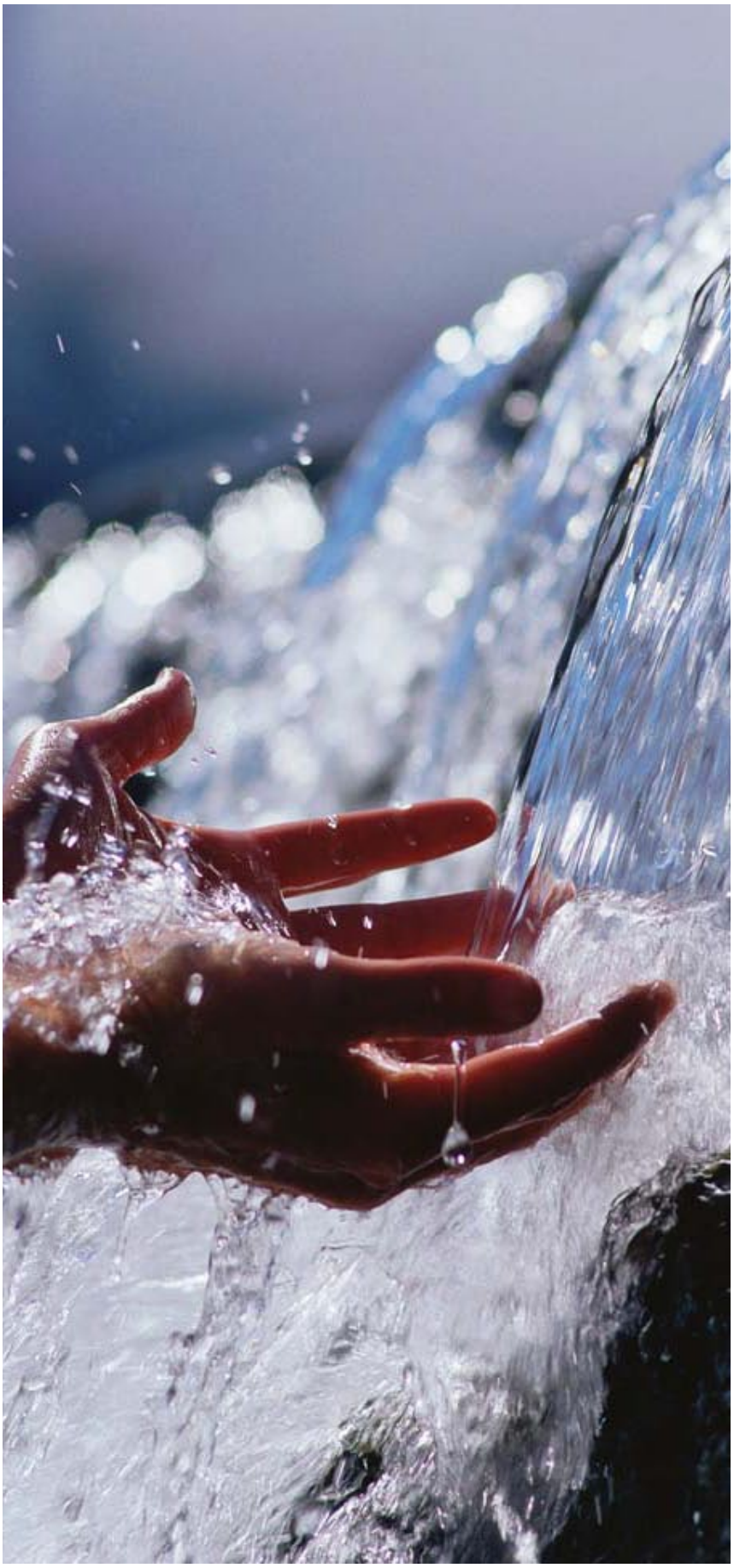
Simple. Safe. Superior.

