

Water Efficiency and Reuse in Affordable Housing

SERIES OVERVIEW

In 2022, California is in the midst of a severe drought — just a few years after the worst drought in a millennium ended in 2017.

This pattern of accelerating and deepening droughts is consistent with climate change models for the state, which forecast longer, more severe and more frequent droughts punctuated by heavy rain and flooding.

Unlike past droughts, these events are not periods to survive until “normalcy” returns. Instead, they are a sign that the climate is changing — and that the state must fundamentally change how it uses water.

These six case studies — a follow-up to SPUR and Pacific Institute’s report *Water for a Growing Bay Area* — highlight leaders who are pioneering more sustainable approaches to water in Northern California. We highlight public water agencies, private corporations, nonprofit affordable housing developers and local land use authorities who are using water more efficiently, protecting groundwater supplies, reusing stormwater and recycling water.

Water sustains life, and its status — whether it is plentiful or scarce, clean or polluted, fresh or salty — shapes the well-being of all living creatures. These six case studies illustrate strategies for California to meet the challenge of a changing climate and emerge with a healthy environment and flourishing communities.

Key Takeaways

- Nonprofit affordable housing owners pay the water bill for their tenants, but they can’t raise rent when water bills increase.
- Tenderloin Neighborhood Development Corporation (TNDC), an affordable housing developer in San Francisco, is piloting water efficiency improvements and reuse to decrease water use by 20%.
- The efforts aim to insulate the builder from rising water bills and meet sustainability goals.

Water bills are rising on average in California. Yet affordable housing owners can’t charge their tenants more for rent — nor would they want to, given that their tenants are already struggling to make ends meet. That means affordable housing owners need to keep utility bills low through more creative measures.

Renters who live in apartments and multi-family housing developments built before 2018 often do not pay their water bill directly. Instead, apartments have “master meters” that provide the total water usage for the entire complex and direct all charges to the landlord in one water bill.¹ These bills can be expensive, and costs are expected to continue to increase due to climate change impacts on water resources, significant deferred investments in water infrastructure and other stressors. Building owners who use less drinking water will also often pay less in wastewater bills. In low-income multi-unit



buildings, water bills are often completely subsidized by the housing provider. When the volume or cost of a tenant's water usage is not known, it can be challenging to motivate them to conserve water.

So how can building owners reduce water use in a cost-effective, timely manner in their current and future developments?

In existing buildings, efficient appliances can reduce water demand. For example, toilets range from using 3.5 to 0.8 gallons per flush, so changing out a toilet that uses 3.5 gallons per flush could save as much as 4,100 gallons of water per person per year.² However, these sustainability upgrades remain expensive. Affordable housing developers often need financial help to make upgrades.

Making Affordable Housing Water-Wise

Tenderloin Neighborhood Development Corporation (TNDC) is one such nonprofit affordable housing owner and developer. With 42 buildings and six in development, TNDC supplies single-resident and family units to tenants who typically make less than \$30,000 a year. As a provider of low-income housing, TNDC pays the entire cost of water in its developments. In addition, TNDC has a strong commitment to sustainability, believing that although tenants cannot afford efficient fixtures, they should still have access to them. In just seven years (2011 to 2018) TNDC reached its 2022 goal of reducing energy and water use across all sites by 20%.

In existing buildings, TNDC increased

TNDC's rooftop garden uses captured rainwater.

Photo by Laura Feinstein



¹ SFPUC, "Residential Water Submetering in San Francisco - FAQ" (SFPUC, June 2018), <https://sfwater.org/modules/showdocument.aspx?documentid=11098>.
² OW US EPA, "WaterSense Calculator," Data and Tools, US EPA, February 3, 2017, <https://www.epa.gov/watersense/watersense-calculator>.



efficiency through retrofitting fixtures and leak detection. TNDC was able to leverage funding from the San Francisco Public Utilities Corporation (SFPUC) to upgrade all fixtures that had been in use for more than one year, apart from toilets. TNDC also developed a strategy to detect and repair leaks. Staff used building-wide water usage information through a software program called WeGo Wise to detect leaks in buildings, signaled by spikes in water use.³

In new buildings, TNDC is testing the economic viability of installing rainwater capture and reuse systems with financial and technical support from SFPUC. The installation of new sustainable systems has challenges, however. First, cisterns and other storage units required for rainwater capture systems occupy space that could be dedicated to an additional apartment. Second, obtaining permits for water reuse systems can be time-consuming and confusing.

Strategies to Assist Affordable Housing Providers With Water Efficiency and Reuse

Provide funding to improve fixtures from semi-efficient to the most efficient in the market.

Currently SFPUC will not provide funding to upgrade toilets that use less than 3.5 gallons per flush. TNDC is looking to upgrade 400 toilets from 1.6 gallons per flush to 0.8 gallons per flush but cannot access funding to do so. Many other affordable housing providers are in the same position.

Who has authority: SFPUC, state and federal government

Streamline permitting for stormwater capture and onsite reuse.

Permitting for water reuse systems can be unpredictable, and developers can incur significant costs if the time-to-occupancy is delayed. Developers need predictable and manageable timelines for obtaining permits.

Who has authority: Local permitting agencies (e.g., building department, health department)

³ WeGo Wise 2022. <https://www.wegowise.com/>

Read all the case studies at spur.org/watershedmoments



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