

CURRICULUM VITAE

PERSONAL

Tim Keane
Consultant and Proprietor
Legionella Risk Management, Inc.
31 Marian Circle
Chalfont, PA 18914-2700
Phone - (215) 996-1805
Fax - (775) 542-4560
E-mail – timke@verizon.net
Website – www.legionellae.org
LinkedIn - <http://www.linkedin.com/in/legionella>

FORMAL EDUCATIONAL EXPERIENCE

- U.S. Merchant Marine Academy Kings, Point, N.Y. – 1977.
Graduated with;
 - Bachelor of Science Marine Engineering
 - US Coast Guard License 3rd Asst. Engineer Unlimited Steam and Diesel
 - US Navy Reserve Commission

WORK EXPERIENCE

- 2000 – current. Consulting engineer with and President of Legionella Risk Management, Inc.
- 1999 – 2000 National Sales Manager Halox Technologies Inc., Bridgeport, CT
- 1987 – 1999. Director BetzDearborn, Trevose, PA
- 1985 – 1987. Director of Engineering, M/V Stuyvesant, Zapata Offshore Houston, TX
- 1980 – 1985. Project Engineer for New Ship Construction – M/V Stuyvesant, Zapata Offshore Houston, TX
- 1978 – 1980. Subsea Engineer - Semi-Submersible Offshore Oil Rig Fleet Zapata Offshore Houston, TX
- 1977 - 1978. - Maintenance Manager Semi-Submersible Offshore Oil Rig Fleet Zapata Offshore Houston, TX

PROFESSIONAL ORGANIZATIONS – MEMBERSHIP AND PARTICIPATION

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
 - Water Treatment Technical Committee
 - Program Chairman (past)
 - Legionella Standard 188 Development Committee
 - Committee Secretary (past)
- American Society of Healthcare Engineering (ASHE)
 - Cowriter of JCAHO / ASHE Waterborne Pathogen Regulatory Advisory
- Association for Professionals in Infection Control and Epidemiology (APIC)
- American Society of Plumbing Engineers (ASPE)
- American Water Works Association (AWWA)
- Association for Professionals in Infection Control (APIC)
- Cooling Technology Institute (CTI)
- International Association of Plumbing and Mechanical Officials (IAPMO)

GUIDELINES AND STANDARDS

- ASHRAE Standard Committee 188. Legionellosis- Risk Management for Building Water Systems. Jun 2005 – Present. Standard published Jun 2015. Revised update published 2018.
- ASHRAE Guideline 12-2000R, Managing the Risk of Legionellosis Associated with Building Water Systems. Jun 2011 – 2018. DRAFT document.
- IAPMO Water Efficiency and Sanitation Standard Dec 2017.
- Author of guideline titled Guidelines for Control of Legionella in Ornamental Water Features. Published by South Dakota Health Department Dec 2005.
- Coauthor of guideline review document. Regulatory Advisory on Waterborne Pathogens. Published by American Society of Hospital Engineering. Mar 2000.

AWARDS

- Outstanding Professional Achievement Award – US Merchant Marine Academy Alumni Association, 2017

PUBLICATIONS

1. Technical consultant for California Energy Commission Energy Research and Development Division "Distribution System Performance Assessment." 2018 PENDING
2. T Keane. The Domino Effect of ASHRAE 188. PM Engineer, Jan 2016.
3. T. Keane. Legionnaires' Disease: A Changing Tide in the Plumbing Industry. Viega Voice. July 2015.
4. W Hansen, JM Bartley, R Case, RL Dooley, T Keane, JR. Layman, B Meins, W Meins, PR Morey, AA Schillinger. Infection Control During Construction Manual: Policies, Procedures, and Strategies for Compliance Third Edition. HCPPro, Inc.; November 21, 2011.
5. MM Williams, TH Chen, T Keane N Toney S Toney, CR. Armbruster, WR Butler, MJ Arduino. Efficacy of Point-of-Use Membrane Filters to Prevent Exposure to Rapidly Growing Mycobacteria in Potable Water. Infection Control and Hospital Epidemiology, Sept 2011.
6. T Keane. Impact of ASHRAE Standard 188 on Legionnaires' Disease. Outbreak Control. HospitalityLawyer.com, Dec 2010.
7. T. Keane. Legionnaires' Disease – Nothing Ironic At All. HospitalityLawyer.com, Jan 2010.
8. RE O'Loughlin L Kightlinger, MC Werpy, E Brown, V Stevens, C Hepper, T Keane, BS Fields, MR Moore. Restaurant outbreak of Legionnaires' diseases associated with a decorative Fountain: an environmental and case control study. BMC Infectious Diseases, Aug 2007.
9. International Conference on Emerging Infectious Diseases (ICEID). Poster presentation - Outbreak of Legionnaires' disease associated with a decorative fountain in a restaurant. Atlanta, GA, Mar 2006.
10. T Keane. Guidelines for Control of Legionella in Ornamental Water Features. South Dakota Health Department, Dec 2005.
11. 65th Annual International Water Conference. Evaluation of chlorine dioxide in potable water system for Legionella control in an acute care hospital environment. Pittsburgh, PA October 17, 2004.
12. W Hansen, JM Bartley, R Case, RL Dooley, T Keane, P Morey, A Streifel, J Wideman, L Bost, B Meins, S McLaughlin. Infection Control During Construction Manual: Policies, Procedures, and Strategies for Compliance Second Edition. HCPPro, Inc., May, 2004.
13. T Keane. Water Watch - A look at water quality recommendations and requirements. Health Facilities Magazine, Jan 2004.
14. Z Pospichal, T Keane. A Technical Perspective on Controlling Legionella in Building Water Systems. International Hospital Engineering and Facilities Management Dec 2001.

