



**HYDROFLUX**  
TECHNOLOGY

**SAVING WATER AND ENERGY  
MOVING TO NET ZERO BUILDINGS**



# DROUGHT CONDITIONS ARE DRASTICALLY REDUCING WATER SUPPLY

## HYDROFLUX IS PART OF THE SOLUTION

### SAVES WATER



Cooling towers consume between 30-40% of a facility's total water use — often wasting a staggering amount of water. *HydroFlux can help eliminate water waste.*

### SAVES ENERGY



According to the Federal Department of Energy, as little as 2 microns of calcium carbonate ("scale") on heat exchange surfaces can increase energy consumption by a shocking 30%. *HydroFlux prevents and mitigates scale formation.*

### SAVES EQUIPMENT



Scale build-up can lead to failure in piping and boiler systems, resulting in high replacement costs. *HydroFlux improves efficiency and reduces operating costs.*

# WHAT IS HYDROFLUX?

HydroFlux is a maintenance-free water treatment "bracelet" that quickly and easily attaches to the exterior of existing cooling tower and boiler piping.\*

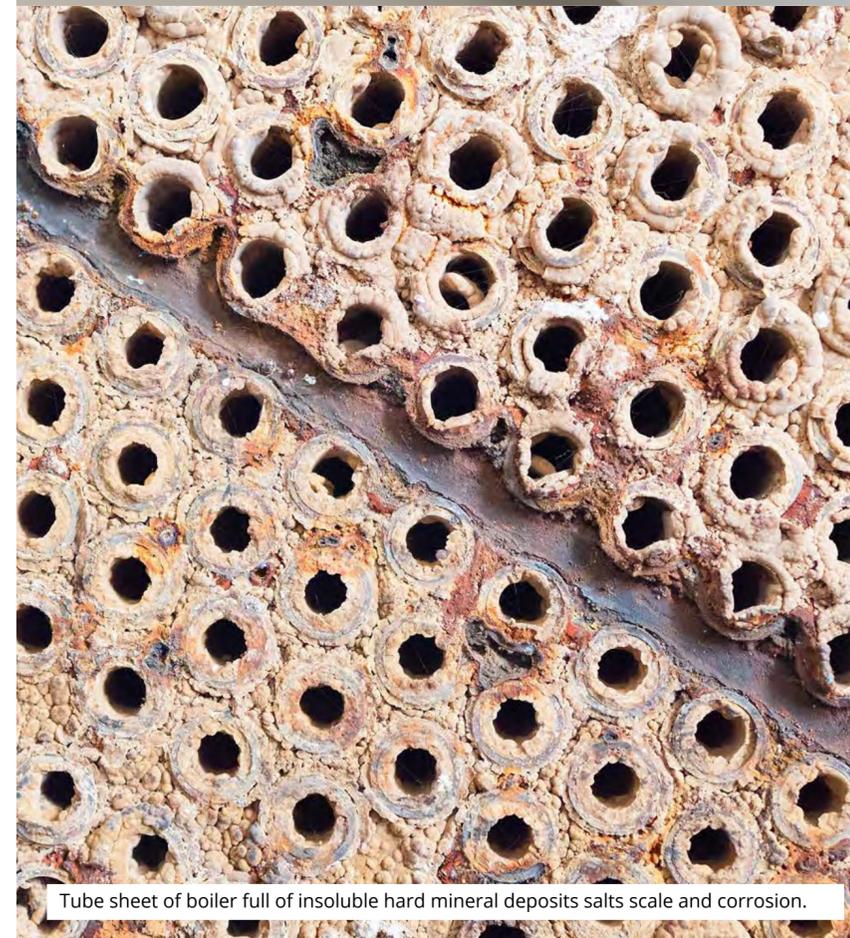
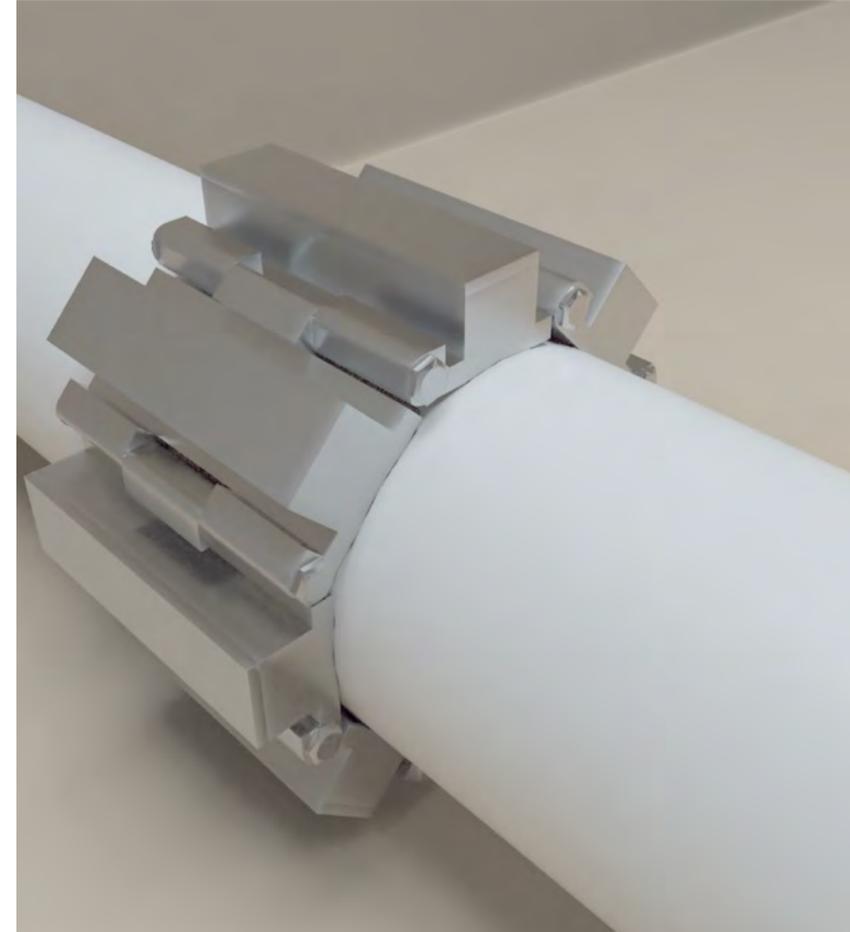
Once installed, it can immediately begin saving you water and energy by preventing the formation of scale in pipes and the critical components of:

- **Closed-circuit fluid coolers**
- **Evaporative condensers**
- **Cooling towers' filtration systems**
- **Domestic hot water applications**

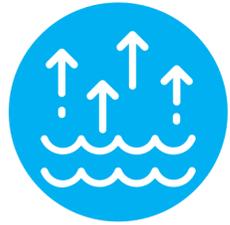
The HydroFlux difference is centered in its Halbach array of high-intensity, high gradient, rare-earth magnets, which work to alter the interactions of water ions within flowing and conducting cooling tower water.

In conjunction with appropriate controls and filtration, HydroFlux's impact on the physical and electrochemistry can dramatically increase the safely achievable Cycles of Concentration (COC). HydroFlux ultimately reduces the amount of blowdown to the sewer, makeup water to refill the system, and energy use.

\*In most cases



# TERMINOLOGY



## EVAPORATION

The primary function of the tower — and the method that transfers heat from the cooling tower system to the environment.



## CYCLES OF CONCENTRATION (COC)

When water evaporates from the tower, dissolved solids (such as calcium, magnesium, chloride, and silica) remain in the recirculating water. As more water evaporates, the concentration of dissolved solids increases. If that concentration gets too high, the solids can cause scale to form within the system. The dissolved solids can also lead to corrosion problems.

Maximization of COC leads to the greatest water savings — and HydroFlux helps make that happen.



