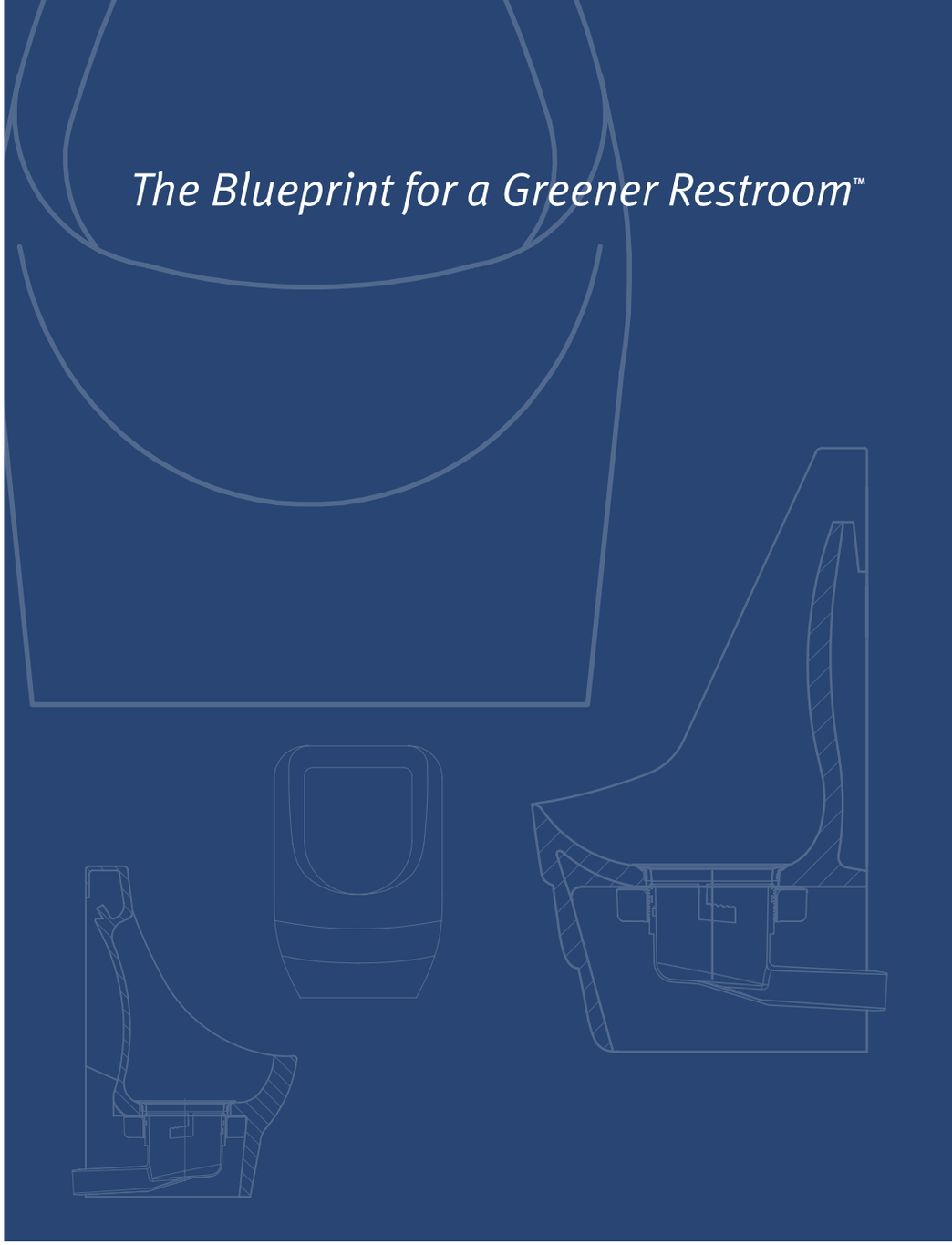
The Blueprint for a Greener Restroom™



FALCON®
WATERFREE TECHNOLOGIES

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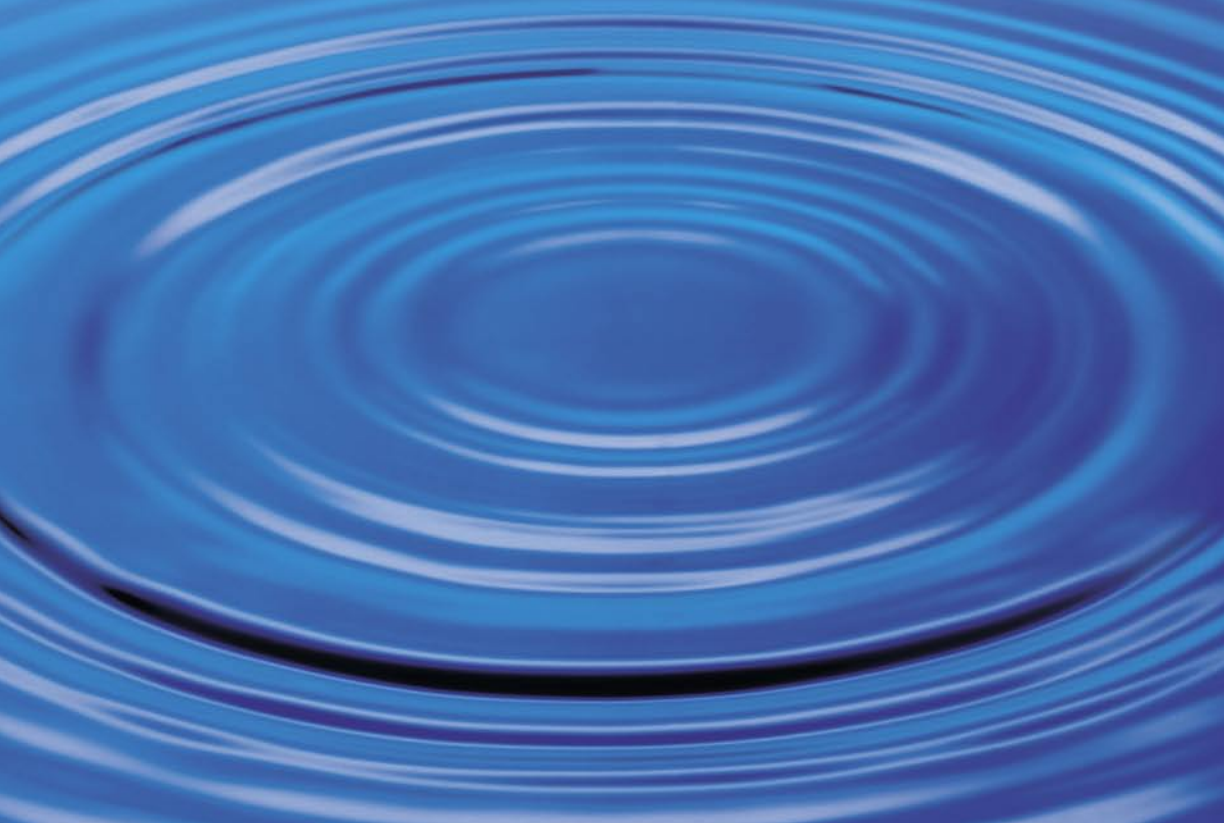
Smarter by Design

The Falcon Waterfree urinal is one of those rare products that save money and time while conserving natural resources. It allows facility managers to do a good thing while doing a very smart thing...that will become even smarter as operating costs rise.

Of course, a urinal that doesn't flush prompts questions about health, hygiene, and odor. That's why Falcon Waterfree urinals have been extensively tested in government agencies, academic institutions, and private laboratories. ***Independent testing confirms that Falcon urinals produce less odor and are more hygienic than flush urinals.***

More on that later. First, the basics...



A Straightforward Approach

The Falcon Waterfree urinal system consists of a vitreous china fixture and a patented, replaceable cartridge that locks into the base of the urinal. The cartridge is installed into a housing that connects to the drain line. That's all there is – no flush valve assembly, no water supply hookup.

Easy Installation

Waterfree urinals are easier and faster to install than traditional, water-fed urinals. In new building installations, there is no need to connect to a water supply – only to a drain line. In replacement applications, the installer simply shuts off the existing water supply and connects the waterfree urinal to the drain line using the universal coupler (included).

How It Works

The heart of the Falcon Waterfree urinal system is the cartridge, which acts as a drain trap. The cartridge design and use of nonporous materials ensure that all urine passes into the cartridge and through a unique, biodegradable sealant.

The pleasant-smelling sealant liquid provides an airtight barrier between the drain and the restroom to prevent odors from escaping. The sealant lasts for the life of the cartridge, so there is no need to add sealant between cartridge changes.