15. T Keane. Legionnaires' Disease --- How Will the New JCAHO Guidelines Impact Healthcare. Paper published by American Society of Healthcare Engineering, Oct 2001.

INVITED PRESENTATIONS

- APIC Pine Tree Chapter, Portland ME. Presentation title: Complying with CMS Mandated Waterborne Pathogen Risk Management. September 2018
- Florida Department of Health Waterborne Pathogen Workshop. Presentation title: Legionellosis Risk Assessment and Water System Management. May 2018 Orlando, FL.
- National Academy of Sciences, Engineering & Medicine Committee on Management of Legionella in Water Systems. Presentation title: Successes and failures in cost effective public health policy related to control of *Legionella* in building water systems. May 2018 Washington, D.C.
- American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE). Seminar Water Treatment: Navigating the Changing Landscape of Regulations, Codes and “Best Practices” Around Legionella and Building Water Safety, Presentation Legionella: The Drive for More Effective Codes. Jan 2018. Chicago, IL.
- American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE). Seminar Water Treatment: The Overlooked Aspect of Commissioning Hydronic Systems, Presentation Potable Water and Other Indoor Aerosolizing Systems. Jun 2017. Long Beach, CA.
- Joint American Society of Plumbing Engineers (ASPE) and American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE) San Diego Chapter Presentation. ASHRAE 188, Legionella, & How It Pertains to Industry. Jan 2017. San Diego, CA.
- Canadian Institute of Plumbing and Heating - CIPHEX West Conference. Impact of Plumbing Code and Design on Legionnaire’s Disease Outbreaks. Nov 2016. Vancouver, BC.
- American Society of Plumbing Engineers (ASPE) Conference. Legionella: Compliance with ASHRAE 188. Nov 2016. Phoenix, AZ.
- American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE). Building Water Systems: Issues and Insights from Outbreaks of Legionnaires’ Disease Lessons Learned from Potable Water Outbreak Investigations. Jun 2016. St. Louis, MO.
- American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE). Plumbing System Design Criteria to Minimize the Potential for Legionella Growth - Lessons Learned from Failure Analysis. Jun 2016. St. Louis, MO.

- Emory School of Public Health International Conference From Watersheds to Shower Heads: A Workshop on Legionella Research and Policy. Panel Approaches for Control and Primary Prevention. May 2016. Atlanta, GA.
- International Emerging Technology Symposium. Risk and Mitigation (Panel Discussion) Water Quality, Water Savings and the Water-Energy Nexus Three Issues, One Solution? (Presenter) May 2016. Rosemont, IL.
- Canadian Mechanical and Plumbing Exposition (CMPX). Design Strategies to Minimize Microbial Growth in Commercial Plumbing Systems. Mar 2016. Toronto, ON
- American Society of Plumbing Engineers (ASPE) Webinar - Domino Effect of ASHRAE 188 on Waterborne Pathogens, Legionella and Plumbing Systems. Feb 2016. Chicago, IL.
- Consulting – Specifying Engineer (CSI) Magazine Webinar – Pathogen Control by Design. Nov 2015.
- American Society of Plumbing Engineers (ASPE) Symposium – U.S. Legionella Guidelines and Their Impact on Plumbing System Design and Operation Legionella. Oct 2015. St. Louis, MO.
- International Emerging Technology Symposium: Panelist – Panel Discussion Risk and Mitigation. April 2014. Arlington, VA.
- American Society of Plumbing Engineers (ASPE) Conference: Legionella: Codes, Compliance and the Impact on the Plumbing Community. May 2014. Chicago, IL.
- American Council for an Energy Efficient Economy (ACEEE) 2013 Hot Water Forum. Legionella - An engineering system and code problem. Nov 4, 2013. Atlanta, GA.
- American Society of Plumbing Engineers (ASPE) Philadelphia Chapter. Product Exposition & Technical Seminars. Unintended Consequences of Plumbing Codes and Regulations on Increasing Rates of Legionnaire's Disease. Oct 24, 2013. Philadelphia, PA.
- Plumbing Manufactures International (PMI) Fall Conference: Unintended Consequences of Plumbing Codes and Regulations on Increasing Rates of Legionnaire's Disease. Oct 14, 2013. Washington, DC.
- American Water Works Association (AWWA) Water Quality Technology Conference. Case Studies of Legionnaires' Disease Outbreaks Related to Municipal Water Disruptions. Nov 6, 2012. Toronto, ON
- Building Owners and Managers Association (BOMA) Legionella Roundtable Education Program for Property Managers, Asset Managers, Engineers, & Facility Manager Members of BOMA Baltimore: Legionella Compliance for Building Owners. June 14, 2012. Baltimore, MD

