Energy Plus Water Reach Codes Opportunities

Date: March 21, 2024

Prepared for: BayREN Forum, the Confluence of Water, Energy, and Climate

Presented by: Steffi Becking, 2050 Partners

CALIFORNIA ENERGY CODES & STANDARDS

A STATEWIDE UTILITY PROGRAM

Agenda

1. **Right-sizing plumbing in residential buildings**
2. Dual-drainage plumbing (aka graywater pre-plumbing) in residential buildings
3. Water neutral new development (aka water offsets)

Benefits of Right-Sizing Premise Plumbing (vs. Over-Sizing)

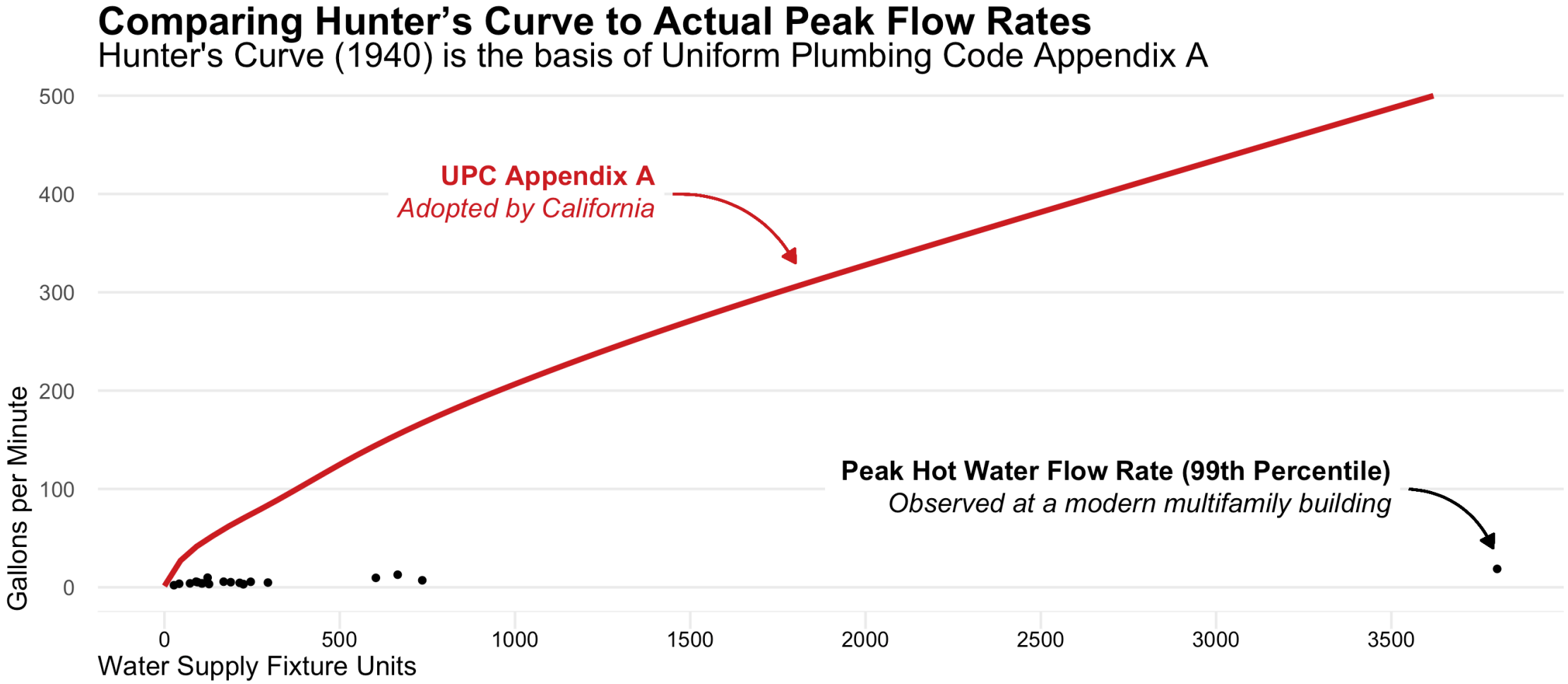
- **Construction cost savings** due to smaller diameter pipes and fittings, less pipe insulation material, and reduced water service entrance size
- **Ongoing cost savings** to occupants and homeowners from water and energy savings
- **Faster delivery of hot water** to occupants
- **Water and embedded energy savings** due to faster hot water delivery times
- **Additional energy savings** due to decreased heat loss in the hot water distribution system, particularly in multifamily buildings with a recirculation system
- **Reduced carbon emissions** due to material savings and energy reductions
- **Reduced public health and safety risk** and improved water quality due to shorter water dwell times in premise plumbing systems

Benefits of Right-Sizing Premise Plumbing (vs. Over-Sizing), *cont.*

- 2024 Report by **2050 Partners, Gary Klein and Associates, and the Association for Energy Affordability** (assessing water, energy, and cost savings)[1]
- 2023 Report on Energy and Carbon Savings Opportunities by **Arup** (assessing water, energy, and carbon savings)[2]
- 2023 Final CASE Report on Multifamily Domestic Hot Water for 2025 California Energy Code by **TRC and Frontier Energy** (assessing energy and cost savings)[3]
- 2021 Report on Connection Fees and Service Charges by Meter Size by the **Alliance for Water Efficiency** (assessing cost savings from downsizing meters)[4]
- 2020 Study on Water Demand Calculator by **Stantec** (assessing cost savings)[5]

[1] https://localenergycodes.com/download/1461/file_path/fieldList/2024%20CPC%20Appx%20M-Alternative%20Calc%20Water%20Demand.pdf
[2] https://www.iapmo.org/media/31469/iapmo_energy_savings_arup_report.pdf
[3] https://title24stakeholders.com/wp-content/uploads/2023/08/2025_T24_CASE-Report-_MF-DHW-Final-1.pdf
[4] https://www.iapmo.org/media/25939/awe-meter-size-connection-fee-research.pdf
[5] https://www.iapmo.org/group/update/stantec-wdc-savings-study