The cartridge also acts as a trap for uric sediment, which could otherwise contribute to drainage pipe clogging. The results are a virtually odor-free environment, clean pipes, and no water waste.

The only maintenance is routine cleaning of the fixture and an easy change of the cartridge approximately three to four times per year.

The patented, sealed cartridge uses a biodegradable sealant liquid to control odors.

Liquid sealant floats on top...

urine passes through the sealant...

and is isolated from the restroom while it proceeds to the drain.

The cartridge is topped with a domed diverter cap. Its unique sealing ring and patented locking mechanism create an airtight barrier between the cartridge and housing.

"The dual barrier system provided in the Falcon Waterfree Technologies urinals are predicted to be 500 times more effective against back-mitigation of sewer gases as compared to conventional P-trap water barriers."

Michael R. Hoffman, Ph.D.
Dean of Graduate School
James Irvine Professor of Environmental Science
California Institute of Technology

Economic Benefits

Using fresh water to dispose of urine, which itself is about 97 percent water, makes no economic sense – particularly in a world faced with a very limited water supply. Falcon Waterfree urinals reduce costs in three key ways:

1) **Lower installation costs**: Falcon Waterfree urinals are less expensive to purchase and install because they have no flushing mechanism. All that is required are a drain line and time for installation (typically less than an hour per fixture). Costs are even lower in new construction, because no water supply lines are needed.

2) **Lower water/sewer costs**: Falcon Waterfree urinals save 100 percent of the water and sewer charges associated with flush urinals – both of which are sure to rise in the future. Waterfree urinals also eliminate the energy costs associated with pumping water to and from the fixture.

3) **Lower maintenance costs**: Because Falcon Waterfree urinals have no flush valves, there are no costs to repair stuck or broken valves, and there's no costly cleanup of flooding caused by clogged drains or mischief-makers. Clogs and cleaning are reduced because drain lines remain free of hard-water calcification. Daily maintenance is a quick "spray and wipe" process that reduces the amount of cleaning solution used.

"The initial expense to install the waterfree urinals was about $150 to $200 less per fixture because less plumbing is required. Water savings in the building will amount to a staggering two million gallons per year, resulting in a savings of more than $7,000 per year in water and sewage costs. Another $7,000 per year will be recouped from a reduction in plumbing repair costs."

Andy Andrzejewski
Facility Manager
The Harold Washington Social Security Center, Chicago

Blueprint for Savings

The table below gives three examples that illustrate how the Falcon Waterfree urinal system generates savings. Note that all assumptions are based on conservative estimates. Variables are annual usage, water and sewer rates, and valve replacement/repair costs. Also note that special time payment and rental programs can result in zero-cost or immediate payback installations, since savings are often greater than monthly payments.

Savings Analysis Assumptions	A	B	C
Total facility population	1,500	3,000	15,000
Percentage of males in population	55%	50%	50%
Number of males	825	1,500	7,500
Number of urinals	33	60	185
Number of uses per day/person	3	3	3
Gallons per flush for old urinals	3	2	1
Water cost per 1,000 gallons	$2.50	$3.00	$3.50
Sewer cost per 1,000 gallons	$2.50	$3.00	$3.50
Operating days	260	300	365
Annual Water Savings (3 uses/day x operating days x number of users x water cost)			
Gallons	1,930,500	2,700,000	8,212,500
Dollars	$4,826	$8,100	$28,744
Annual Sewer Savings (3 uses/day x operating days x number of users x sewer cost)			
Gallons	1,930,500	2,700,000	8,212,500
Dollars	$4,826	$8,100	$28,744
Annual Operating Cost Comparison			
Flush urinal: Maintenance/valve repair ($75 average per urinal)	$2,475	$4,500	$13,875
Falcon: Replacement cartridges	$3,218	$5,850	$29,250
Estimated Total Annual Savings with Falcon Waterfree Urinals (Water savings + sewer savings + operating savings)	**$8,910**	**$14,850**	**$42,113**

"The waterfree urinals are amazing! The units at FORSCOM Headquarters have worked out so well that now the higher-ups want to do the rest of them. They're an answer to a prayer. By installing waterfree units in just one building, the fort will save $106,000 per year."

