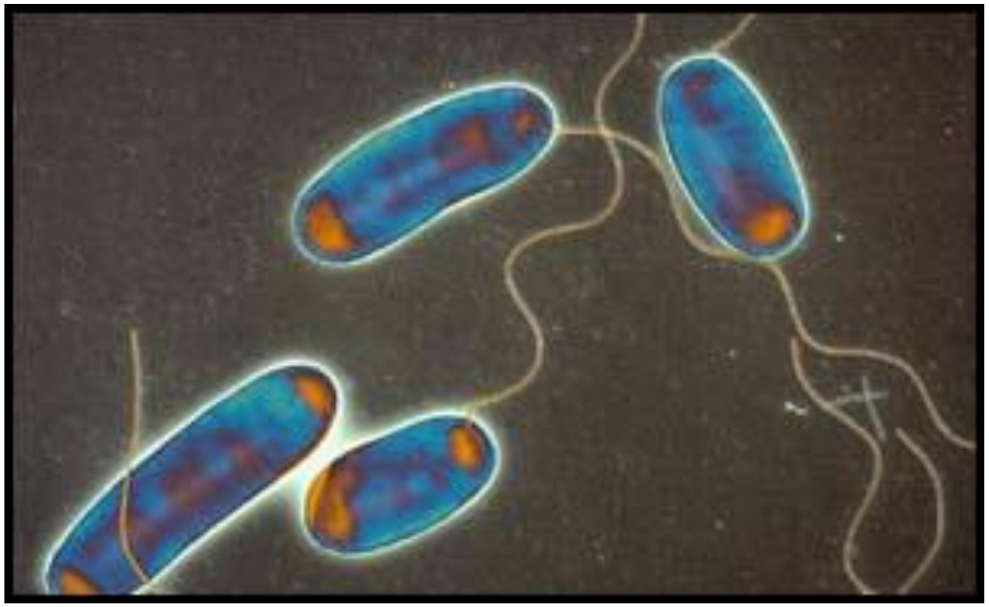
Management of Legionella



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Session objectives

- To ensure Managers and Delegated Responsible Persons are aware of the hazards from Legionella
- Understanding the Legal Requirements
- What is Legionella, where can it be found and how to prevent it.
- Understanding the Schematic
- Steps to be taken when Legionella is discovered
- The Legionella Log Book and documentation requirements

This training is not about physically testing for Legionella. It is about the management of Legionella.

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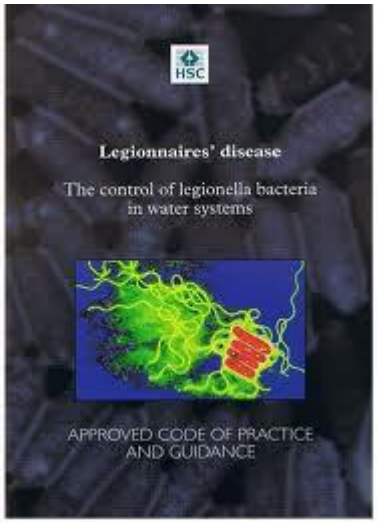
Legislation



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Legislation

- Health & Safety at Work etc Act 1974 (HSAWA)
- Management of Health & Safety at Work Regulations 1999 (MHSWR)
- Control of Substances Hazardous to Health Regulations 2002 (COSHH)
- The Notification of Cooling Towers and Evaporative Condensers 1992
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR)

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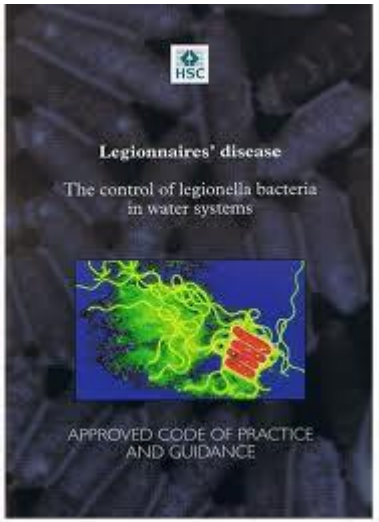
The Control of Legionella Bacteria in Water Systems ACoP L8

- Appoint a person to be managerially responsible
- Identification and assessment of risk (risk assessment)
- Prepare a scheme for preventing or controlling the risk (Safe system of work)
- Implement, manage and monitor
- Maintain Legally compliant Documentation



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Why does it matter ?

