

# STROUD DISTRICT COUNCIL

## CONTROL OF LEGIONELLA

### What is legionella?

Legionnaires' disease is a potentially fatal form of pneumonia caused by the inhalation of small droplets of contaminated water containing legionella. All man-made hot and cold water systems are likely to provide an environment where legionella can grow. Where conditions are favourable (i.e. suitable growth temperature range; water droplets (aerosols) produced and dispersed; water stored and/or recirculated; some 'food' for the organism to grow such as rust, sludge, scale, biofilm etc) then the bacteria may multiply thus increasing the risk of exposure. It is a simple fact that the organism will colonise both large and small systems so both require risks to be managed effectively.

### Aims

To ensure that: -

- all existing water systems, including those in domestic and commercial premises rented out by the Council, are properly operated and maintained so as to prevent or minimise the proliferation and dispersal of legionella bacteria
- the risks from legionella are properly assessed before any new water-based systems are introduced.
- officers involved in the investigation of legionella outbreaks and in taking water samples are not exposed to a risk of infection.

### Service Manager's Responsibilities

To:

- identify and assess sources of risks from water systems under his/her control.
- keep an accurate and up to date schematic diagram of the water systems in buildings under his/her control.
- ensure that plant and systems are thoroughly cleaned and maintained by a competent contractor on a regular basis.
- prepare a written scheme (or course of action) for preventing or controlling the risks.
- implement and manage the scheme – appoint a person to be managerially responsible (for example the facilities manager).
- keep records and checks to demonstrate that what has been done is effective.
- ensure that the risks from legionella are adequately assessed before introducing any new water systems.
- ensure that a suitable and sufficient risk assessment is carried out if staff are involved in the investigation of legionella incidents or outbreaks (including water sampling activities).
- ensure procedures are in place for the investigation of legionella incidents and water sampling and relevant employees understand how to avoid exposure.

### Facilities Manager's Responsibilities

To:

- implement the control measures identified in the management control programme (below) together with any other measures identified as a result of the plant/system risk assessment.

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- carryout appropriate checks and monitoring of critical control measures and ensure that the results of the monitoring is properly recorded (see monitoring recording sheets on the Hub).
- discuss the introduction of any new water systems (particularly spa pools or evaporative condensers) with the safety adviser at an early stage.

### Management of Hot and Cold Water Systems.

The Health and Safety Executive's Approved Code of Practice and Guidance "The Control of Legionella Bacteria in Water Systems" L8 and Technical Guidance HSG268 Part 2 contains detailed information on the management of hot and cold water systems. The HSE ACoP and guidance should always be referred to in cases of uncertainty.

The responsible person on-site has a duty to ensure the following essential practical maintenance and management actions are taken: -

- Operate hot water systems at or above the approved minimum temperature. Storage should be at greater than 60°C (unless this report indicates otherwise). Outlet (tap) temperatures should be greater than 50°C (unless fitted with a point of use temperature reduction mixer valve);
- Maintain cold water systems at or below the approved maximum water temperature. Cold water storage and outlet temperatures should be maintained below 20°C. It is permitted for the temperature to be 2°C greater than the incoming mains water temperature. However, this temperature should not exceed 25°C;
- Showers and outlets that are used very infrequently should preferably be identified by the Facilities Manager for removal if no longer required for operational reasons. If retained the shower should be run weekly for at least 2 minutes;
- Avoid stagnation of water in pipe-work. Ensure that all outlets are run on a regular basis. If a basin or other outlet is no longer used it should preferably be removed and the pipe-work serving it cut off and drained close to the source;
- Avoid potential contamination of the water systems e.g. storage of substances on top of cold water tanks;
- Avoid the creation of unnecessary aerosols of water e.g. the use of spray hose pipes or jet washers near air conditioning inlets;
- Clean and disinfect the system if you are aware of any activity or occurrence, which you believe, may jeopardise water hygiene or when recommended by the risk action plan e.g. work on a local mains water supply can create sediment in the water and require the tank to be cleaned and disinfected;
- Maintain records of temperature checks as specified below. The facilities manager is responsible for ensuring that hot and cold water temperatures are checked and recorded at key outlets, using the forms provided. When non-compliant water storage temperatures are identified the cause should be identified and rectified and the system subsequently subjected to a full clean and chlorination.
- Procedures should be put in place to ensure that water systems in empty properties are checked, flushed through and, if necessary, cleaned and disinfected prior to being re-occupied.

<b>COMPLIANCE TEMPERATURES</b>
<b>Domestic Hot Water Services</b>
Domestic hot water storage/flow temperature = Greater than 60°C
Domestic hot water return temperatures = Greater than 50°C
Non-mixed hot water outlets = Greater than 50°C
Mixed hot water outlets = Less than 43 (+ 2) °C (NB: hot supply to the TMV must be at least 50°C)
<b>Cold Water Services</b>
Cold water storage = Less than 20°C
Cold water outlets = Less than 20°C

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## Scalding Risk

Any remedial measures should be balanced against scalding risk. At 50°C the scalding risk is small for most people but it increases rapidly with higher temperatures. Temperatures should not be reduced below the compliance levels without discussing the matter with the Safety Adviser. The risk of scalding in premises occupied by elderly people (such as sheltered housing schemes) or buildings used or visited by young children may be quite high. In those instances, the use of thermostatic mixer valves close to the point of delivery is strongly recommended.