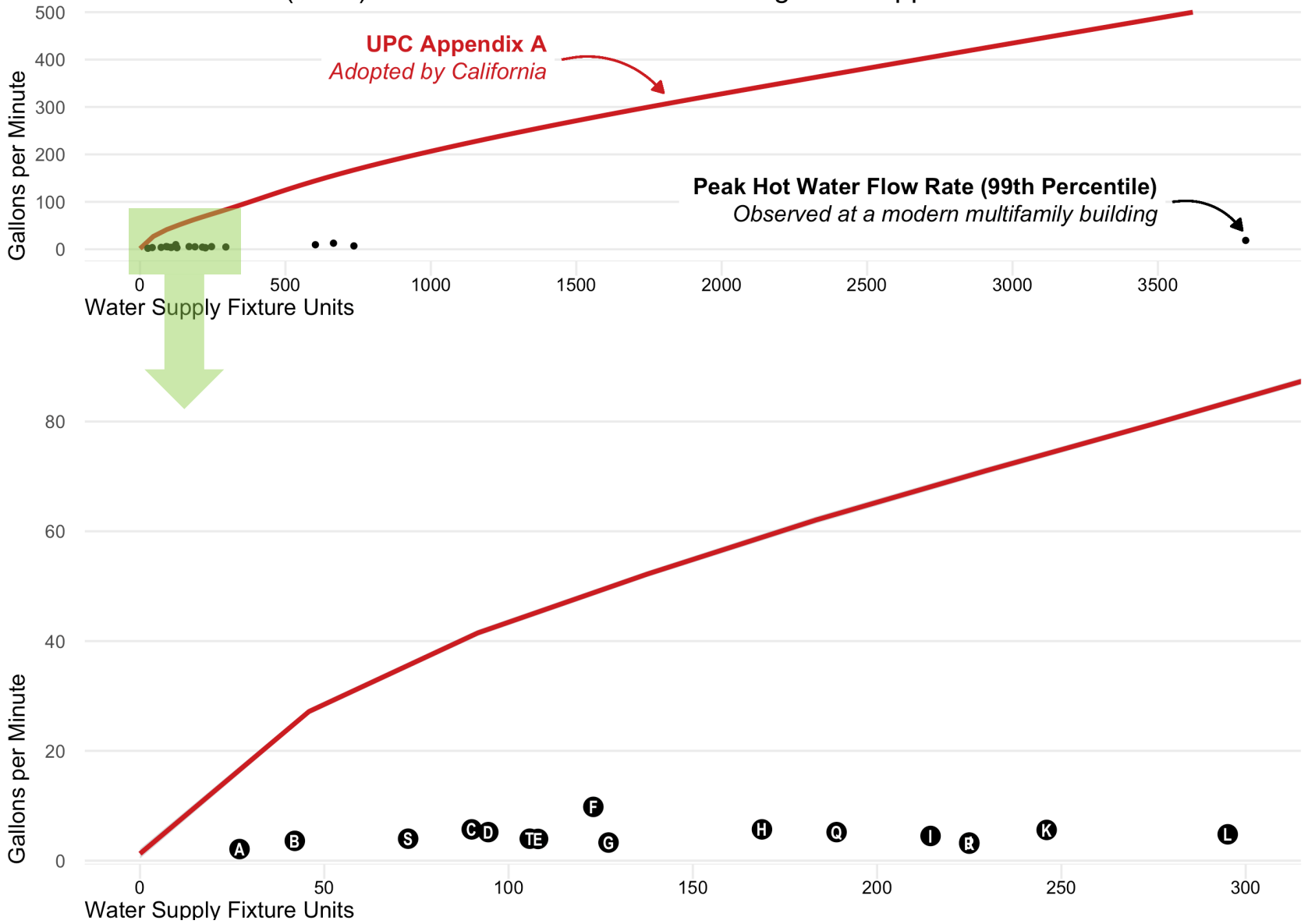
Standard Plumbing Design Practice Overestimates Peak Flow Rates



Additional information:
The Original Hunter Papers, The Foundation of Plumbing Engineering https://www.aspe.org/product/the-original-hunter-papers-the-foundation-of-plumbing-engineering/
2022 CPC, Appendix A Recommended Rules for Sizing the Water Supply System https://epubs.iapmo.org/2022/CPC/#p=402

Comparing Hunter's Curve to Actual Peak Flow Rates

Hunter's Curve (1940) is the basis of Uniform Plumbing Code Appendix A



Based on the analyzed actual hot flow rates from **20 multifamily buildings** ranging from 8 to 384 apartments,

UPC Appendix A (standard practice) design values are 5 to 27 times larger than the observed peak hot water flow rates.

Credits: Observed peak flow rate data was collected and provided by the Association for Energy Affordability, Ecotope, Frontier Energy, E2G Solar, and the University of California Davis Western Cooling Efficiency Center.

Water Consumption by Water-Using Plumbing Products and Appliances (1980 to 2023)

Water-using Fixture or Appliance	1980s Water Use (typical)	1990 Requirement (maximum)	EPAct 1992 Maximum	Baseline Model Plumbing Codes (maximum)	Green Code Maximums (Calgreen)	% Redution in typical water use since 1980s
Residential Bathroom Lavatory Faucet	3.5+ gpm	2.5 gpm	2.2 gpm	2.2 gpm	1.2 gpm	66%
Kitchen Faucet	3.5+ gpm	2.5 gpm	2.2 gpm	2.2 gpm	1.8 gpm*	49%
Showerhead	3.5+ gpm	3.5 gpm	2.5 gpm	2.5 gpm	1.8 gpm	49%
Residential ("private") Toilet	5.0+ gpf	3.5 gpf	1.6 gpf	1.6 gpf	1.28 gpf	74%
Residential Clothes Washing Machine	51 gallons per load	No requirement	26 gallons per load *(2012 std)*	No requirement	14 gallons per load *(Energy Star)*	73%
Residential Dishwasher	14 gallons per cycle	No requirement	6.5 gallons per cycle *(2012 std)*	No requirement	3.5 gallons per cycle *(Energy Star)*	75%

