

ASHRAE STANDARD 188: Prevention of Legionellosis Associated with Building Water Systems



The American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) will soon be releasing ASHRAE Standard 188: Prevention of Legionellosis Associated with Building Water Systems. This new standard will provide a comprehensive guideline for property managers and facility managers to prevent potential outbreaks of Legionellosis, or Legionnaires' Disease (LD). The new standard involves the establishment of uniform practices for pro-active risk assessments and risk management of all water systems in a building including: cooling towers and evaporative cooling systems, potable water systems, decorative fountains, whirlpool spas, humidifiers, and any aerosol-generating equipment.

ASHRAE 188 applies to water systems in any human-occupied buildings, both new and existing (excluding single-family homes). Compliance with the standard requires facility owners and managers to conduct an annual survey of their buildings to determine associated risk characteristics. The building owner will identify the person or persons responsible for conducting the building surveys. There are several specific "risk factors" that relate to legionellosis in buildings; including the size of the building, the way the domestic hot water is stored and distributed to the building, the health status and age of the occupants, the presence of any aerosol-generating features or devices, and of course, the presence of cooling towers or evaporative condensers.

If one or more of these risk factors are present at a building, the facility manager must develop a management plan for Legionella control. This includes conducting an evaluation based upon the Hazard Analysis and Critical Control Point (HACCP) methodology that documents water system operation and maintenance and verifies monitoring and control. This approach adheres to the seven principles of HACCP, which involves a facility-wide hazard analysis, the determination of critical control points and limits, a way to monitor these control points, and action steps to correct and verify that the systems meet required standards.

A risk management team is developed consisting of multiple individuals, including at least one person on the owners/management team who understands the principles of HACCP, at least one person who understands the building water systems, water treatment professionals, and legionella risk management professionals. The number of team members is less critical than the expertise available for a successful HACCP plan.

Part of the ASHRAE 188 also includes the identification of potable water and utility water (non-potable) systems within the building. For each system, process flow diagrams need to be developed that show how the water is received, processed and delivered to end-point users within the building. The process flow diagrams also need to be confirmed by on-site inspections and used to identify control points (CPs) in the process. The HACCP team will then decide which control points are critical control points (CCPs), establish critical control limits, and a monitoring procedure for each critical limit. Corrective actions are developed to address deviations from critical limits. Finally, verification procedures are implemented to confirm that the corrective actions were successful.

The most common types of corrective actions against Legionella bacteria are chemical disinfection with a strong halogen (usually chlorine) and thermal disinfection (thermal shock/superheating). The most effective method of emergency disinfection is a combination of the two. Each type of water system will require a specific type of disinfection procedure.

The key to preventing all risks of Legionellosis in any building is testing and monitoring. Reliable, accurate testing for Legionella bacteria is the only way to identify and confirm the presence of Legionella. Regular testing and monitoring is also a critical component of a successful HACCP plan, and certified laboratory test results provide documented proof of owners and managers' due diligence. It will also help protect building owners and managers against the potential legal liability of an outbreak of Legionnaires' Disease.

The new ASHRAE 188 Standard provides facility managers with a detailed, comprehensive method for testing, monitoring and correcting any building issues relating to the prevention of Legionellosis in building water systems. Compliance with this standard will establish a new level for "best practices" in the property management industry.

NEW EMPLOYEES

Arc Water Treatment is pleased to introduce two employees hired in recent months:

Tonya Rouse came aboard last year to help in our Accounting Department. She is a fast learner and has gotten involved with many other office tasks to help in the office. Tonya came with a background as a payable specialist, and all-around accountant for a non-profit. Her great telephone skills enabled her to readily tackle accounts receivable, and that has transitioned to helping compile customer contact information for emailing the new work orders. Recently she covered all aspects of our accounting operation enabling another person to go on an extended vacation. We are delighted to have Tonya's contribution to these areas, as she's enjoying a flexible schedule that enables her to continue her studies at The Art Institute of Washington.

Ricky Repass was hired as a Service Technician early this year, and has rapidly learned the water treatment business so he was assigned to a route last month. His background includes plumbing (with a State license), work as a sprinkler fitter, and completion of technical school programs in both plumbing and HVAC. Ricky's skills with piping have already enhanced our ability to install water treatment equipment in existing buildings. Ricky's interests outside work include 4-wheeling, riding his Harley, target shooting, and we hear he's a fantastic chef on a BBQ or smoker.



(Left) Congratulations to Jack Atkisson for 20 years of service.

(Above Left) Tonya Rouse is the newest addition to the Arc support staff.

(Above right) Ricky Repass, Arc's newest Service Technician, with his service van.

20 YEARS OF EXCELLENT SERVICE!

Arc would like to congratulate and thank Jack Atkisson for 20 years of dedicated service at Arc. Jack has been a strong, steady, and committed service technician who treats every customer with professionalism and gives them that "personal touch". Jack epitomizes the "Arc Way" of performing his service duties, and has been a true representative of our company, always exhibiting the level of excellence we strive to achieve with our customers.

