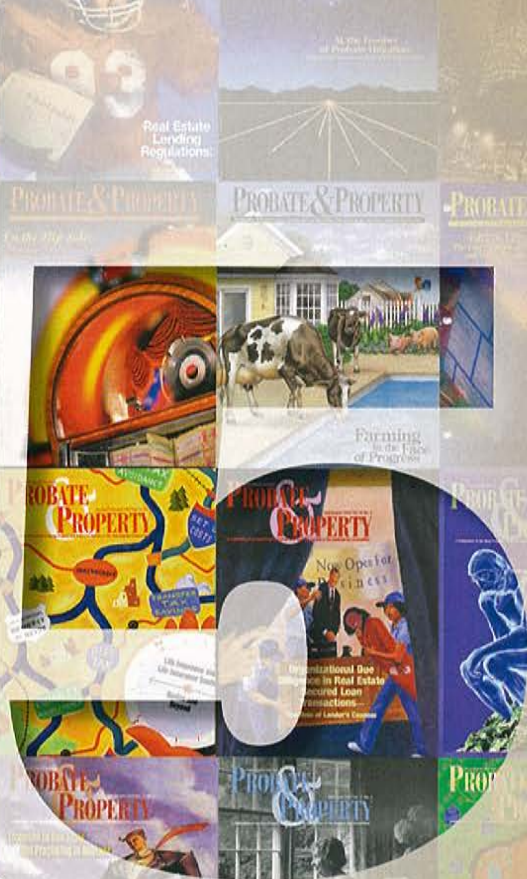


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## Years of Death and Dirt

# New Mandates for Building Water Systems Affect Legal Liability in Legionnaires' Disease Cases

By Garry R. Boehlert and Janet E. Stout

*Legionella* bacteria are commonly present in man-made aquatic environments and contaminate up to 70% of all plumbing systems. The Centers for Disease Control and Prevention (CDC) estimate that *Legionella* bacteria annually cause as many as 18,000 cases of Legionnaires' disease in the United States. CDC, *Surveillance for Waterborne Disease Outbreaks Associated with Drinking Water—United States, 2007–2008*, available at [www.cdc.gov/mmwr/preview/mmwrhtml/ss6012a4.htm?s\\_cid=ss6012a4\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6012a4.htm?s_cid=ss6012a4_w). More than 10% of those cases are fatal. *Legionella* bacteria also cause Pontiac Fever, a serious influenza-like illness. Together, these two water-borne illnesses are called Legionellosis. With increasing frequency the designers, owners, and managers of facilities believed to be the source of Legionellosis outbreaks find themselves defending claims and litigation demanding significant damages.

## Change to the Status Quo Will Affect Legal Liability

To date, there has been little uniformity in what steps, if any, engineers, architects, system designers, facility managers, and owners of commercial, institutional, and industrial buildings should take to guard against Legionellosis contracted from centralized water systems, water features, and cooling towers. That hit-or-miss approach is on the eve of dramatic change

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coming in the form of a new industry standard that is expected to shape how litigants and courts view legal liability in Legionellosis litigation.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) has authored proposed Standard 188, "Prevention of Legionellosis Associated with Building Water Systems." When adopted by ASHRAE, which is expected in the first quarter of 2012, this new standard will prescribe mandatory risk management practices to prevent Legionellosis. According to ASHRAE, the new standard is intended for use by those involved in the "ownership, design, construction, installation (including commissioning), management, operation, maintenance and servicing of centralized industrial and commercial building water systems." Standard Project Comm. 188, *Prevention of Legionellosis Associated with Building Water Systems*, ASHRAE, <http://spc188.ashraepcs.org/index.html> (Feb. 23, 2011). ASHRAE is simultaneously updating its Guideline 12-2000, "Minimizing the Risk of Legionellosis Associated with Building Water Systems," which will contain "how-to" recommendations to implement the risk management regime of Standard 188.

In the absence of a cohesive national approach to preventing Legionellosis, certain professional organizations (for example, the Allegheny County Health Department, the Veterans Health Administration, the New York State Department of Health, the Association of Water Technologies, the Joint Commission, CDC, and the Cooling Technology Institute) have published their own reference materials. Outside of the health care environment, however, those documents are, at best, suggestions to the industry. In a recent lawsuit, a court dismissed a \$20 million wrongful death Legionnaires' disease case, finding that "[s]uch guidelines and publications alone are not enough to establish the standard of care that professional management companies must exercise" and that "[p]laintiff has not produced any other evidence of the requisite standard of care, such as governmental regulations or industry

standards, that could perhaps establish the requisite element of duty." *Flaherty v. Legum & Norman Realty, Inc.*, No. 1:05-1492, 2007 WL 4694346, at \*14, \*15 (E.D. Va. Jan. 4, 2007), aff'd, 281 Fed. Appx. 232 (4th Cir. 2008). The new ASHRAE standard contains mandatory risk management practices that go beyond the suggested guidelines and practices in the publications currently referenced by the industry.

### **Legionnaires' Disease Defined**

Legionnaires' disease is a type of pneumonia. It got its name after diagnosis of the cause of an outbreak resulting in 34 deaths at the 1976 American Legion convention in Philadelphia. The disease is caused by the inhalation of aerosolized droplets or aspiration of drinking water contaminated by *Legionella* bacteria. Aspiration is choking such that secretions in the mouth (including bacteria-contaminated water) get past the choking reflexes and, instead of going into the esophagus and stomach, mistakenly enter the lungs. Once inside the lungs, *Legionella* bacteria have a perfect incubator to multiply and cause illness or death.