Luke Wyland
Energy Manager
Fort McPherson, Georgia

U.S.ARMY

Hygienic and Aesthetic Benefits

Initial questions about waterfree urinals often relate to odor and hygiene. Yet, Falcon Waterfree urinal systems actually reduce odors and contribute to a cleaner, more sanitary restroom. A few facts explain why:

- Urine is essentially odorless. "Urine odor" primarily results from the reaction of urine with water and air, creating ammonia gas. Without water, the bowl quickly dries between uses and produces no detectable odor. Plus, once urine passes through the liquid sealant in the cartridge, an airtight seal is created between the drain and restroom.

  Dr. Michael R. Hoffman of the California Institute of Technology has concluded that "the dual barrier system provided in the Falcon Waterfree Technologies urinals are predicted to be 500 times more effective against the back-mitigation of sewer gases as compared to conventional P-trap water barriers."

- Bacteria and viruses thrive on moist surfaces, and the wet surface of a flush urinal is a breeding ground for their growth. Flushing doesn't kill bacteria and viruses – plus, the flush creates a plume that spreads them around the restroom.

  Dr. Charles P. Gerba of the University of Arizona concludes, "I believe that waterfree urinals offer a major improvement in public sanitation. Flushing is eliminated, which greatly reduces the almost continuous production of microbial aerosols, and the surface and sides of urinals are drier, which reduces the survival of human disease-carrying microorganisms and prevents their growth. The flush handle is also eliminated, which would prevent hand-to-flush handle transfer of pathogens from one individual to another during the use of the urinal."

Combine the findings of these experts with the approval of thousands of users around the world. Falcon Waterfree urinals not only make better economic sense, but they can also make restrooms safer and more pleasant.

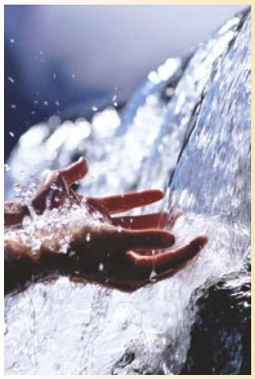
"By installing a waterfree urinal, with predominantly dry surfaces and no flushing actions, the exposure to airborne bacteria is reduced tremendously. With proper attention, the maintenance requirements for this urinal are absolutely minimal compared with keeping mechanical flush systems operational and leak free."

Brian Yeoman
The University of Texas
Health Science Center at Houston

"In my professional opinion, I believe the use of Falcon Waterfree Urinals would result in a significant improvement in public restroom hygiene."

Charles P. Gerba, Ph.D.
Professor of Environmental Microbiology
University of Arizona

Environmental Benefits



Only around 0.3 percent of the water on earth is usable by humans, according to the U.S. Geological Survey. This fact emphasizes the importance of eliminating unnecessary water use. Each Falcon Waterfree urinal saves an average of 40,000 gallons (151,000 liters) of water each year. That is the equivalent of nearly nine full tanker trucks of water that could be used for more essential purposes.

Plus, with waterfree urinals, water does not have to be pumped to or from the urinal. This saves energy, which in turn reduces carbon dioxide emissions associated with energy production – emissions that contribute to global warming.

In addition, Falcon Waterfree products lessen the demand placed on wastewater treatment plants. By freeing up plant capacity, they help reduce the risk of sewage overflows.

Finally, Falcon Waterfree urinals promote the water conservation goals of the LEED Green Building Rating System.

By conserving fresh water supplies with Falcon Waterfree urinals, you and your organization can make a significant contribution toward a more sustainable future.

"(Zero water consumption) urinals may reduce the risk of bacterial and viral exposure. They are clearly more economical to install and maintain, and save considerable water and are therefore better for our environment."

Edward L. Schnieder, M.D.
Professor of Medicine, Keck School
University of Southern California

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UNIVERSITY OF SOUTHERN CALIFORNIA

Planning Checklist: Benefits of Going Waterfree

Falcon Waterfree urinals offer numerous benefits that will make your job easier and help fulfill your strategic facility plan.