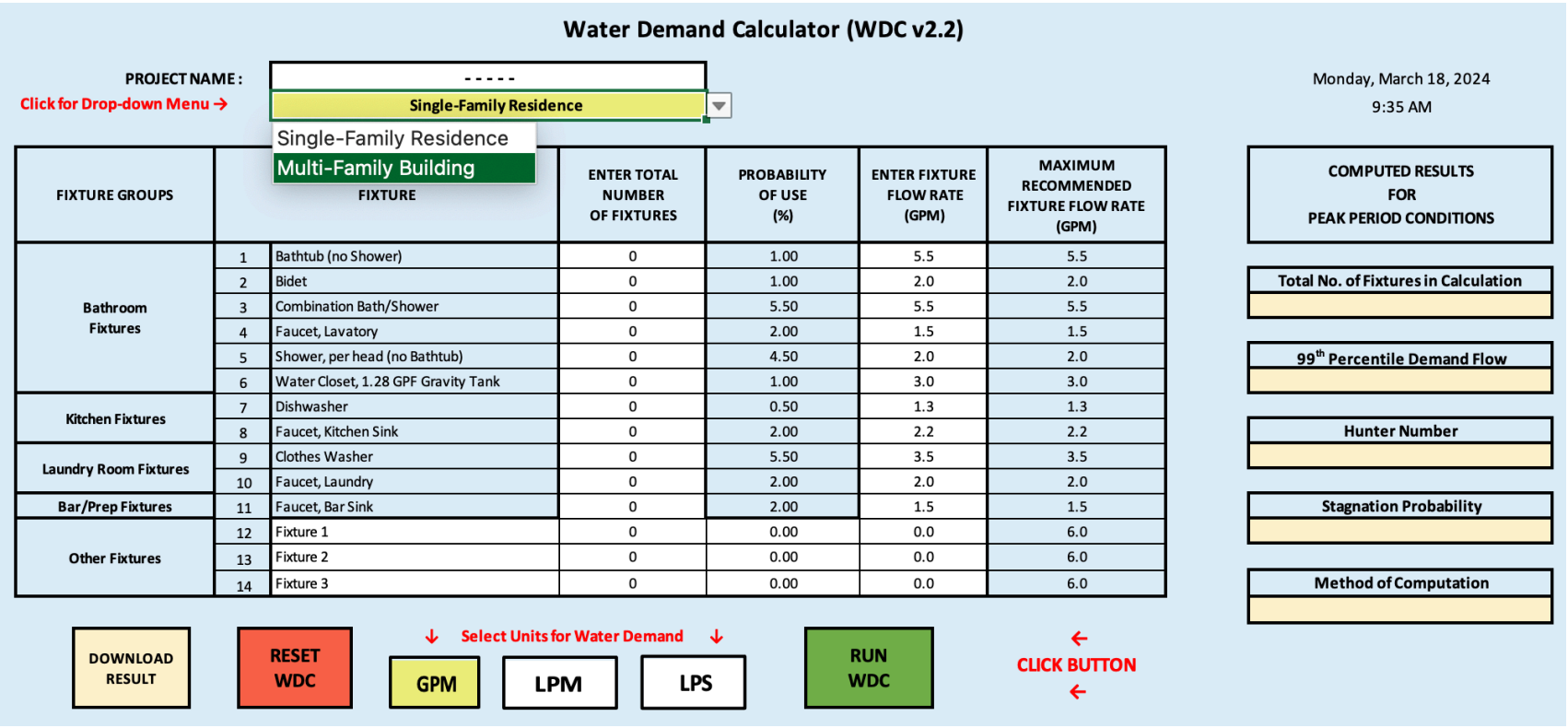
*Kitchen faucets may have a manual override that temporarily increases flow to 2.2 gpm max, and must default back to 1.8 gpm when the manual override is released.

Source: Modified from The Drainline Transport of Solid Wastes Buildings, by the Plumbing Efficiency Research Coalition (PERC), 2012. Chart updated by John Koeller and Peter DeMarco, 2018 and 2023.

Over the past ~40 years, residential plumbing fixtures and fittings have experienced about **~50-75% reductions in water use.**

The probability of simultaneous use of fixtures and fittings in a residential building is **lower than previously assumed.**

Sources:
2023 Title 20 CASE Report on Water Closets https://efiling.energy.ca.gov/GetDocument.aspx?tn=252134&DocumentContentId=87140 (page 42)
2017 Study on Peak Water Demand by S. Buchberger et al. (basis for the WDC) https://www.iapmo.org/media/3857/peak-water-demand-study-executive-summary.pdf



Water Demand Calculator (WDC v2.2)

PROJECT NAME : - - - - -

Click for Drop-down Menu →

Single-Family Residence

Single-Family Residence
Multi-Family Building

Monday, March 18, 2024
9:35 AM

FIXTURE GROUPS		FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
Bathroom Fixtures	1	Bathtub (no Shower)	0	1.00	5.5	5.5
	2	Bidet	0	1.00	2.0	2.0
	3	Combination Bath/Shower	0	5.50	5.5	5.5
	4	Faucet, Lavatory	0	2.00	1.5	1.5
	5	Shower, per head (no Bathtub)	0	4.50	2.0	2.0
	6	Water Closet, 1.28 GPF Gravity Tank	0	1.00	3.0	3.0
Kitchen Fixtures	7	Dishwasher	0	0.50	1.3	1.3
	8	Faucet, Kitchen Sink	0	2.00	2.2	2.2
Laundry Room Fixtures	9	Clothes Washer	0	5.50	3.5	3.5
	10	Faucet, Laundry	0	2.00	2.0	2.0
Bar/Prep Fixtures	11	Faucet, Bar Sink	0	2.00	1.5	1.5
Other Fixtures	12	Fixture 1	0	0.00	0.0	6.0
	13	Fixture 2	0	0.00	0.0	6.0
	14	Fixture 3	0	0.00	0.0	6.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation

99th Percentile Demand Flow

Hunter Number

Stagnation Probability

Method of Computation

DOWNLOAD RESULT

RESET WDC

↓ Select Units for Water Demand ↓

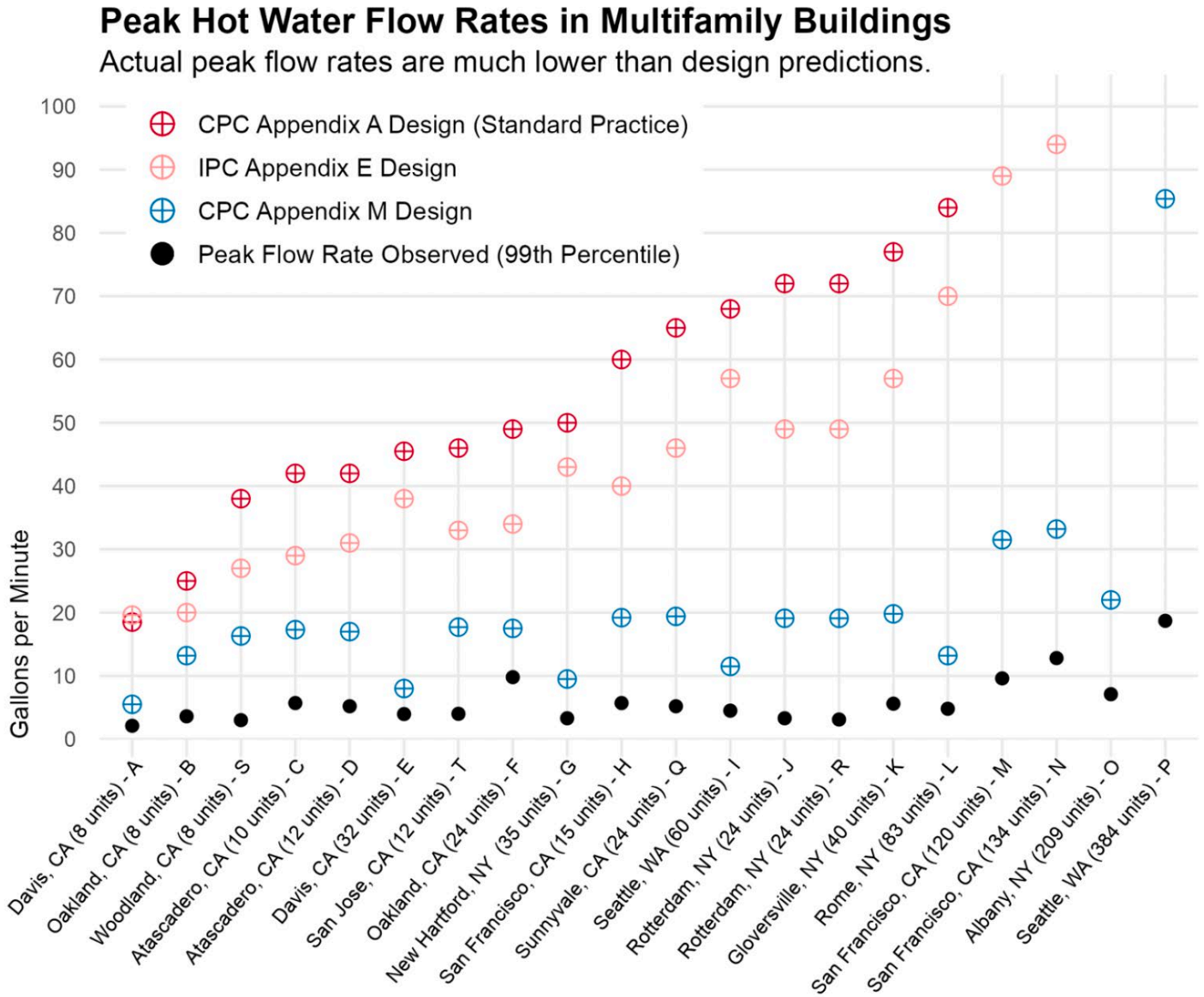
GPM | LPM | LPS

RUN WDC

← CLICK BUTTON ←

Using the Water Demand Calculator for **estimating the demand load for the building water supply, principal branches, and risers** for single- and multi-family dwellings is the solution.

Source:
https://www.iapmo.org/we-stand/water-demand-calculator



Data was collected during the period of 2019 to 2022; monitoring period ranged from 9 days to over 2 years, and logging interval ranged from 1 to 60 seconds. Observed peak flow rate is the 99th percentile of non-zero flow rates observed over each study's duration. Out of order letters are for four buildings that were added after the submittal of the original 11/3/2021 petition to California state agencies.

UPC Appendix M codifies the Water Demand Calculator.

UPC Appendix M design values are between 2 and 6 times the observed peak hot water flow rates in 20 multifamily buildings.

Credits: Observed peak flow rate data was collected and provided by the Association for Energy Affordability, Ecotope, Frontier Energy, E2G Solar, and the University of California Davis Western Cooling Efficiency Center.

2022 California Plumbing Code, Chapter 6 Water Supply and Distribution, Section 610.5

610.5 Sizing per Appendices A, C, *and M.* Except as provided in Section 610.4, the size of each water piping system shall be determined in accordance with the procedure set forth in Appendix A. For *alternative* methods of sizing water supply systems, see Appendix C *or Appendix M.*

2022 California Plumbing Code, Appendix M Peak Water Demand Calculator

M 101.0 General.

M 101.1 Applicability. This appendix provides *an alternative* method for estimating the demand load for the building water supply and principal branches for single- and multi-family dwellings with water-conserving plumbing fixtures, fixture fittings, and appliances.

M 102.0 Demand Load.

M 102.1 Water-Conserving Fixtures. Plumbing fixtures, fixture fittings, and appliances shall not exceed the design flow rate in Table M 102.1.

