-residential / commercial buildings	Toilet		Urinals	Faucets		Shower-heads	Flushometer valve	
				Tank-type	Commercial		Commercial faucets used in public restrooms	Residential faucets used in commercial buildings		Toilet	Urinal
											
Places of Worship	Places of worship	23,558	1.19%	234,174	95,638	35,337	259,138			95,638	35,337
Passenger terminals	International airports	8	0.00%		6,041	2,232	3,864			6,041	2,232
	Regional airports	42	0.00%		2,558	945	1,932			2,558	945
	Small airports	233	0.01%		5,675	2,097	6,524			5,675	2,097
	Airport support buildings	1,373	0.07%	1,696	3,475	1,284	5,820			3,475	1,284
	Trains, Subway, Rapid Transit, Bus stations	224	0.01%		8,184	3,024	5,600			8,184	3,024
Leisure + Entertainment	Bowling centers	250	0.01%		1,015	375	1,750			1,015	375
	Cinemas	694	0.04%	6,857	5,635	2,082	9,022			5,635	2,082
	Golf clubs	921	0.05%	27,400		8,289	11,973				8,289
	Performing Arts Centers	66	0.00%		1,608	594	858			1,608	594
	Theme park buildings	2,640	0.13%		10,718	3,960	18,480			10,718	3,960
	High-capacity sports stadiums	178	0.01%		9,502	3,511	14,758			9,502	3,511

# California – Nonresidential/Commercial - Installed plumbing fixtures and fittings

Category	Non-residential / commercial building type	Number of buildings in California	% of all non-residential / commercial buildings	Toilets		Urinals	Faucets		Shower-heads	Flushometer valve	
				Tank-type	Commercial		Commercial faucets used in public restrooms	Residential faucets used in commercial buildings		Toilet	Urinal
											
Manufacturing	Manufacturing	353,210	17.87%		151,456		904,324			151,456	
Industrial non-manufacturing	Data Centers	194	0.01%		491	182	823			491	182
	Self-storage	2,132	0.11%		8,520		6,396			8,520	
	Warehouses	36,695	1.86%		37,902		110,745			37,902	
	Other industrial buildings including distribution centers, Flex buildings, showrooms	100,801	5.10%		104,118		304,215			104,118	
Mining, Quarrying, Oil + Gas extraction	Mining, Quarrying, Oil + Gas extraction	654	0.03%	807	1,656	612	2,772			1,656	612
Public safety	Police + fire stations	1,321	0.07%	1,629	3,346	1,236	5,599			3,346	1,236
Utilities	Utilities	1,237	0.06%	1,527	3,132	1,157	5,245			3,132	1,157
Federal, State and Municipal buildings	Federal and State buildings	536	0.03%	663	1,356	501	2,272			1,356	501
	Public libraries	181	0.01%	224	458	169	767			458	169
	Post offices	1,634	0.08%	2,021	4,134	1,527	6,926			4,134	1,527
Total in million		1,976,950	100.00%	2.584	4.710	1.770	6.836	1.255	1.255	4.710	1.770

# California – Non-residential/Commercial – age of buildings


Building category	Non-residential / commercial building type	Average age of building in years
Office + mix-use buildings	Office and mix-use buildings	52.0
Retail + wholesale operations	Retail buildings	46.0
	Shopping centers and strip malls	36.7
	Gas stations with and without mini-mart	47.7
	Wholesale operations	43.7
Lodging + restaurants	Hotels, motels, resorts	45.0
+ drinking places	Restaurants + drinking places	49.9
Education	K-12 private and public schools	54.3
	College buildings	60.0
	University buildings	58.0
	Child-care centers	46.3
Health care	Hospitals	41.5
	Auxiliary buildings on hospital campus	41.9
Places of worship	Churches, mosques, synagogues	62.7
Transportation	International airports	31.8
	Regional / municipal airports	35.3
	Small airports	40.0
	Airport support buildings	45.0
	Train, subway, rapid transit, bus stations	44.5
Leisure + Entertainment	Bowling centers	50.0
	Cinemas	56.0
	Golf clubs	38.4
	Performing arts centers	50.0
	Theme park buildings	48.2
	Sports stadiums	31.0
Manufacturing	Manufacturing + auxiliary buildings at manufacturing site	51.5
Industrial non-manufacturing	Data centers	49.5
	Self-storage	46.2
	Warehouses + distribution centers	43.8
	Flex buildings, showrooms, and other industrial buildings	41.9
Mining, Quarrying, Oil + Gas extraction	Mining, quarrying, oil + gas extraction	42.0
Public safety	Police + fire stations	44.5
Utilities	Utilities	44.2
Federal, state and municipal buildings	Federal and state buildings	60.8
	Public libraries	68.3
	Post offices	51.7
Average age of all non-residential buildings in California		47.2





# California – Non-residential/Commercial Title 20 plumbing fixtures/fittings market penetration


TITLE  
20

Tank-based toilets	Million tank-based toilets	% of tank-based toilets
		
3.5 gpf or more	0.134	5.2%
1.6 gpf	1.755	67.9%
1.28 gpf or less	0.695	26.9%
Total	2.584	100.0%

Commercial toilets with flushometer valve	Million commercial toilets with toilet flush valve	% of commercial toilets
		
3.5 gpf or more	0.212	4.5%
1.6 gpf	3.203	68.0%
1.28 gpf or less	1.295	27.5%
Total	4.710	100.0%