FALCON
WATERFREE TECHNOLOGIES

The ultimate test of waterfree urinals is the real-world use of more than 100,000 Falcon Waterfree urinals. In addition, government agencies, academic institutions, and private laboratories have conducted extensive controlled testing. This independent testing confirms that Falcon Waterfree urinals provide significant environmental benefits, produce less odor, are more hygienic, and are more resilient to use and abuse than flush urinals.



Environmental Benefits of Falcon Waterfree Urinals

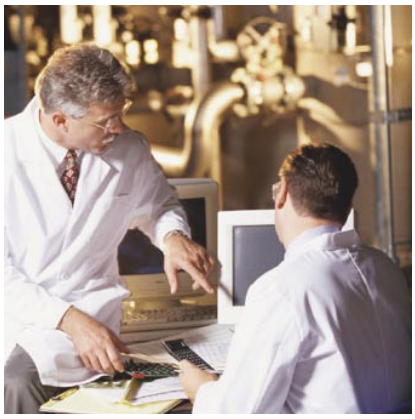
Only around 0.3 percent of the water on earth is usable by humans, according to the U.S. Geological Survey. This fact emphasizes the importance of eliminating unnecessary water use. Each Falcon Waterfree urinal saves an average of 40,000 gallons (151,000 liters) of water each year. That is the equivalent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

Plus, with Falcon technology, water does not have to be pumped to or from the urinal. This significant energy savings dramatically reduces carbon dioxide emissions – 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, you can make a significant contribution toward a more sustainable future.



Environmental Benefit: Reducing Greenhouse Gas Emissions

Using less water reduces the amount of energy required for transport and treatment, which in turn decreases the production and emission of greenhouse gases.

Test of Waterfree Urinals by PAC/IS for DaimlerChrysler (2004)

The energy reduction that is a direct result of the use of 14 Falcon Waterfree urinals has a global warming potential (GWP) benefit of reducing CO2 production by 1.3 Tons (661 m^3).

- 14 urinals
- Frequency of Use = 541,920/yr
- Water savings
  = 2.7 Liters (0.7 gal) per use
- GWP CO2 reduction
  = 1.3 Tons (661 m^3)

U.S. Embassy in Japan Calculations of CO2 (2003)

- CO2 emissions reduction
  = 26.88 KgC/year per urinal
- Maximum reduction
  of CO2 emissions
  = 10,337 metric tons C/year (based upon retrofit of urinals in Japan)

Improved Hygiene: Scientific Testimonial

Saint Louis County Public Health and Human Services Department (2006): An air sampling method was used to collect bio-aerosols containing bacteria. The test results obtained suggest a large difference in Colony Forming Units (CFU's) with more than 3-times more aerosolized bacteria resulting from waterflushed urinals, compared to waterfree.

		CFU/M^3	
Item	CFU	Result	DL
Waterfree urinal #1	2	13	7
Waterfree urinal #2	4	27	7
Waterflushed urinal #1	22	147	7
Waterflushed urinal #2	12	80	7

3 times more aerosolized bacteria from waterflushed urinals when compared to waterfree urinals

Saint Louis County Public Health and Human Services Department

Pacific Northwest National Laboratory for the United States Department of Energy (2003): Working in cooperation with the Oregon Department of Energy and under the auspices of the Department of Energy's Rebuild America program, Oregon State Parks requested the independent assistance of Pacific Northwest National Laboratory in assessing ammonia odor from non-water urinals. The results from testing at selected Oregon State Parks show that odor from waterfree urinals is equal to or less than that of waterflushed urinals.

Number of Samples	NH_3
23	0 PPM
6	1 PPM
1	2 PPM

No detectable odor from waterfree urinals

Pacific Northwest National Laboratory

Shanghai Environment Project Design Institute (2003): The total number of bacteria in waterfree urinals tested is 5 times less than the tested waterflushed urinals. Off-odor (NH3 and H2S) tests showed waterfree urinals to produce less odor than waterflushed urinals.