TABLE M 102.1
DESIGN FLOW RATE FOR WATER-CONSERVING PLUMBING FIXTURES AND APPLIANCES IN RESIDENTIAL OCCUPANCIES

FIXTURE AND APPLIANCE	MAXIMUM DESIGN FLOW RATE (gallons per minute)
Bar Sink	1.5
Bathtub	5.5
Bidet	2.0
Clothes Washer	3.5
Combination Bath/Shower	5.5
Dishwasher	1.3
Kitchen Faucet	*1.8*
Laundry Faucet (with aerator)	2.0
Lavatory Faucet	*1.2*

The Water Demand Calculator has been **adopted in California!**

It will be available for statewide use in California **effective July 1, 2024.**

It applies to **residential new construction** and can justify the use of existing premise plumbing for **renovation or adaptive reuse projects.**

Sources:
2022 CPC with 7/1/2024 Supplement, Chapter 6, Section 610.5 https://epubs.iapmo.org/2022/CPC/#p=202
2022 CPC with 7/1/2024 Supplement, Appendix M Peak Water Demand Calculator https://epubs.iapmo.org/2022/CPC/#p=550

Draft 2021 Seattle Energy Code, Chapter 4 Commercial Energy Efficiency

C404.3.3 Demand load for Group R-2 occupancies. Demand load for water supply of dwelling units within Group R-2 occupancies shall be determined using Appendix M of the Seattle Plumbing Code. Piping shall be no more than one pipe size larger than the minimum size permitted when sized for maximum allowable velocity based upon the specified piping material in conjunction with the Appendix M demand load flow rate at any specific node within the water distribution system.

EXCEPTION: Existing buildings are not required to comply with this section if the existing plumbing fixtures have higher flow rates than those listed in Table M102.1 of the Seattle Plumbing Code.

Draft 2021 Seattle Building Code, Chapter 3 Occupancy Classification and Use

SECTION 310
RESIDENTIAL GROUP R

310.1 Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International Residential Code*. Group R occupancies not constructed in accordance with the *International Residential Code* as permitted by Sections 310.4.1 and 310.4.2 shall comply with Section 420.

[S] 310.3 Residential Group R-2. Residential Group R-2 occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

Apartment houses
Congregate living facilities (nontransient) with more than 16 occupants
Boarding houses (*nontransient*)
Convents
Dormitories
Fraternities and sororities
Monasteries
Hotels (nontransient)
((~~*Live/work*~~)) Buildings that contain three or more *live/work units*
Motels (nontransient)
Vacation timeshare properties

The City of **Seattle is considering the adoption of mandatory use** of the Water Demand Calculator in new construction multifamily buildings.

The draft code language is in **Draft 2021 Seattle Energy Code.**

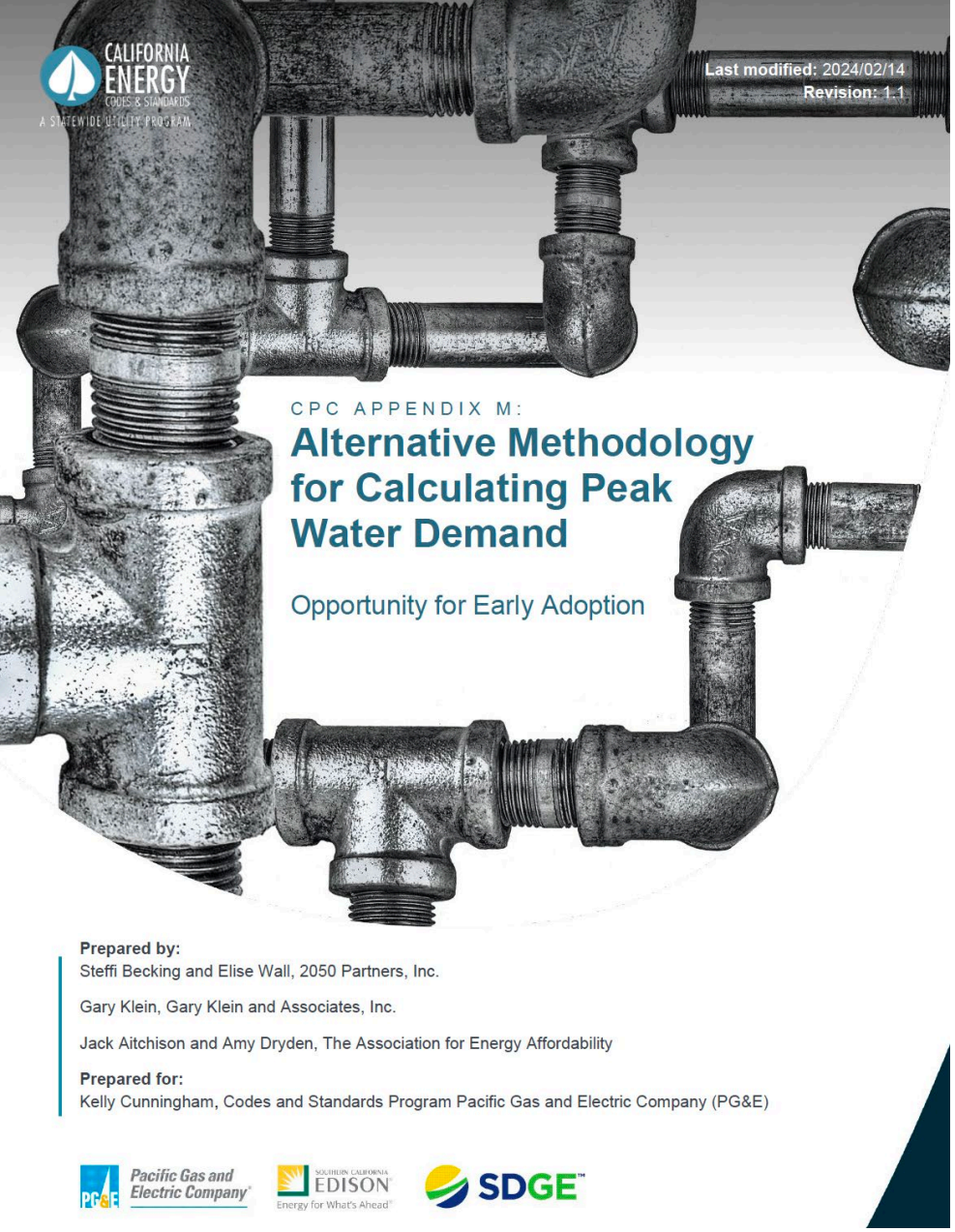
If adopted, the requirement will be **effective July 1, 2024.**

Sources:
2021 Seattle Code Adoption Overview https://www.seattle.gov/sdci/codes/changes-to-code/2021-seattle-code-adoption
Draft 2021 Seattle Energy Code https://www.seattle.gov/documents/Departments/SDCI/Codes/ChangesToCodes/2021SeattleCodeAdoption/2021DraftSeattleEnergyCode.pdf
Draft 2021 Seattle Building Code https://www.seattle.gov/documents/Departments/SDCI/Codes/ChangesToCodes/2021SeattleCodeAdoption/Draft2021SeattleBuildingCode.pdf

What Can Local Jurisdictions Do?