## BLOWDOWN PROCEDURE

The concentration of dissolved solids is controlled by replacing a portion of the highly concentrated water with fresh make-up water.

Careful monitoring and control of blowdown quantity provides significant opportunity for conservation of water in cooling tower operations.



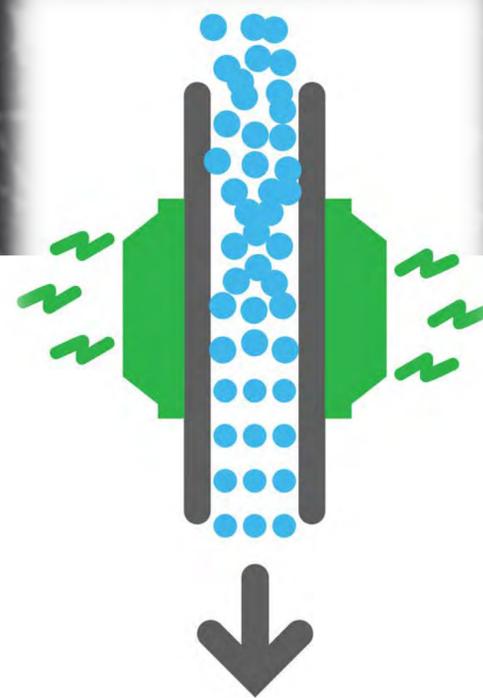
## HOW HYDROFLUX WORKS

The power of our Halbach array holds scale in suspension, preventing it from binding to pipes or surfaces — instead, these total dissolved solids are filtered out of the cooling tower through a filtration system.



### EASY TO IMPLEMENT

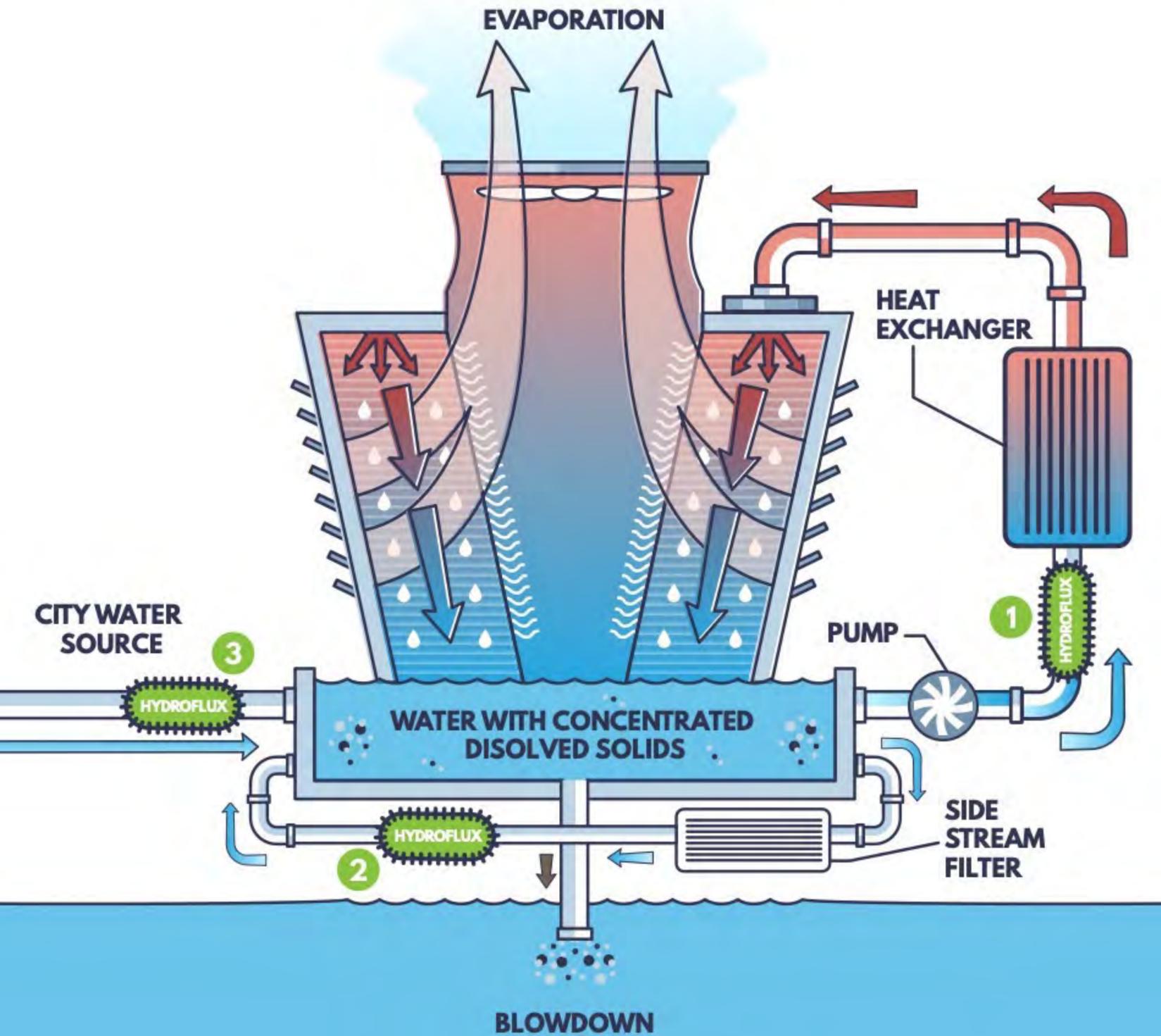
Our bracelet installs quickly and easily — operating as a stand-alone device *or* in concert with existing water treatment systems/processes.