Item	No. of Bacteria (no./ml)	NH_3 (mg/M^3)	H_2S (mg/M^3)
Waterfree urinal	2.7×10^3	0.321	ND
Waterflushed urinal	1.36×10^4	0.596	ND

5 times fewer bacteria and no detectable odor from waterfree urinals

Shanghai Environment Project Design Institute

UCLA (2003): Testing based on measurements from actual usage on campus.

- The collected data indicated that the cell count per area of measure in Falcon Waterfree urinals is l.
- None of the sampling data approached the lower threshold for human detection of 20 parts-per-million.

Fewer bacteria and no detectable odor from waterfree urinals

UCLA

Improved Hygiene: Scientific Testimonial

Charles P. Gerba, Ph.D.
Professor of Environmental Microbiology
Consultant to the World Health Organization and the
United States Environmental Protection Agency
Department of Soil, Water and Environmental Science at Arizona University
"Sanitation and Public Health Issues of Flush Type Urinals vs. Waterfree Urinals" 2003

In my professional opinion, I believe that the use of waterfree urinals would result in a significant improvement in public restroom hygiene. Flush type urinals are far more likely to be colonized by bacteria because of the greater presence of moisture, to serve as reservoirs for disease causing microorganisms, and to cause the widespread dissemination of microorganisms in a restroom because of the generation of aerosols during flushing.

"In contrast to the flush type urinals, I believe that waterfree urinals offer a major improvement in the sanitation of public restrooms."

The surfaces inside flush type urinals are kept moist by continual flushing. This moisture encourages the growth and survival of bacteria.

The inside of a flush type urinal is not a sanitary environment. Flushing does not eliminate all of the microorganisms present in the urinal. Our studies in a flush toilet show that a certain residual of microorganisms always remains, even after many flushes, because of the attachment of the microorganisms to the surfaces of the inside of the bowl.

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

I also conclude that the liquid in the cartridge trap is more than adequate to prevent sewer gases and associated microorganisms from entering the restrooms. This serves as a physical barrier to the movement of air from the sewer and that is all that is needed.

The waterfree urinal cartridges are designed with a trapping depth (2 3/8") that is consistent with the requirements of current plumbing codes (2-4" trapping depth), and thus afford the same level of protection as the water traps contained in traditional flush type urinals.

Improved Hygiene and Safety: Scientific Testimonial

Michael R. Hoffman, Ph.D.
Dean of Graduate School, California Institute of Technology
James Irvine Professor of Environmental Science
"Falcon Waterfree Organic Barrier vs. Water for Sewer Gas Flux"

Methodology:

"I have performed a detailed analysis of the relative efficiencies of a conventional water-based P-trap vs. the Falcon Waterfree barrier of a dual layer of urine covered by a long-chain branched aliphatic alcohol (i.e., the sealant) against the backward flux of sewer gases such as hydrogen sulfide (H2S) and methane (CH4) gases. I used fundamental data on the chemical composition of Pasadena tapwater (pH 8) and typical human urine (pH 4.5 to 8). In addition, I factored into account the effect of a lighter than water branched aliphatic alcohol such as 2-butyl-1-octanol (R = 0.83 g cm-3) covering a column of urine."

Conclusion:

The dual barrier systems provided in the Falcon Waterfree Technologies urinals are predicted to be 500 times more effective against the back migration of sewer gases as compared to conventional P-trap water barriers. The Falcon system, which uses a column of urine topped off by a layer of high molecular weight branched aliphatic alcohols, is a better barrier than tap water alone. Very similar reductions in water-to-air gas transfer rates have been documented in the scientific literature for oil coated water surfaces.

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

Resilient Performance: Scientific Testimonial

WRc-NSF Evaluation and Testing Center Report No. 1620799 (issued on behalf of the British Government in 2001): Testing of Falcon Waterfree urinals for odor and resilience to abuse.