- **Train Plan Checkers** including 3rd Party Plan Checkers to ease the permitting process of plumbing designs that use the Water Demand Calculator.
- **Train Plumbing Inspectors** to ease the inspection process.
- **Implement an outreach and educational program** to raise awareness about this alternative methodology among stakeholders involved in construction industry such as building officials, plumbing designers, builders, etc.

Jurisdictions interested in **exploring the mandatory use** of CPC Appendix M will benefit from following the implementation of the proposed mandatory use of the WDC in 2021 Seattle Energy Code.



For more information, see the report summarizing the analysis that compared design predictions to actual data for hot water flow rates in 20 multifamily buildings.

Source:
https://localenergycodes.com/content/reach-codes/energy-plus-water-1 (to access the report, click “VIEW AND DOWNLOAD RESOURCES” for the “require alternative method for sizing water pipes in residential buildings” measure)
https://localenergycodes.com/download/1461/file_path/fieldList/2024%20CPC%20Appx%20M-Alternative%20Calc%20Water%20Demand.pdf (direct download link)

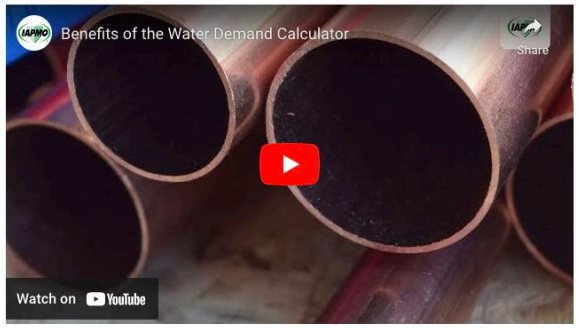
iapmo.org/we-stand/water-demand-calculator/water-demand-calculator-california

BUSINESS UNIT

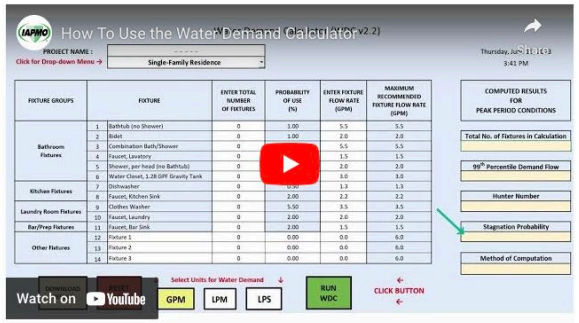
California Approves Water Demand Calculator® as Alternate Standard for Estimating Peak Water Demand

The California Building Standards Commission has approved the adoption of IAPMO's *Uniform Plumbing Code (UPC®)* Appendix M — the Water Demand Calculator® — into the *California Plumbing Code (CPC)* as an alternative methodology for estimating peak water demand that impacts water pipe sizing in single family dwellings and multifamily buildings. The alternative approach will be available for statewide use on a voluntary basis starting July 1, 2024.

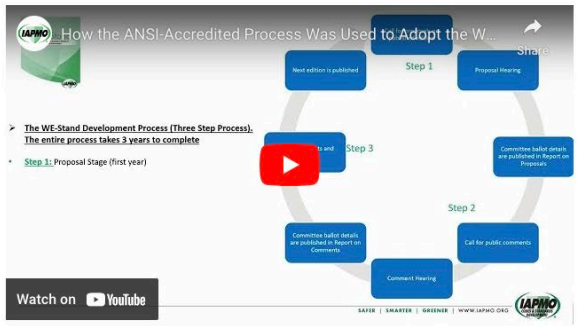
Introduction to the Benefits of the Water Saving Tool



How to Use the Water Demand Calculator



How the ANSI-Accredited Process Was Used to Adopt the Water Demand Calculator



For more information and outreach materials, see IAPMO's webpage with California specific information and resources.

Additional information and resources on the Water Demand Calculator:
https://www.iapmo.org/we-stand/water-demand-calculator/water-demand-calculator-california

Agenda

1. Right-sizing plumbing in residential buildings
2. **Dual-drainage plumbing (aka graywater pre-plumbing)**
3. Water neutral new development (aka water offsets)

Benefits of Pre-plumbing (stub outs) for Graywater Irrigation Systems

- **Prepares communities for droughts by facilitating** potential future **graywater irrigation system** to use water from clothes washers, bathroom sinks, baths, and/or showers to irrigate landscape on the same property.
- **Can improve reliability** of local water supplies through onsite water reuse.
- **Leverages the lower cost** to make dual drainage plumbing accessible during construction or during certain remodels that expose drainage piping.

Dual Plumbing Model Ordinance is Available to Local Jurisdictions

- Developed by **Ecology Action, Greywater Action, California Onsite Water Association, and Central Coast Greywater Alliance** over four years.
- Covers dual drainage as well as dual supply in residential buildings.
- The dual drainage component of the model ordinance along with compliance guidance in illustrations is expected to become a **new Appendix F in the forthcoming IAPMO's 2023 Water Efficiency and Sanitation Standard for the Built Environment (WE*Stand).**

Sources:
IAPMO's 2023 WE*Stand https://www.iapmo.org/we-stand/document-information
2022 Report on Proposals for 2023 WE*Stand https://www.iapmo.org/media/30371/2022-westand-report-on-proposals.pdf (Items 129, 130, 131, and 132 cover Draft Appendix F on graywater pre-plumbing)

Drought-Ready Construction Model Ordinance

Pre-plumbing buildings for graywater, rainwater, and recycled water

Developed by Ecology Action, Greywater Action, California Onsite Water Association, and Central Coast Greywater Alliance

Prepared for local and state jurisdictions
interested in promoting water conservation through codes

September 4, 2020

In 2020, **Drought-Ready Construction Model Ordinance** was published.

Guidance on Ordinance Compliance in Illustrations is also available.