Jack is first and foremost a family man, with two children at home, and four graduated and off on their own. Those at home included his wife Melissa, and daughters Angela (9) and Isabel (8), so Jack enjoys evenings and weekends with all his girls.

Thank you, Jack, for your years of loyalty and dedicated service at Arc. We look forward to many more!

PMA'S PAST PRESIDENTS' AWARDS BANQUET



Arc Water Treatment earned the special designation and a Five-Star award from the Property Management Association for our contributions in 2011.



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Date: 4/04/12
Work Order: 661881
Technician: DANNY NICCOLI
Salesman: DAVID HOLLING

WATER TREATMENT SERVICE REPORT

Customer: ABC Management 161400 Job Site: 161411
123 Country Club Drive Suite 321
Any Town, MD 21212

Site Information: CONTACT MARK 443-666-7777 FOR ACCESS

COOLING TOWER SYSTEM(S)

Tests:	MOLYBDATE (PPM)	pH	CONDUCTIVITY (MMHOS)
Standards: Desired Ranges	0.4-1.2	7.0-9.0	600-1200
450 TON COOLING TOWER	1.2	8.3	1000

CLOSED LOOP RECIRCULATING SYSTEM(S)

Tests:	MOLYBDATE (PPM)	NITRITE (PPM)	pH	TDS (PPM)	GLYCOL (%)
Standards:	50-100 (C)	500-700 (C)	8.0	3500 MAX	FREEZE POINT
CLS	100.0		8.3	600.0	

CHEMICAL USAGE: GALLONS

Chemicals	04/12	03/12	02/12	01/12
CTS-M-2	2.5	2.0	2.0	2.0
ARSHS	2.5	2.5	2.0	2.5
ARSCP				
ARBSC	2.5	2.5	2.5	2.5
ARNIT				
CSM				
BULAB				
BRCWMAX				

TEST RESULTS HISTORY

DATE	SYSTEM	MOLYBDATE	pH	COND/COND	GLYCOL	FREEZE	CHLOR
04/04/12	C2450 CLE	1.2	8.3	1000.0	0.0	750.0	
3/02/12	C2450 CLE	1.1	8.4	1000.0	0.0	800.0	
1/05/12	C2450 CLE	1.2	8.1	1000.0	0.0	800.0	

service reporting goes paperless inside

The Region's Premier Water Treatment Company

ARC WELCOMES NEW CUSTOMERS

Arc is pleased to have signed up many new customers over the last few months. Many of them we were contracted directly by the owners, and in some cases by a property management company (as indicated in blue). Some of these distinctive properties include:

- 475 School St., SW
Washington, DC
[Buchanan Properties](#)
- 1030 N. Charles St.
Baltimore, MD
[Bigfoot HVAC](#)
- 2800 Wisconsin Ave Condo
Washington, DC
[Delbe Real Estate](#)
- 4403 14th Street, NW
4425 14th Street, NW
Washington, DC
[T. D. Walsh Realtors](#)
- Atlantic Sands Hotel
Rehobeth Beach, DE
- Broadstone Landmark
Alexandria, VA
[Alliance Residential](#)
- Courtyard by Marriott
Silver Spring, MD
- Episcopal High School
Alexandria, VA
- Fairfax Towers
Falls Church, VA
[Shapiro & Duncan](#)
- Government Buildings
Wicomico County, MD
- Hay Adams Hotel
Washington, DC
- Hilton Garden Inn
Washington, DC
[Environmental & Power](#)
- Hotel Madera
Washington, DC
[Kimpton Hotels](#)
- JHU Rome Building
JHU Nitze Building
Washington, DC
[Cassidy Turley](#)

- [Madison Bank](#)
Forest Hill, MD
- [NA Properties \(REHAU\)](#)
Leesburg, VA
- [Northwest Nursing & Rehab](#)
Baltimore, MD
- [Petroleum Fuel & Terminal](#)
Baltimore, MD
- [The Congressional Apts](#)
Washington, DC
[WISH](#)
- [The Residences at Station Square](#)
Arlington, VA
- [Park Bradford Condos](#)
Silver Spring, MD
[Zalco Realty](#)
- [Polytechnic Institute](#)
Baltimore, MD
[J.F. Fischer](#)
- [Sibley Memorial Hospital](#)
Medical Office Building
Washington, DC
- [St. Francis DeSales Church](#)
Washington, DC
[The Archdiocese of Washington, DC](#)
- [St. Raphael's School](#)
Rockville, MD
- [The Residences at Market Commons](#)
Arlington, VA
[Bozzuto Management](#)
- [The John Carroll School](#)
Belair, MD
- [Topaz Hotel](#)
Washington, DC
[Kimpton Hotels](#)
- [Windsor Plaza Condo](#)
Arlington, VA
[Cardinal Management](#)



Scott Skokan, Vice President of Bozzuto Management and past President of PMA, was the winner of Arc's raffle drawing at the PM Expo.

THE ANNUAL PMEXPO

The Property Management Association of Washington, DC held its annual PMExpo on April 19, 2012 at the Prince George's Sports and Learning Complex in Landover, Maryland, and Arc Water Treatment was again a key part of this show with our booth display.