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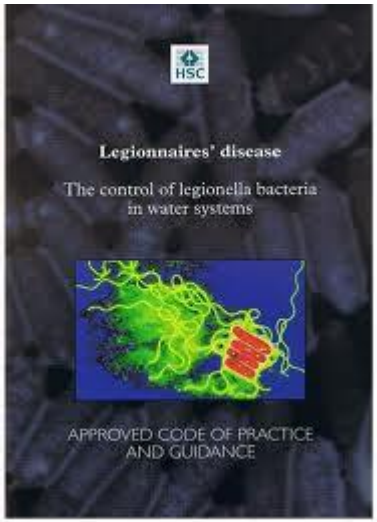
The HSE views Legionnaires' Disease as preventable

- It's the Law
- Cost
- Prevent harm



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- 2002 Nottingham hotel successfully prosecuted after guest dies of Legionnaires' disease.
- 2004 Barrow in Furnace outbreak. Council manager prosecuted after deaths.
- 2011 Legionella found in water systems on trains in Scotland.
- April 2012 Outbreak in Scotland, several dead, source not currently found.
- July 2012 Outbreak in Stoke-on-Trent,1 dead, investigations ongoing, linked to a hot tub.

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What is Legionella?

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Background

American Legion Convention in 1976

Bellvue Stratford hotel in Philadelphia

182 identified cases with 29 associated deaths

Bacteria discovered by Dr Joseph McDade

Identified that this bacteria was common in water and soil

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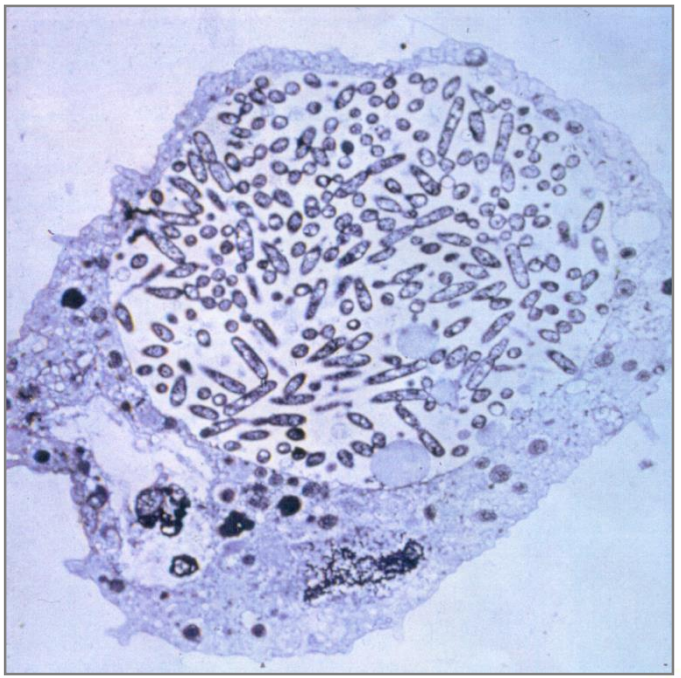
Legionella Bacteria



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Legionnaires' Disease

Between 320-375 cases per year

- Under reporting is believed to occur
- *Legionella Pneumophila* accounts for most cases
- At least 50 other species are known (Stoke on Trent is described as an 'unusual strain')

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How legionella multiplies

- Favourable pH & temperature **20 – 45°C**
- Ideal is **37°C** (human body)
- Stagnation provides time for multiplication
- Key nutrients are free iron & L cysteine
- Biofilm protection