Resistance to Stoppage
Urinal set up to manufacturer's specifications. Cigarette butts were added to the bowl along with water at a specified amount and the process was repeated until 20 cigarette butts were in.

Conclusion: No evidence of urinal clogging. Cartridge to be found to comply with ANSI Z124.9-1994 standards.

Tightness Test of Removable Trap
Cartridge was removed 50 times with the included tool. Pressure was provided to the trapway. Test was repeated five times.

Conclusion: After each test, there was no drop in pressure. Cartridge able to comply with ANSI Z124.9-1994 standards.

Replaceable Cartridge Test
Subjected cartridge to a number of rigorous physical tests.

Conclusion: No cracks, no failures.

A Global Focus and Presence

Today, our company conducts business on every continent. We manufacture in nine countries and have offices and affiliates in over 26 nations. We continue to build on this extensive international customer service network.

Falcon Waterfree urinals are manufactured and marketed in different regions of the world by recognized leaders in the plumbing and hygiene industry, including:

- **Falcon Waterfree Technologies:** the main brand of the technology behind the waterfree urinal, with offices in 14 countries.
- **Sloan Valve Company:** the leading designer and manufacturer of flushometers and other plumbing products.
- **American Standard:** the world's leading producer of bathroom and kitchen fixtures and faucets.
- **JohnsonDiversey:** a world leader in cleaning and hygiene products and solutions.

Several more regional leaders in the plumbing and hygiene industry have also joined our team of domestic and global marketing partners. Together, we have installed more than 100,000 Falcon Waterfree urinal systems to date, with an eye on replacing a healthy share of the more than 50 million water-using urinals already installed. It's the way we'll meet our vision: to promote conservation of the Earth's precious supply of fresh water and support sustainable resource management by becoming the leading urinal system provider in the world.

Science and Falcon Waterfree Executive Leadership

Michael Hoffman, Ph.D. - Chairman Science Advisory Board

Dr. Michael Hoffman is the James Irvine Professor of Environmental Science and Dean of Graduate Studies at the California Institute of Technology. Professor Hoffman has published more than 200 peer-reviewed professional papers and is the holder of 7 patents in various types of environmental chemistry. He is currently on the Editorial Board of Environmental Science and Technology, the Journal of Physical Chemistry, and the Scientific Advisory Board of the Max Planek Institute for Chemistry. Prof. Hoffman received the Alexander von Humboldt Prize in 1991 for research and teaching in environmental chemistry. In 1995, he was presented the E. Gordon Young Award by the Chemical Society of Canada for work in environmental chemistry. In 2001, Prof. Hoffman was presented the American Chemical Society Award for Creative Advances in Environmental Science and Technology. Dr. Hoffman received a B.A. in chemistry from Northwestern University, a PhD in chemical kinetics from Brown University, and post-doctoral training in Environmental Engineering at the California Institute of Technology.

Charles P. Gerba, Ph.D. - Science Advisory Board

Charles P. Gerba, Ph.D. is a Professor of Environmental Microbiology in the Departments of Microbiology and Immunology, Epidemiology and Biostatistics, and Soil, Water and Environmental Science at the University of Arizona. He has been involved in studying the environmental transmission of disease-causing microorganisms for more than 30 years and has published more than 500 scientific articles in this area. Dr. Gerba has conducted research since 1973 on public restroom hygiene and the transmission of disease in public restrooms, and has published results of this research in peer review journals. Dr. Gerba has served on the Pima County (Ariz.) Board of Health and as a consultant to the World Health Organization, the United States Environmental Protection Agency, and the Centers for Disease Control and Prevention. He is a member of the American Academy of Microbiology. After receiving his Bachelor of Science degree in Microbiology from Arizona State University, Dr. Gerba earned his Ph.D. from the University of Miami, Coral Gables, Fla.