- International Emerging Technology Symposium. Impact of Electronic Faucets & Water Efficiency Guidelines on a Legionnaires' Disease Outbreak in a Healthcare Facility. May 2 2012. Washington, DC.
- Florida Section of American Water Works Association (FSAWWA) Fall Conference Workshop on Legionella. Legionella Issues in Potable Supply and Building Water Systems. Nov 29, 2010. Orlando, FL.
- American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE) Winter Meeting Technical Program. Best Water Treatment Practices in Commissioning Buildings: What Should Happen Between Installation and Building Occupation. Feb 2005. Orlando, FL.
- 73rd Annual Michigan Safety Conference. Protecting Patients, Customers & Employees from Legionnaires' Disease. Apr 15, 2003. Lansing, MI.
- Child Health Corporation of America: Path to Addressing the Problem of Waterborne Pathogens. Apr 24, 2003. Scottsdale, AZ.
- American Society for Healthcare Engineering (ASHE) of the American Hospital Association 39th Annual Conference : Selecting a Disinfectant to Control Legionella in Hospital Potable Water (July 29, 2002 – Nashville, TN)
- American Society for Healthcare Engineering (ASHE) of the American Hospital Association and the American Institute of Architects Academy of Architecture for Health 2002 International Conference and Exhibition on Health Facility Planning, Design, and Construction: Strategies to Minimize the Risk of Design & Construction Related Legionnaires' Disease. (Mar 26, 2002 – Orlando, FL)

Seminar Instructor

- Viega Seminar Series - Pathogen Risk Reduction by Design - Design strategies to minimize microbial growth in commercial plumbing systems.
 - 2018 – ASPE Phoenix, AZ (Mar)
 - 2017 – ASPE Boston, MA (Feb), ASPE Los Angeles (Jul), ASPE New York (Sep)
 - 2016 –San Francisco, CA (Mar), ASPE Charlotte, NC (May), Boston, MA (Jun), Nashville, TN (Oct)
 - 2015 – Buffalo, NY (Jan), ASPE San Diego, CA (Feb), Miami, FL (Mar), Washington, DC (May), Manchester, NH (May), Chicago, IL (Jun), Houston, TX (Sept), New York, NY (Oct)
 - 2014 – Los Angeles, CA (Mar), San Francisco (Mar), Chicago (May), Seattle (Jun), NYC (Aug), Washington, DC, (Aug) Dallas (Oct)
 - 2013 - Nashua, NH, Wichita, KS (Sept)
- EICC Seminar Series - Sensible Strategies for Environmental Infection Control in Healthcare Facilities

- University of Rochester Rochester, NY May 2006
 - Duke University Medical Center Durham, NC Nov 2005
 - Hershey Medical Center Hershey, Pa Mar 2005
 - Duke University Medical Center Durham, NC Mar 2004
 - Scripps Memorial Hospital LaJolla, CA Feb 2004
 - Texas Children's Hospital Houston, TX Oct 2003
 - St. Mary's Health System Knoxville, TN Oct 2003
- American Society for Healthcare Engineering (ASHE) of the American Hospital Association, faculty for a series of seven two-day workshops at various U.S. locations for 2003. Managing the Threat of Infection from Construction and Maintenance Related Activities in the Healthcare Environment.
 - 2003 - Durham, NC (Feb), Denver, CO (Apr), Woburn, MA (May) Milwaukee, WI (Jun)
 - 2002 – Phoenix, AZ (Apr), Baltimore, MD (May), New Orleans, LA (May), Seattle, WA (Jun), Tampa, FL (Sept), Chicago (Oct), Costa Mesa, CA (Nov)