

On-Site Water Reuse for Businesses



*Stanford's Codiga Resource Recovery Center
(Photo courtesy of Stanford University)*

On-site water reuse systems make buildings more sustainable and resilient in their water use. These systems treat wastewater from or surrounding a building (blackwater, gray water, stormwater or rainwater) to be reused within the same building for non-potable applications such as toilet flushing, cooling towers, laundry and irrigation. Up to 50% of water demands in multifamily residential buildings and 95% in commercial buildings are non-potable, creating a large potential for water reuse. These systems also save money by reducing water and sewer impact fees and by lowering monthly utility bills. In the case of large buildings (over 100,000 square feet), on-site water reuse can save substantial amounts annually, with the exact savings depending on factors like water volume used, building size, property type, and the system type (blackwater or greywater systems). For example, a 700,000 square foot commercial high-rise in San Francisco could save hundreds of thousands of dollars on connection fees and approximately \$260,000 per year with a blackwater reuse system.

Epic Cleantec offers an on-site treatment reuse approach that converts wastewater into treated water, natural soil products, and recovered wastewater heat energy. After running trials at Stanford's Codiga Resource Recovery Center (CR2C), where the water is piped to and from the facility (shown above), the company successfully finished its pilot in 2020, based in the NEMA residential tower in San Francisco, with a processing facility and showcase garden nearby, and will be deploying a blackwater system for the Park Habitat project in downtown San Jose. The Codiga Resource Recovery Center has shown the capability to produce water suitable both for potable reuse and for non-potable reuse such as for irrigation. However, the facility is not permitted to provide water for irrigation.

Due to the scale and cost of construction, operations and maintenance, on-site reuse systems make the most sense for larger development projects. These systems may become common in cities with higher density buildings such as San Francisco, which adopted an ordinance in 2015 requiring large development projects to incorporate on-site water reuse. For these reasons, rather than viewing on-site or decentralized water reuse as a replacement for centralized recycled water systems, cities, agencies and businesses should pursue a patchwork of water solutions and collaborations, considering the needs and features of each municipality.

Key Obstacles

Receiving enough funding to support pilot testing of on-site water reuse is a barrier for the implementation of such systems. Although the Clean Water Act of 1970 provided funding for the construction of treatment plants, funding for testing facilities such as the CR2C is not as widely available. Some sources of funding that do support pilot projects include government funding, the California Energy Commission, the U.S. Bureau of Reclamation, the California Water Boards, and private donors.

References and Resources

- Sebastien Tilmans, Executive Director at Codiga Resource Recovery Center, stilmans@stanford.edu
- Facing Severe Droughts, Developers Seek to Reuse the Water They Have. [New York Times](#)
- For more information on Epic Cleantec's work, contact info@epiccleantec.com.

Document last updated January 2024

This document is intended to introduce a concept and inspire further research. While we strive for accuracy, this brief does not encompass the full spectrum of data and perspectives related to the topic. Readers are encouraged to seek additional information and expert guidance.

