RISK SIMPLIFIED

RESOURCES

CDC Toolkit for Controlling Legionella

Legionella: Drinking Water Fact Sheet

ASHRAE Building Readiness

QUESTIONS

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Legionella Risk in Vacant or Temporarily Unoccupied Buildings

Legionella is a type of bacterium most commonly found in water, including groundwater, fresh and marine surface water, and even potable (treated) water. The risk of Legionella is increased for buildings that are vacant or have been temporarily unoccupied because Legionella bacteria are relatively resistant to standard water disinfection procedures. In particular, the bacteria can quickly multiply when hot water is not circulated as it usually would in an occupied building.

There are over forty individual Legionella species, but most human infections are caused by a bacterium subgroup called Legionella pneumophila. It is spread through the inhalation of contaminated water vapor. When a faucet is turned on, water molecules can become airborne and make their way into the respiratory system, where infection occurs.

Once infected, Legionellosis can cause Pontiac fever or the more severe form known as Legionnaires' Disease. Symptoms range from a mild fever to a severe form of pneumonia which is why it is often misdiagnosed. Individuals with certain underlying health conditions are more at risk of developing a severe form of the illness.

Prevention

Legionella is commonly found in building components such as faucets, janitor closets, fountains, cooling towers, evaporative condensers, spas, and shower heads. To minimize the risk of Legionella bacteria, follow these best practices:

- Keep hot and cold water systems clean, either keeping the hot water above 122 °F or treating them with a suitable biocide to limit growth. Note, the maximum hot water temperature allowed for schools is 120 °F
- Reduce stagnation by flushing unused taps in buildings on a weekly basis
- Regularly maintain, clean, and disinfect cooling towers which may include the use of biocides
- Install drift eliminators to reduce the dissemination of aerosols from cooling towers and other HVAC equipment
- Maintain an adequate level of a biocide such as chlorine in a spa or decorative fountain along with a complete drain and clean of the whole system periodically
- Periodically test for Legionella bacterium

Identification

Before reoccupying a vacant building, first determine if the bacterium is present. A certified industrial hygienist should be consulted to determine an appropriate test and sampling procedure. Environmental samples can be collected by swabbing areas where water flows (such as faucets, janitor closets, fountains, cooling towers, evaporative condensers, and showerheads). Culture assays are the most common tests used to detect Legionella.

Treating Legionella

If present, consult a certified industrial hygienist for treatment procedures. Typically, the water will be disinfected in one or a combination of methods, including:

- Thermal - heating water to a high temperature for a certain amount of time and then flushing the system
- Hyperchlorination - a high dose of chlorine introduced into the water system
- Copper-silver ionization - a non-chemical and environmentally friendly disinfection technique
- Ultraviolet light sterilization - use of UV-C light in proper concentration to destroy bacteria
- Ozonation - a chemical water treatment by infusing ozone into the water
- Instantaneous steam heating

Summary

Legionella is a bacterium that can build up and cause mild to severe illness to anyone in the vicinity of where contaminated water has become aerosolized. While this can occur in an occupied setting, it is more commonly found when reoccupying a building that was previously vacant or temporarily unoccupied.

PRISM members are encouraged to consult with their facilities director and a certified industrial hygienist to determine the level of risk present at your workplace.

If you have any additional questions, please reach out to Risk Control staff.