Marc Nathanson, Chairman

Marc Nathanson is Chairman of Falcon Waterfree Technologies and Mapleton Investments, LLC., and Mapleton Communications. He served as Chairman and CEO of Falcon Communications, the nation's tenth largest cable television operator, from its formation in May, 1975 until it was sold in November, 1999 to Paul Allen's publicly traded Charter Communications, where Mr. Nathanson presently serves as Vice-Chairman. Mr. Nathanson is a former President of the California Cable Television Association and a member of Cable Pioneers. He is also a founder of the Cable Television Administration and Marketing Society and the Southern California Cable Television Association. In 1998, President Clinton appointed Mr. Nathanson to chair the Board for US International Broadcasting, which oversees Voice of America, Radio/TV Marti, Radio Free Asia, Radio Free Europe and Radio Liberty. Mr. Nathanson is a trustee of the Annenberg School of Communications at the University of Southern California, and a member of the Board of Visitors of the Anderson School of Management at the University of California, Los Angeles (UCLA). He also serves on the Board of the UCLA Foundation, and chairs the UCLA Center for Communications Policy. In addition, he is a member of the Council on Foreign Relations, the World Affairs Council, and the Pacific Council on International Policy. Mr. Nathanson holds a Bachelors degree from the University of Denver and a Masters degree in political science from the University of California, Santa Barbara (USCB) where he was a National Science Foundation fellow.

James Krug, President and CEO

James Krug has over 20 years of experience as a senior operations and business affairs executive, including positions with Paramount Pictures Corporation and the Walt Disney Company. Mr. Krug later formed a television and theatrical distribution company with the Walt Disney family. Prior to joining Falcon, he was Of Counsel to the law firm Berger, Kahn, Shafton, and Moss. Mr. Krug received his undergraduate degree from UCLA and his J.D. from Loyola Law School.

Ditmar Gorges, Executive Vice President

Mr. Gorges is the inventor of the Falcon Waterfree System. In 1995, Mr. Gorges filed the patent for the waterfree urinal system and later sold the technology to Mapleton Investments. Mr. Gorges came to the US in 1987 as Executive Vice President and COO for a subsidiary of the Bayer Corporation. Prior to this, Mr. Gorges worked as Project Manager at AS Construction AG, a leading German construction firm. Mr. Gorges holds a Master of Science degree in Civil Engineering, and an M.A. in Economics, from the Techniche Universitat in Berlin.

Falcon Waterfree Board of Advisors

Ron Gastelum, Chairman

Mr. Gastelum's is the retired President and CEO of the Metropolitan Water District of Southern California, the nation's largest water wholesaler. In addition, Mr. Gastelum is an attorney with 25 years experience in both public sector and in private practice focusing on corporate and environmental matters. His environmental practice has emphasized public water supply and waste management. Today, Mr. Gastelum develops new business ventures in the environmental field and serves on the Board of Directors of the Los Angeles Area Chamber of Commerce, the Los Angeles Children's Museum, and the Aquarium of the Pacific. Mr. Gastelum holds an undergraduate degree from Whittier College and law degree from UCLA.

Carl Covitz

Carl D. Covitz is Owner and President of Landmark Capital, Inc., a real estate development and investment company. Previously, Mr. Covitz served as the Secretary for the Business, Transportation & Housing Agency of the State of California. He was also Under Secretary, Acting Secretary for the U.S. Department of Housing and Urban Development. Mr. Covitz holds a Bachelor of Science degree from the Wharton School at the University of Pennsylvania and an M.B.A. from Columbia University.

Richard A. Gephardt

Richard A. Gephardt was first elected to represent Missouri's Third District in 1976. In 1984, Gephardt was elected Chairman of the House Democratic Caucus, the fourth-ranking Leadership position in the House. In 1987, he entered the 1988 presidential race, where he won the Iowa Democratic Caucus and helped frame the economic issues that dominated the election. In 1989, he was elected by his colleagues in the House to serve as their Majority Leader. In 1994, Gephardt was elected by his colleagues to serve as the House Democratic Leader, the top Democratic Leadership position in the House. Mr. Gephardt is currently a consultant to Goldman Sachs, and Senior Counsel at DLA Piper Law Firm. Mr. Gephardt is the CEO of a privately held strategic consulting firm, Gephardt and Associates, LLC. He is Honorary Chairman of The Gephardt Institute for Public Service at Washington University in St. Louis.