### **Application of Standard 188**

When formally issued, ASHRAE Standard 188 will apply equally to new and existing facilities and will fundamentally alter the obligations of designers, owners, and property managers responsible for water systems and cooling towers. The new standard is expected to have an equally dramatic effect on legal liability in Legionellosis litigation. If, as expected, Standard 188 is adopted in city, county, and state building codes, it will have the force of law. Even if not formally made part of a code, standards such as these are sometimes argued to establish best practices for an industry, which can affect how courts examine the applicable standard of care when negligence is alleged.

### **Approach Mandated by Standard 188**

Unlike prior guidelines, ASHRAE Standard 188 will establish specific methods of risk management. To comply with the standard, a building will first be

surveyed to determine its risk characterization. To determine applicability, all "human-occupied buildings, excluding single-family residential buildings" must be surveyed on an annual basis to determine whether one or more of the following risk factors exist:

- it includes multiple housing units with one or more centralized water heaters;
- it is more than 10 stories high (including levels below grade);
- it has one or more cooling towers or evaporative condensers that provide cooling or refrigeration for the heating, ventilation, air conditioning, and refrigeration system;
- it is an inpatient health-care facility or its occupants are primarily over the age of 65 or those receiving chemotherapy for cancer or bone marrow transplantation;
- it has one or more whirlpools, spas, water features, or devices that release aerosols (for example, ornamental fountains, misters, air washers, or humidifiers) either within or on its premises; or
- it receives incoming potable water containing less than 0.5 ppm residual halogen concentration such as chlorine.

If any of these risk factors is present, then the facility managers/owners must assemble a Hazard Analysis and Critical Control Point (HACCP) risk management team, including "at least one person who understands the principles of HACCP and at least one person who understands the building water systems." Such principles of hazard analysis and control have been widely used in other settings to prevent disease from infectious organisms transmitted from food and water and are prescribed by the World Health Organization for both food-borne and water-borne disease prevention.

### **Standard 188 Requires a Written HACCP Plan**

If one or more of the risk factors identified by ASHRAE exists, the HACCP team shall then be responsible

- to identify the end-point uses of potable and utility (non-potable) water systems within the building,
- to develop at least two process flow diagrams (one each for the potable water and utility water systems) that illustrate how the water is received, processed, and delivered to end-point uses within the building,
- to confirm that the process flow diagrams are accurate by an on-site inspection,
- to use the process flow diagrams and hazard analysis summaries to identify control points (CPs) in the process,
- to decide which control points are critical control points (CCPs) and indicate them on the process flow diagrams,
- to establish critical control limits for each CCP,
- to establish a monitoring procedure for each critical limit at each CCP and the monitoring frequency,
- for each critical limit, to establish corrective actions to take when deviations from critical limits are found,
- to validate the selection of CCPs, critical limits, and corrective actions,
- to establish verification procedures, and
- to establish documentation and record-keeping procedures.

The new standard will require that a written HACCP plan be developed on a building-by-building basis. The plan must address issues such as maintenance procedures for each potable or utility water device identified in the process flow diagrams, cleaning and disinfection before commissioning any new system, restarting safely after a drained shutdown or any unplanned loss of energy, treatments following water supply interruption or breaks in water supply piping, and the method and frequency of temperature measurements in the water heaters and in the distribution system.

The standard will require that when an outbreak of Legionellosis has been associated with a potable water system or a suspected case of the disease

occurs, disinfection must be performed. The standard prescribes that the method of disinfection shall be thermal or chemical or a combination of the two. Point-of-use filtration may be used at certain taps and faucets.



### New Construction

For new construction or significant modifications to a potable water system, ASHRAE Standard 188 will require that drawings be reviewed to identify and address the following types of issues before construction begins:

- possible cross-connections between potable and nonpotable water,
- inadequate access to equipment with water storage capacity such as water expansion tanks, water hammer arrestors, and water heaters,
- dead legs or low flow portions of the piping system,
- stratification in hot or cold water storage tanks and heaters, and
- heat transfer from hot or cold water piping or heat rejection equipment resulting in heat gain in cold water piping or heat loss in hot water piping.

### Cooling Towers

For cooling towers, Standard 188 requires that drawings be reviewed and siting issues be addressed before construction. The standard also requires that each HACCP plan identify and address potential hazards related

to equipment siting that could allow cooling tower exhaust (drift) to infiltrate buildings. The plan must address water treatment procedures for control of microbiological activity, scale, and corrosion.

### Spas, Decorative Fountains, Misters, and Other Water Features

Even whirlpool spas, decorative fountains, misters, and other water features will be governed by the new proposed standard. For example, submerged lights will not be operated without a circulating pump. Also, air coolers, humidifiers, and air washers, which cool or humidify by generating small water droplets discharged into the air, require a number of special procedures to guard against the amplification and dissemination of *Legionella* bacteria.

### The Coming Change May Protect Your Clients from Legal Liability

Adoption of ASHRAE Standard 188 is right around the corner. It will be incumbent on building designers, owners, and managers to see that the water systems, cooling towers, and other water features of their buildings are designed, operated, and maintained consistent with the broad reaching requirements of this new standard crafted by the leading experts in the field. The new standard will give your clients the steps they need to implement a plan to control *Legionella* in their water and may protect them from the significant cost and inconvenience of unwanted health-related claims and litigation. ■