Urinals <sup>(1)</sup>	Million urinals with flush valves	% of urinals
		
1.0 gpf or more	1.286	72.7%
0.5 gpf	0.010	0.5%
0.125 gpf	0.474	26.8%
Total	1.770	100.0%

Commercial faucets used in public restrooms <sup>(4)</sup>	Million commercial faucets used in public restrooms	% of commercial faucets used in public restrooms
		
> 0.5 gpm	4.836	70.7%
0.5 gpm or less	2.000	29.3%
Total	6.836	100.0%

Residential faucets <sup>(2)</sup>	Million residential faucets	% of residential faucets
		
2.0 gpm or more	0.065	5.2%
1.5 gpm	0.470	37.4%
1.2 gpm	0.720	57.4%
Total	1.255	100.0%

Showerheads <sup>(3)</sup>	Million showerheads	% of showerheads
		
2.5 gpm or more	0.064	5.0%
2.0 gpm	0.589	47.0%
1.8 gpm	0.602	48.0%
Total	1.255	100.0%

<sup>(1)</sup> According to the California Plumbing code, trough urinals have been prohibited since 2010. According to industry experts approximately 98% of the urinals installed are wall-mount, and 2% are floor-mount

<sup>(2)</sup> Residential faucets are used in hotel guest rooms and in patient rooms of hospitals and other health care facilities

<sup>(3)</sup> Residential showerheads are used in hotel guest rooms and in patient rooms of hospitals and other health care facilities

<sup>(4)</sup> The governing standard and test procedure for non-residential faucets used in public settings is ASME A112.18.1/CSA B125.1. In the early 1990s, this standard was changed to reflect a lower maximum flow rate of 0.5-gallons per minute (1.9 Lpm) for all “public” applications. All the major municipalities have adopted ASME A112.18.1 by reference. The 0.5 gpm standard for non-residential applications has however frequently been neglected, as many are simply unaware of this standard. According to the California Title 20 water efficiency requirements for plumbing fixtures and fittings, all public lavatory faucets and aerators sold or offered for sale on or after 1/1/2016 must comply with the 0.5 gpm at 60 psi requirements. Non-compliant public lavatory faucets and aerators may not be sold or offered for sale on or after 1/1/2016, regardless of manufacture date. The penetration rates indicated for commercial faucets used in public restrooms is based on faucets installed in new commercial construction and the replacement of existing commercial faucets sold after 1/1/2016.

## Copyright and disclaimer notice

Information and images contained within this report published by GMP Research Inc. ("GMP Research") are copyrighted and the property of GMP Research Inc. GMP Research Inc. authorizes clients to copy documents or pages published by GMP Research Inc. in this report for internal use only. Copies may be made for others for their personal information only. Any such copy shall retain all copyrights and other proprietary notices, and any disclaimer contained thereon. None of the content of these pages may be incorporated into, reproduced on, or stored in any other report, website, electronic retrieval system, or in any other publication, whether in hard copy or electronic form. Customers may not, without our permission, 'mirror' this information on their own server, or modify or re-use text or graphics of this report for another report or system.

Notwithstanding the above, permission is hereby granted to PMI, and PMI's members, to reproduce or distribute this report in whole or in part for educational or personal use, including without limitation posting this report on PMI's website, provided that this copyright notice appears in all copies.

Certain links contained in this report may lead to resources located on servers maintained by third parties over whom GMP Research Inc. has no control. GMP Research Inc. accepts no responsibility for the information contained on such servers. The GMP Research logo, and GMP Research Inc.™ are trademarks of the GMP Research Inc. group of companies. The information, text, graphics and links contained in these pages are provided for information purposes only by GMP Research Inc. as a service to its customers and shareholders. While all due diligence has been executed to deliver accurate and relevant information, GMP Research Inc. does not warrant the accuracy or completeness of the information, text, links, and other items contained in this report.

The financial information in this report includes extracts from the latest published annual reports and interim financial statements reported by publicly traded companies or as expressed estimates by trusted industry Sources. While care has been taken to ensure their accuracy, they are not intended to replace the audited information in the latest annual reports of any of the mentioned companies. For full details, readers are advised to contact the respective companies in question and discuss the requested information with company officials. GMP Research Inc. accepts no responsibility for loss which may arise from reliance on information contained in this report. No warranty of any kind, either express or implied, is made as to the information contained in these pages, including, but not limited to any implied warranty of merchantability, fitness for a purpose or non-infringement of third-party intellectual property by GMP Research Inc. Some jurisdictions do not allow the exclusion of implied warranties, so the above exclusion may not apply to you.

GMP Research Inc. may make changes to the information contained in these pages, or to the products described in them, at any time without notice, but GMP Research Inc. makes no commitment to update the information given in these pages.

Subscribers to this report undertake to limit the divulgence of the contents of the reports to employees of majority owned subsidiaries only. In the event, that wider divulgence is required, prior approval of GMP Research Inc. must be obtained in writing.





Safe, responsible plumbing. Always.

**Plumbing Manufacturers International**

1750 Tysons Blvd., Ste. 1500

McLean, VA 22102

Tel: 847-481-5500 [safeplumbing.org](http://safeplumbing.org)

 [@safeplumbing](https://twitter.com/safeplumbing)

© 2022 Plumbing Manufacturers International