Falcon Waterfree Urinals (compared to manual and automatic flush urinals)

Cost

- ☑ Lowest initial product cost
- ☑ Lowest installation costs – fewer materials, less labor
- ☑ Lowest operating costs – zero water consumption, negligible sewer charges, and no need for odor-control products
- ☑ Low maintenance costs – replace the cartridge three to four times per year
- ☑ Reduce vandalism and eliminate floods – no water supply, valves, or sensors to be tampered with

Hygiene

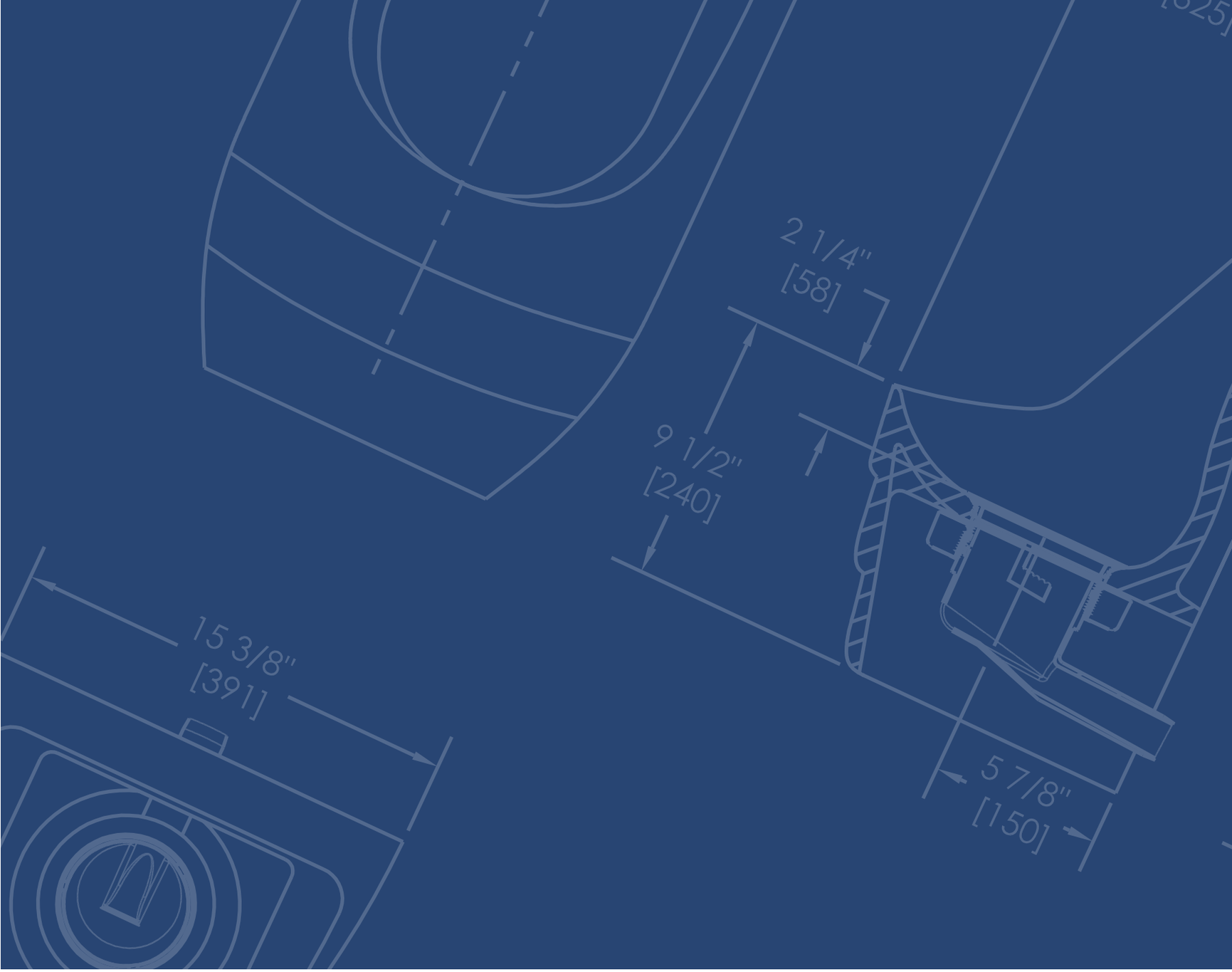
- ☑ Touch-free operation
- ☑ Odor-free fixture
- ☑ Bacteria reduction through elimination of water and flush plumes

Environment

- ☑ Water conservation – an average of 40,000 gallons per year, per urinal
- ☑ Reduction in the use of harsh cleansers
- ☑ Energy savings by avoiding water/waste pumping and sewage treatment

Do all of these benefits apply to your facility? It's very likely – and it's easy to find out. Just contact us to request a proposal. With a few facts from you, we can quickly respond with a proposal that includes a customized savings projection.

We'll help you draw up a blueprint that meets your economic, sanitation, and environmental goals.



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