Albert Gore

Former Vice President Al Gore is Vice Chairman of Metropolitan West Financial, LLC, and a member of the firm's executive leadership team. He serves as a Senior Advisor to Google, Inc. In March 2003, he was elected to the Board of Directors of Apple Computers, Inc. Mr. Gore is a Visiting Professor at two universities in Tennessee, Middle Tennessee State University and Fisk University, and at UCLA. Mr. Gore was elected to the U.S. House of Representatives in 1976 where he served eight years representing the 4th District of Tennessee. He was elected to the U.S. Senate in 1984 and was re-elected in 1990. Mr. Gore was inaugurated as the 45th Vice President of the United States on January 20, 1993. Mr. Gore earned a degree in government with honors from Harvard University in 1969. He also attended Vanderbilt University's Divinity School and Law School.

Richard Riordan

Mr. Riordan is the 39th mayor of Los Angeles, serving from June of 1993 through June of 2001. Prior to this public service, Mr. Riordan was a successful attorney and businessman, having formed the law firm of Riordan & McKinzie during the early 1970s. Mr. Riordan holds a bachelors degree in philosophy from Princeton University and attended the University of Michigan where he earned his law degree.

Retired Army Lieutenant General Donald E. Rosenblum

Lieutenant General Rosenblum has 33 years of military leadership, which ultimately led to his command of the First United States Army with command and training readiness responsibility for approximately 300,000 Army Reserve and Army National Guard Forces in addition to several thousand Regular Army troops. Additionally, Lieutenant General Rosenblum has served through staff assignments primarily in operations, plans, and training. His assignments include three Pentagon tours: one with the Army's Office Chief of Research and Development; one with the Army's Deputy Chief of Staff for Operations and Plans; and another with the Joint Chiefs of Staff. Lieutenant General Rosenblum's final staff assignment was as the Deputy Chief of Staff, Training at the Training and Doctrine Command. Lieutenant General Rosenblum currently oversees the operation of Rosenblum & Associates, a consulting firm he began in 1985. He also serves on the Board of Directors of The First Financial Corporation (Columbia, South Carolina), and The Citadel Development Foundation.

Robert Shipp

Robert D. Shipp has over 30 years experience in consumer products manufacturing, marketing and distribution. He is Chairman of Ultra Pro LP, a manufacturer of plastic products. Previously, Mr. Shipp served as Corporate Officer and Vice President of Avery Dennison, a Fortune 500 company in the consumer products market. He was also President of 20th Century Plastics, a marketer of various office supplies with a focus on plastic products. He is also an active developer and manager of industrial and commercial real estate. Mr. Shipp holds a B.S. degree in Business Administration from the University of Southern California.

Michael Solomon

Michael H. Solomon is Chairman/CEO of M. Solomon & Associates, Inc., a management consulting firm with extensive experience in helping to improve profitability at under-performing companies. He has a vast background with more than 28 years of operating and transactional experience. He is founder and former Chairman and CEO of Breuners Home Furnishings Corporation, a retailer of home furnishings. He was also President and Owner of Stylus, Inc., a manufacturer of upholstered furniture, President of Krause's Sofa Factory, Executive Vice President and General Manager of the U.S. division of Max Factor Cosmetics, and President of Playtex Ltd. Mr. Solomon holds a Bachelor of Arts degree from Union College and a an M.B.A. from The Wharton School at the University of Pennsylvania.

FALCON
WATERFREE TECHNOLOGIES

www.falconwaterfree.com

We go to the ends of the earth to save water.

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