WATERHUB® POWERED BY H2O innovation®

THE WATERHUB® AT PDC

A MORE RESILIENT CAMPUS THROUGH BUILDING-SCALE REUSE

PROJECT OVERVIEW

LOCATION
Austin, Texas

CLIENT
City of Austin

PROJECT TYPE
Building-Scale Wastewater Reclamation & Reuse for Toilet Flushing

HYDRAULIC CAPACITY
5,000 Gallons Per Day

COMMERCIAL OPERATION
Summer 2020

FOOTPRINT
800 ft^2

DEVELOPMENT TEAM
Tech. Integrator: Sustainable Water
Equip. Supply: H2O Innovation, Suez
Engineer: Aqua-Nova Engineering
Design Builder: Ryan Companies
Operator: Austin Water
Architect: Gensler
MEP: EEA Consulting Engineers

In 2020, the Austin Planning and Development Center (PDC) will serve as the the new home for more than 400 City of Austin employees. Located adjacent to the Austin Community College – Highland Campus, it will house various municipal departments, including: Planning and Zoning, Development Services, Austin Fire, and Austin Water.

At 264,000 ft^2, the new office complex is created to accommodate a large volume of daily visitors. The design is intended to improve guest and worker experience through inviting outdoor spaces, increased natural light, rooftop decks, and attractive public spaces. This includes a demonstration wastewater treatment and reuse system – a hallmark of Austin Water's effort to promote sustainable water management in commercial building across the City.

The WaterHub treatment system, designed by Sustainable Water and H2O Innovation, will intercept building wastewater and treat it for interior reuse as toilet flushing. In a separate process, rooftop rainwater will be captured and reused for irrigation around the building. Excess rooftop rainwater will be diverted to the WaterHub to supplement water reuse for toilet flushing. In total, the WaterHub is expected to decrease building potable water use by approximately 60%.

WaterHub Intergrated into PDC Building Courtyard

SUSTAINABLE WATER® EXTENDING THE LIFE CYCLE OF WATER

h2o innovation®

RYAN

Austin WATER

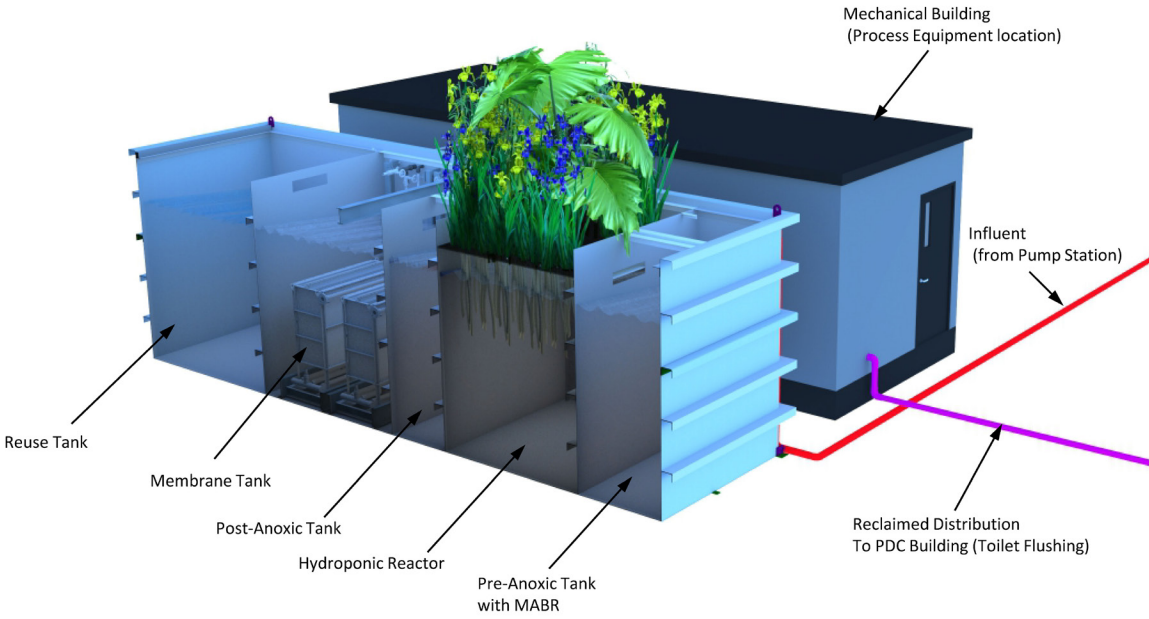
Gensler

TECHNOLOGY & DESIGN

PDC Building Exterior

The WaterHub at PDC is a building-scale (5,000 GPD) wastewater treatment and reuse system. The eco-engineered package plant features a hydroponic–membrane bioreactor (MBR) process design, with a pre-anoxic membrane aerated bioreactor (MABR) for a reduced energy use. Before reuse, MBR permeate is disinfected by both ultraviolet (UV) and chlorine. Reclaimed water is stored in a 4,800-gallon storage tank before it is distributed for reuse. The system meets stringent Texas Type 1 Reclaimed Water Standards.

The prefabricated system is constructed of stainless steel and shipped to site ready for installation. Treatment reactors and a mechanical room are integrated directly beneath a pedestrian walkway. With a complete odor control system, visitors will walk directly above wastewater reactors and adjacent to hydroponic landscaping serving as part of the treatment process.



TREATMENT SYSTEM OVERVIEW

TREATMENT APPROACH

- Fixed-Film, Hydroponic System
- Membrane Aeration
- Submerged Membrane Filtration

PROCESS DESIGN

- <2mm Passive Primary Screen
- Pre-Anoxic and MABR Stages
- Aerobic Hydroponic Reactor
- Membrane Bioreactor (MBR)
  - Single Train
  - Toray Hollow Fiber
  - 1,940 ft^2 Membrane Area
- Disinfection: (UV & Chlorine)
- 4,800 Gal. Reuse Storage Tank

RAINWATER CAPTURE

- Excess Rooftop Rainwater captured and treated to supplement toilet flushing

EFFLUENT DESIGN

- TCEQ Type 1 Reclaimed Water
- Biological Oxygen Demand (BOD):
  < 5 mg/L
- Total Suspended Solids (TSS):
  < 5 mg/L
- Fecal Coliform:
  20 CFU/100mL
- Enterococci:
  4 CFU/100mL
- Turbidity:
  < 3 NTU