### MAINTENANCE-FREE

HydroFlux doesn't modify your current system. It doesn't require maintenance. It doesn't even need a power source.

## OPEN COOLING TOWER



## HYDROFLUX IS EASY TO INSTALL

After quick and easy attachment to the exterior of existing cooling tower piping and boilers, HydroFlux's water treatment bracelet *immediately goes to work* — and operates especially well with high-grade filtration.

For an open cooling tower, the bracelets can be affixed in three locations:

- 1 Before the condenser or heat exchanger, to control and disperse scale buildup.
- 2 In the basin or sweeper system.
- 3 In the makeup water line, if the source water is particularly hard.

The HydroFlux system is built for adaptation and can be added to, or integrated with, nearly any water treatment system.



Los Angeles Times

CALIFORNIA

BY DOUG SMITH

JAN. 2, 2016

## High-rises harbor a little-noticed water waster: old cooling towers

-- Doug Smith, Senior Writer

# COOLING TOWERS ARE AN IMPORTANT SOURCE OF WATER SAVINGS

No matter the age of your cooling tower, HydroFlux elevates its efficiency.

The allowable COC can be increased many times, resulting in a direct reduction of water blowdown to the sewer.

**“It’s a hidden cycle of waste that is repeated in thousands of buildings across Los Angeles County.”**

- Doug Smith, Senior Writer, Los Angeles Times

**“Various sources suggest the average system in Los Angeles runs at less than three cycles or at even less than two. At two cycles, half the water used is lost to blowdown.”**

- David Hodgins, Exec Director, Los Angeles Better Building Campaign

**“Getting from two to five cycles can cut the water use by 40%.”**

- David Hodgins, Exec Director, Los Angeles Better Building Campaign



# WATER SAVINGS, MADE SIMPLE

In this example we review how much water can be saved when increasing the Cycles of Concentration on a 10-story building taking up an entire city block, (200'x200').