Sources:
Overview and links to the resources: https://centralcoastgreywater.org/drought-ready-buildings-ordinance
2020 Drought-Ready Construction Model Ordinance https://centralcoastgreywater.org/wp-content/uploads/2020/09/2020-0910_FINAL-CCGA_Drought-Ready-Construction-Model-Ordinance.pdf

2020 Drought-Ready Construction Model Ordinance, Requirements, Dual Drainage Plumbing

TABLE 2: *Graywater Sources Requiring Mandatory Dual Drainage Plumbing*

Project Type	Graywater Sources Requiring Mandatory Dual Drainage Plumbing
New Construction: • Accessory Dwelling Unit (ADU), or • Single-family Dwelling	• At least one clothes washer and • At least one shower or one bathtub shower from the master bathroom
New Construction: Duplex Dwelling	• At least one clothes washer in each unit and • At least one shower or one bathtub shower from the master bathroom in each unit
New Construction: Multi-family Residential Building (3 or more dwelling units)	• All common laundry facilities and • All showers in pool and spa area(s)
Bathroom Addition: • ADU, • Single-family Dwelling, or • Duplex Dwelling	• One shower or bathtub shower when adding shower or bathtub shower
Bathroom Remodel: • ADU, • Single-family Dwelling, or • Duplex Dwelling	• One shower or bathtub shower when altering drainage piping to the shower is part of the remodel project
Laundry Room Addition or Remodel: • ADU, • Single-family Dwelling, or • Duplex Dwelling	• Clothes washer

The model ordinance includes in the scope:

- New construction (ADU, single family, duplex, multifamily building),
- Bathroom addition or remodel, and
- Laundry room addition or remodel.

Source:
https://centralcoastgreywater.org/wp-content/uploads/2020/09/2020-0910_FINAL-CCGA_Drought-Ready-Construction-Model-Ordinance.pdf

Proposal for inclusion in 2023 WE*Stand, Graywater Ready Plumbing

Item #: 129

WEStand 2023 Section: Appendix F, F 101.0 - F 101.4.1

SUBMITTER: Laura Allen
Chair, WE-Stand Gray Water Ready Plumbing Task Group

RECOMMENDATION:
Add new text

APPENDIX F
GRAY WATER READY PLUMBING

F 101.0 General.
F 101.1 Purpose. The purpose of this appendix is to lower barriers for the future installation of a gray water system by installing the necessary piping during the construction or remodel of a building.
F 101.2 Scope. This appendix provides requirements for the design and installation of gray water drainage systems for future installation of gray water irrigation or reuse systems in new construction, additions, and retrofits in accordance with Section F 101.3 and Section F 101.4. Gray water systems shall comply with Chapter 6 of this code.
F 101.3 New Construction. Gray water drainage systems shall be installed in new construction of residential buildings in accordance with Section F 101.3.1 through Section F 101.3.3.
Exception: Where ground conditions do not provide percolations, where setbacks cannot be maintained, or other such limitations are prohibited by the plumbing code. Project applicants shall submit documentation satisfactory to the Authority Having Jurisdiction for an exemption.
F 101.3.1 Single-Family Dwellings. For new construction of single-family dwellings, gray water drainage systems shall be installed and connected to at least one clothes washer and at least one primary shower or bathtub.
F 101.3.1.1 Accessory Dwellings. For new construction of accessory dwellings, gray water drainage systems shall be installed and connected to at least one clothes washer and at least one primary shower or bathtub.
Exception: Where an accessory dwelling is constructed without a clothes washer system, dual drainage plumbing shall be installed and connected to at least one primary shower or bathtub.
F 101.3.2 Multi-Family Dwellings. For new construction of multi-family dwellings, gray water drainage systems shall be installed and connected to each common laundry facility and each pool or spa shower.
F 101.3.3 Duplexes. For new construction of duplexes, gray water drainage systems shall be installed and connected to at least one clothes washer and one primary shower or bathtub per dwelling unit.
F 101.4 Additions. Bathroom and laundry room additions in single-family dwellings, duplex dwellings, and accessory dwellings shall require the installation of gray water drainage systems for newly installed showers and washing machines.
F 101.4.1 Alterations and Renovations. Alterations and renovations to a bathroom or laundry room, which alter the drainage piping to showers or washing machines, shall require the installation of gray water drainage piping.

2023 WE*Stand is still in public review phase, closing on 4/29/2024.

The language on the graywater pre-plumbing requirements and compliance guidance in draft 2023 WE*Stand has been further **refined through the additional stakeholder input.**

Source:
https://www.iapmo.org/media/30371/2022-westand-report-on-proposals.pdf (Item 129, presented to the WE*Stand Technical Committee members in June 2022)

What Can Local Jurisdictions Do?

- **Leverage** Drought-Ready Construction Model Ordinance, the Guidance on Ordinance Compliance document, and **the forthcoming new Appendix F in 2023 WE*Stand** if interested in pursuing graywater pre-plumbing ordinance.
- **Connect with any of at least six California local jurisdictions** that adopted their version of graywater pre-plumbing ordinance to gain insights:

  City of Encinitas,

  City of Los Angeles,

  City of Portola Valley,

  City of West Hollywood,

  Culver City,

  Marin Municipal Water District.

Agenda

1. Right-sizing plumbing in residential buildings
2. Dual-drainage plumbing (aka graywater pre-plumbing)
3. **Water neutral new development (water offsets)**

Benefits of Water Offsets

- Can **allow growth without increasing system-wide water consumption** across a community or a water supply service area.
- Can help **avoid building moratoriums** in water-constrained communities.
- Can be a combination of **on-site water efficiency and off-site water efficiency.**

Net Blue Initiative Developed Toolkit for Local Jurisdictions

- **Three-year project** to create an ordinance development tool that can be tailored to create a customized water demand offset approach for a local jurisdiction
- Partners: **the Alliance for Water Efficiency, the Environmental Law Institute, and River Network**
- Worked with **seven partner cities to vet the approach** (Acton, MA, Albuquerque, NM, Austin, TX, Bozeman, MT, Cobb County, GA, Madison, WI, San Francisco, CA)
- **Funders**: Scherman Foundation, Paul Johanson Foundation, and the Metropolitan Water District of Southern California

Source: www.net-blue.org

In 2017, launched Net Blue Toolkit:

1. Customizable Model Ordinance
2. Model Ordinance User Guide
3. Offset Methodology Workbook
4. Offset Methodology User Guide
5. Three Ordinance Examples
6. Three Offset Examples matching the ordinance examples
7. Outreach Materials

Additional resources:
www.net-blue.org or https://www.allianceforwaterefficiency.org/resources/topic/net-blue-supporting-water-neutral-growth

Water Neutral New Development Model Ordinance Parts and Organization

Establishing the Legal Basis

- Purpose
- Findings
- Authority

Fashioning the Ordinance

- Requirement and Applicability
  - or Incentive
- Definitions
- Determining the Offset Amount
- Identifying the Offset Activities

Enforcing the Ordinance

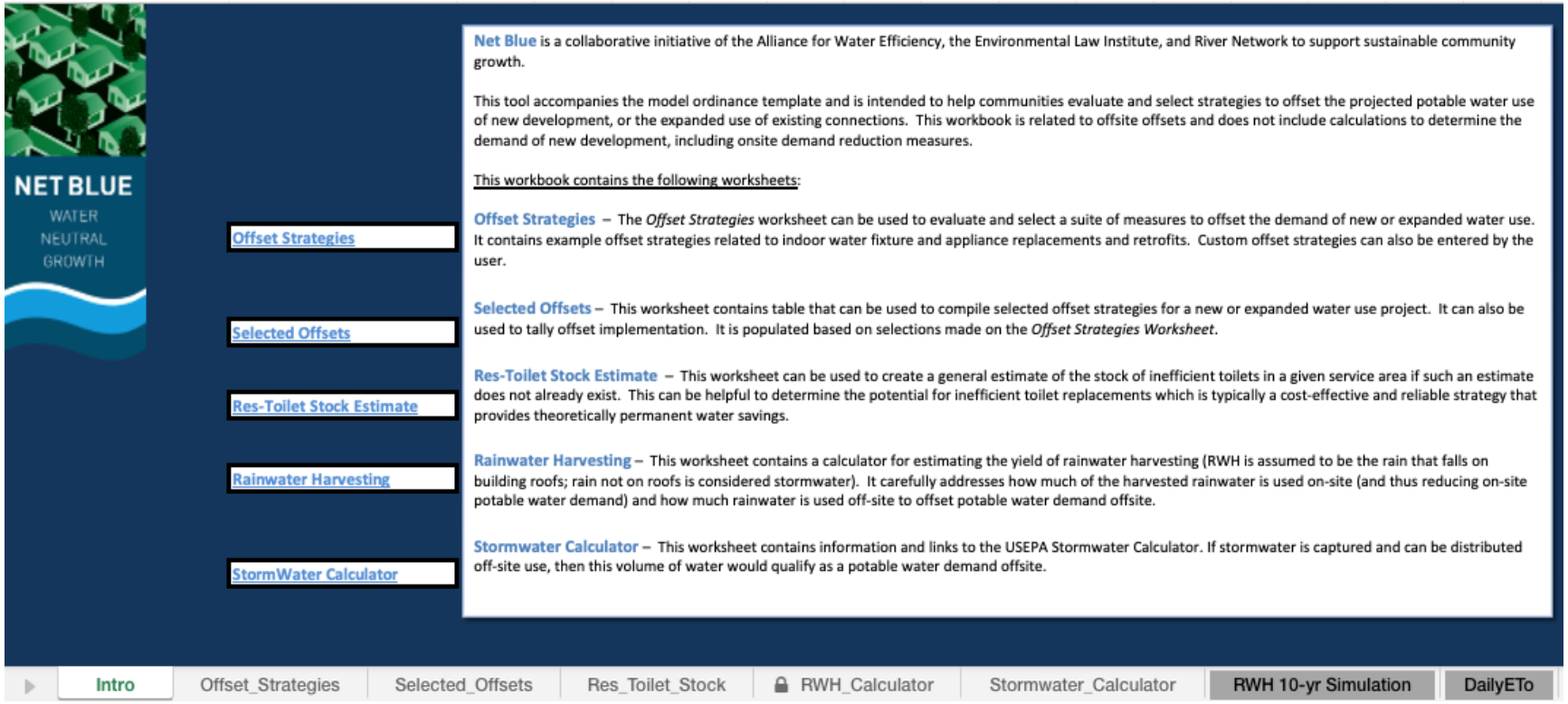
- Compliance with the Offset
- Verification
- Monitoring (optional)
- Enforcement

Options for the Ordinance

- Offset Credit Bank (optional)
- In-Lieu Fee (optional)
- Administrative Fees (optional)
- Modifications (optional)

Administering the Ordinance

- Appeals
- Severability
- Consistency with Other Laws
- Effective Date



Offset Methodology Workbook was designed to help communities evaluate and select off-site offsets for development projects.

The water savings for off-site offsets are **based on verified studies on savings.**

Water Offset Strategies

- Residential toilet replacements
- Residential showerhead replacements
- Residential clothes washer replacements
- Commercial, industrial, and institutional (CII) urinal replacements or retrofits
- CII toilet replacements
- Laundromat clothes washer replacements
- Commercial dishwasher replacements
- Pre-rinse spray valve replacements
- Commercial food steamer installation
- Cooling tower retrofits
- Rainwater harvesting
- Stormwater capture

What Can Local Jurisdictions Do?

- **Leverage Net Blue Initiative free resources** if interested in pursuing water neutral new development ordinance.
- **Connect with any of at least ten California local jurisdictions** that adopted their version of a water neutral new development ordinance to gain insights:

  Cambria Community Services District,

  City of Lompoc,

  City of Morro Bay,

  City of Napa,

  City of Santa Monica,

  City of St. Helena,

  East Bay Municipal Utility District,

  Monterey Peninsula Water Management District,

  San Luis Obispo County,

  Soquel Creek Water District.

Source:
https://www.allianceforwaterefficiency.org/sites/default/files/assets/Water-Offset-Policies-for-WaterNeutral-Community-Growth150126.pdf

Thank You!

Steffi Becking
Associate Director, 2050 Partners
steffibecking@2050partners.com

localenergycodes.com

Cost Effectiveness Explorer

Contact info@localenergycodes.com for no-charge assistance