## Residential Property

The risks from hot and cold water systems in most residential settings are generally considered to be low owing to regular water usage and turnover. For example, risks would be considered to be negligible in a small house or flat, with small domestic-type water systems, where daily water usage is inevitable and sufficient to turn over the entire system; where cold water is fed directly from a wholesome mains supply (not stored water tanks); where hot water is fed from instantaneous heaters or low volume water heaters (supplying outlets at 50 °C); and where the only outlets are toilets and wash hand basins.

A simple assessment may show that there are no real risks or risks are being properly managed and no further action is needed. It is important to review the assessment in case anything changes in the system.

Implementing simple, proportionate and appropriate control measures will ensure the risk remains low. For most domestic hot and cold water systems, temperature is the most reliable way of ensuring the risk of exposure to Legionella bacteria is minimised, i.e. keep the hot water hot, cold water cold and keep it moving. Other simple control measures to help control the risk of exposure to Legionella include:

- flushing out the system prior to letting the property
- avoiding debris getting into the system (e.g. ensure the cold water tanks, where fitted, have a tight fitting lid)
- setting control parameters (e.g. setting the temperature of the hot water cylinder (calorifier) to ensure water is stored at 60°C)
- make sure any redundant pipework identified is removed.

The risk is further reduced where instantaneous water heaters (for example combi boilers and electric showers) are installed because there is no water storage.

Tenants should be advised of any control measures put in place that should be maintained e.g. not to adjust the temperature setting of the calorifier, to regularly clean showerheads and tenants should inform the landlord if the hot water is not heating properly or there are any other problems with the system so that appropriate action can be taken.

Where showers are installed, these have the means of creating and dispersing water droplets (aerosols) which may be inhaled causing a foreseeable risk of exposure to legionella. If used regularly (as in the majority of most domestic settings) the risks are reduced but in any case, tenants should be advised to regularly clean and disinfect showerheads. Instantaneous electric showers pose less of a risk as they are generally cold water-fed and heat only small volumes of water during operation.

Procedures should be put in place to ensure that water systems in void properties are checked, flushed through and, if necessary, cleaned and disinfected prior to being re-let.

## Other Risk Systems

In addition to evaporative cooling systems and hot and cold water systems there are other water systems that may produce aerosols, thus posing a foreseeable risk of exposure to legionella. Managers should contact the

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safety adviser if any spray water systems of the type listed below are to be introduced. This list is not exhaustive but examples include: -

- ultrasonic humidifiers/foggers
- spray humidifiers;
- air washers, wet scrubbers, particle and trivial gas scrubbers;
- water softeners;
- emergency showers, eyebaths and face wash fountains;
- sprinkler and hose reel systems;
- spa pools and whirlpool baths;
- horticultural misting systems;
- vehicle washers including automatic washers for cars, buses, lorries;
- fountains and decorative water features including those on display for sale;
- irrigation systems;
- fire, dust and odour suppression systems;

### Sampling water systems for legionella species

Individuals carrying out sampling should have received training in risk assessment and control of legionella. Precautions should be taken during sampling to minimise the production of and avoid exposure to aerosols (respiratory protective equipment should not be required). For example:-

- Cooling towers, evaporative condensers and spa pools should be switched off for at least 5 minutes before the system is approached. If the equipment cannot be switched off remotely advice should be sought before proceeding further.
- Taps should be run gently to reduce the amount of splashing. Shower heads should be enclosed in a new plastic bag with a corner cut off and water run, gently, into the sampling container through the bag. Alternatively, remove the shower head, being careful not to lose any water that may be in the shower head, and collect the sample from the shower hose.

Individuals who are in any of the high-risk groups (immunosuppression, transplant recipients and heavy smokers) should not be involved in sampling.

Samplers should also be trained in safe use of ladders and take appropriate safety precautions to prevent falling through ceilings when entering loft spaces. Individuals should wear personal protective equipment to avoid contact with or inhalation of insulation materials. Individuals should be trained in the recognition of asbestos and specialist advice should be sought if asbestos is present.

#### **Useful Information**

The Control of Legionella Bacteria in Water Systems: <https://www.hse.gov.uk/pubns/books/l8.htm>

Legionnaires' Disease: Technical Guidance: [HSG274 \(part 2: hot and cold water systems\).](https://www.hse.gov.uk/pubns/books/hsg274.htm)

<https://www.hse.gov.uk/pubns/books/hsg274.htm>

<https://www.hse.gov.uk/legionnaires/resources.htm>

<https://www.gov.uk/government/publications/legionella-species-sampling-of-households>

For further information regarding this document contact the Safety Adviser

**Phil Park - Extension No. 4471**

Health and Wellbeing Service

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