From 2 cycles to 4 cycles would save:  
• **32% or 10.6 million gallons per year**



From 2 cycles to 5 cycles would save:  
• **37% or 11.8 million gallons per year**

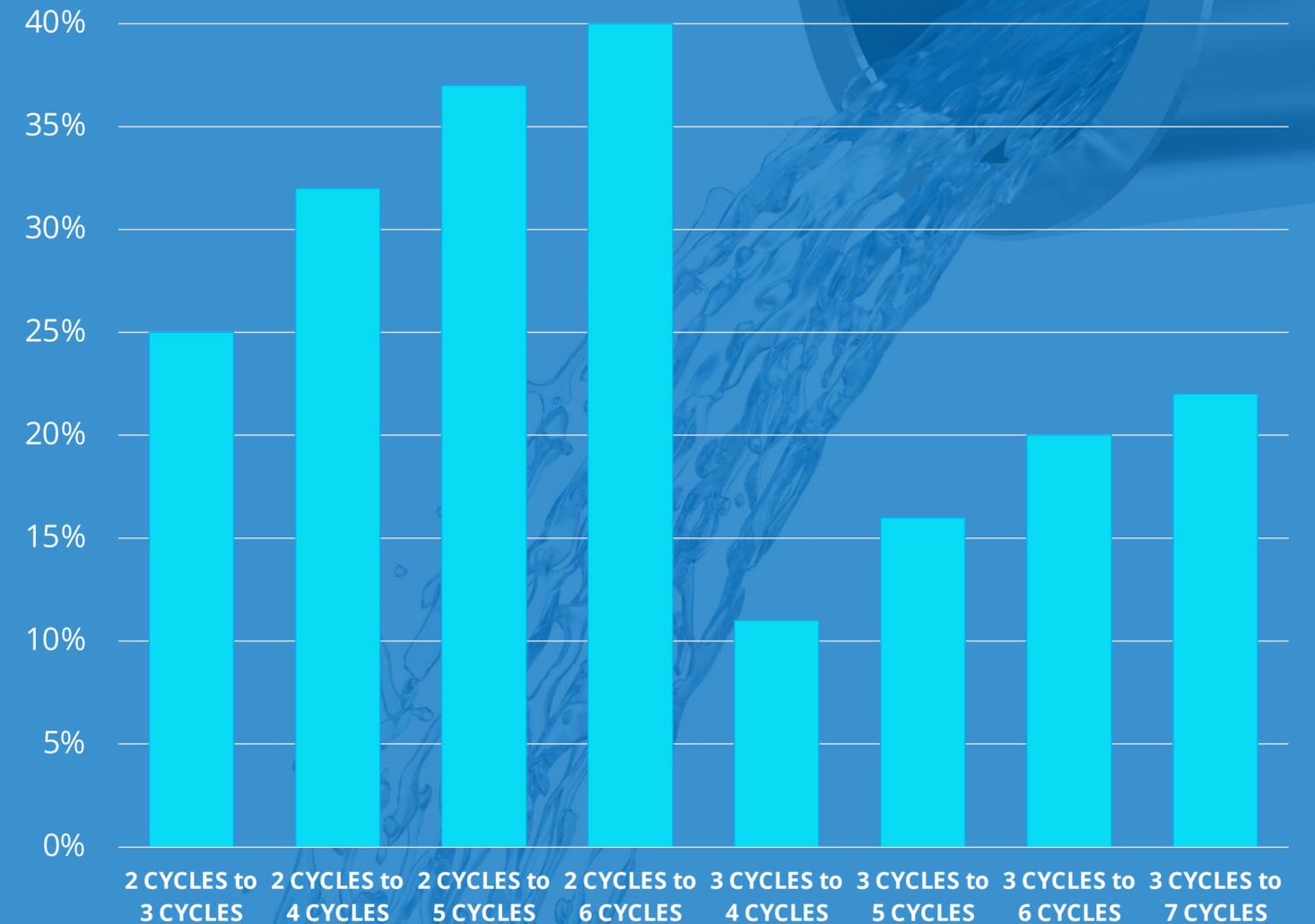


From 2 cycles to 6 cycles would save:  
• **40% or 13.7 million gallons per year**

With HydroFlux, the potential water savings can be substantial.