This year's show was extremely successful for the Arc Sales Team. Attending the show was David Goldstein, President, David Hollingsworth, Vice President of Sales and John Saia, Sales Representative. The show was very popular, with more than 1100 attendees roaming the aisles visiting with the more than 200 vendors.

The Arc team had a great opportunity to visit with many of their existing customers as well as meet new property managers, facility directors and building engineers. This year, Arc concentrated on discussing the new changes that are occurring at Arc from the new Work Order design, new

David Goldstein shares a laugh with Sheldon Shapiro of Shapiro & Duncan at the recent PM Expo held at PG Sports Complex

chemicals, applications for dry chemicals, and feeding equipment innovations to the importance of preparing building owners and management teams of the new ASHRAE Standard 188 regarding Legionella testing.

Arc also held a raffle drawing for a new Kindle Fire to anyone who stopped by and filled out an information card. Thank you to all who stopped by and we truly appreciate all the kind words about our company and we want to sincerely thank everyone for helping Arc grow every year for the past 49 years.



Bob Turner of Allen & Rocks visits the Arc Water Treatment booth at the PM Expo this past April.



KEY CUSTOMER PROFILE Borger Management, Inc.

This column features one of our key, long-term customers for whom we've provided complete water treatment service for many years. We want to highlight the relationship as well as the service, as combined these reassure the customer that their HVAC systems are functioning reliably and efficiently.

Borger Management has grown since 1983 to manage over 4,500 rental apartment units, with 80% located in the Northwest and Northeast quadrants of Washington, DC. They specialize in urban high-rise and mid-rise buildings, where they create value for their clients by maintaining high occupancy rates. With today's city residents being more mobile and demanding of technological resources, Borger Management staff must adapt and react to their clientele.

Arc Water Treatment has been involved in treating HVAC systems in many of their buildings for over 25 years. These systems include cooling towers, chilled water systems, hot water heating systems, steam boilers, and other hydronic systems used to heat or cool their buildings. Currently we treat systems for Borger Management in over 30 of their buildings, and we have enjoyed an extremely close relationship with their property managers and building engineers in assuring that these systems perform efficiently and economically over the years.

It is hard to demonstrate more thoroughly the trust we have earned with Borger Management in taking care of their HVAC systems. Their engineers and building managers know that our Service Technicians will reliably be there on schedule to test the water operating in each system, to alert them about any leaks or unusual test readings, and to add treatment chemicals to further protect them from corrosion, scale and microbiological fouling. Reports of these visits are promptly forwarded to the respective building managers, who can readily verify the completeness of our work and maintain a file of HVAC system performance. This mutual relationship has served both our companies well, and we wish to thank the Borger family and management team for many years of reliance on Arc Water Treatment as their water treatment experts.

NEW SERVICE REPORT

Arc Water Treatment is taking a major step forward with automating a new Service Report and moving towards the "paperless age". This includes a commitment to improve customer service and communication, demonstrating that we continue to lead as the "Region's Premier Water Treatment Company".

Arc is implementing a new Water Treatment Service Report, which incorporates several significant improvements on how we test, treat, and report our water treatment service. This New and Improved version of our Water Treatment Service Report is an example of the professionalism and dedication that Arc brings to all our customers.

The new report combines many systems on a single page, which greatly reduces the amount of paper consumed, and makes it easier for you to see in one place all work we've done each visit. This Service Report shows the test results and chemicals applied to the cooling tower(s), closed loop recirculating system(s), and steam boiler system(s) on one page, with service histories for all systems summarized near the bottom of the page.

Arc's Service Technicians will record all test results in appropriate, well labeled blocks for each system, as well as the time and date of service. We've expanded the tests that they will conduct to include Hardness and Alkalinity for cooling towers as well as Make-Up Water tests for cooling towers and steam boilers. Once completed, they will request a signature from an available engineer or other building employee.

Perhaps the most significant step towards our "going green by reducing paper" is Arc will no longer leave a carbon copy of this form on site. Instead we have invested in new technologies that allow Arc to quickly email a PDF version of the service report directly to the Property Manager and/or the Chief Engineer. Your emailed copy will also include expanded comments made by the Service Technician on the status of each system. Arc realizes that the

transmission of this completed Water Treatment Service Report directly to building management will significantly improve

communication of system status in a way that can be readily understood, analyzed, and filed to support your needs to maintain effective control over your systems.

By upgrading our Water Treatment Service Report, Arc has greatly enhanced and distinguished our services to all of our customers.

SCOTT'S SERVICE TIPS

2. Run tests daily to check the quality of the water pH, molybdate, and conductivity.
3. Inspect the conductivity control panel daily and check for alarms or flow issues.

Arc Water Treatment services your building monthly, and if a problem develops between service visits, we hope your engineers spot it and report it to us, so we can send a Service Technician on a special visit to help prevent any scaling or damage being caused to your system.

We also urge you to schedule regular tests for Legionella bacteria, to protect your tenants and the public from any dangerous Legionella bacteria that might be growing in the cooling tower.