## PROJECTED WATER SAVINGS WHEN INCREASING CYCLES OF CONCENTRATION



■ Total Water Savings vs. Cycle Change

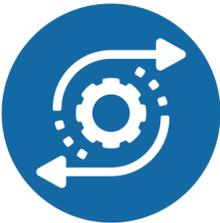
# THE HYDROFLUX DIFFERENCE



From the moment of installation, every HydroFlux application is backed by **\$2 million insurance coverage** against **Legionnaire's**, viruses, and mold.



HydroFlux recaptures energy that would otherwise be lost due to scale — and guides your building towards LEED and Well status, aiding in meeting **Green Building and Net-Zero Building standards**.



HydroFlux can usually be installed while cooling towers are fully operational. There's no need for regular shutdown or aggressive cleaning regimens. *And every HydroFlux bracelet is entirely maintenance-free.*



HydroFlux's Net-Zero technology is **supported by ASHRAE data** (Project RP-1155), as it has no defined lifespan, requires no external power, and needs no maintenance or service.



HydroFlux has been officially selected into **US Green Building Council Los Angeles' 2022 Net Zero Accelerator Cohort**.



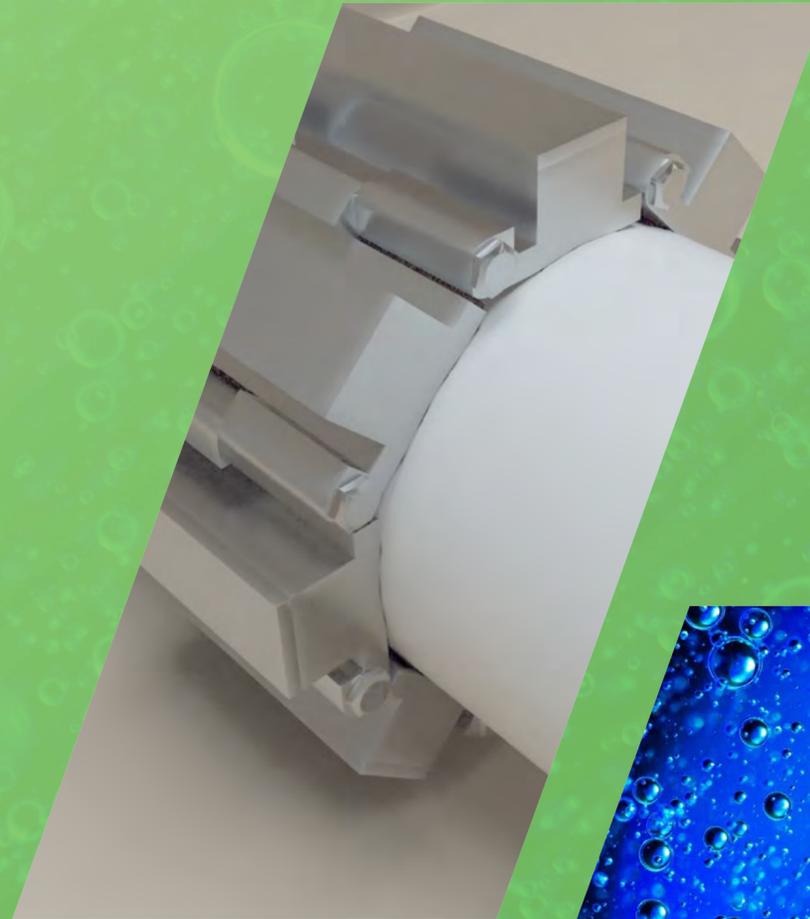


## EVERY PROJECT IS UNIQUE

Contact us for an expert evaluation  
— and learn what savings  
HydroFlux can offer you!

## CONTACT US

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**NET ZERO**  
**ACCELERATOR**  
U.S. GREEN BUILDING COUNCIL LOS ANGELES