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Infection and symptoms

- Inhalation of Bacteria
- Incubation Period **2-10 Days**
- Can be diagnosed but difficult to
  - severe pneumonia: dry cough, diarrhoea, vomiting, breathing difficulty, high fever, chills,
  - headache, some become confused or delirious
- Fatality rate is about **12%**
- Can be treated effectively with antibiotics

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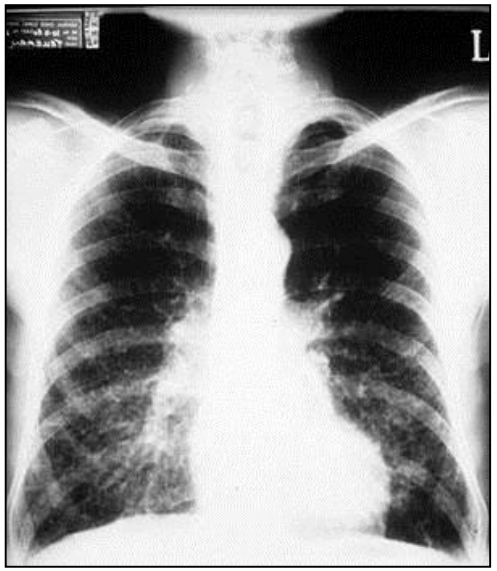
Legionella - Who Is at Risk?

- Increasing age, especially over 45
- Gender; men
- Smokers, alcoholics
- Chronic respiratory or kidney disease, diabetics, cancer sufferers
- Plumbers, maintenance workers, cleaners and caretakers



Legionella cannot be identified by visual examination!

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Where Legionella can be found

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Hot and cold water systems

- Cooling systems (if applicable)
- Domestic water services
  - Hot water systems
  - Cold water systems
- Spa Baths, Hot Tubs, Showers
- Other systems

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Cold Water Storage Tanks

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Types of water heaters

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Showers

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Prevention

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Risk Assessment

Reviewed At least every 2 years or when No longer valid e.g.

- Changes to the use of the building
- Availability of new information
- Control measures are no longer effective
- Case of Legionella associated with system
- Changes to the system or its use
- High risk groups

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Management of Legionella Bacteria

SERAM database used to record Legionella control measures

Legionella survey for site

Responsibility of Building Responsible Person to inform Corporate Maintenance Management (CMM) if alterations to plumbing system or change of use of building.

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Water Systems checks

- Weekly – All outlets flushed
- Monthly – hot and cold temperature checks.
- Quarterly - shower cleaning
- Six monthly - CWS Tank temperatures
- Annually - CWS Tank inspections, calorifier checks
- Other systems as required

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Target L8 Temperatures Are:

- Hot water storage – At all times Minimum **60°c**
- Hot water secondary return – At all times Minimum **50°c**
- Unprotected hot water outlets and hot pipe work serving thermostatic mixing valves **50°c** or greater within one minute of opening the associated hot or mixed water outlet.
- Cold Water outlets and or pipe work – Less than **20°c** within two minutes of opening the outlet

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Dirty Tanks = Clean & Disinfect

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Management & Training

- ✓ Inadequate management,
- ✓ lack of training and
- ✓ poor communication

has been identified as contributory factors in all outbreaks of Legionnaires

Those who are appointed to carry out control measures and strategies should be suitably informed, instructed, trained and their competency assessed

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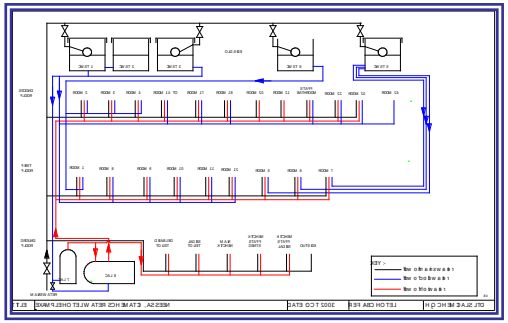
Understanding the Schematic



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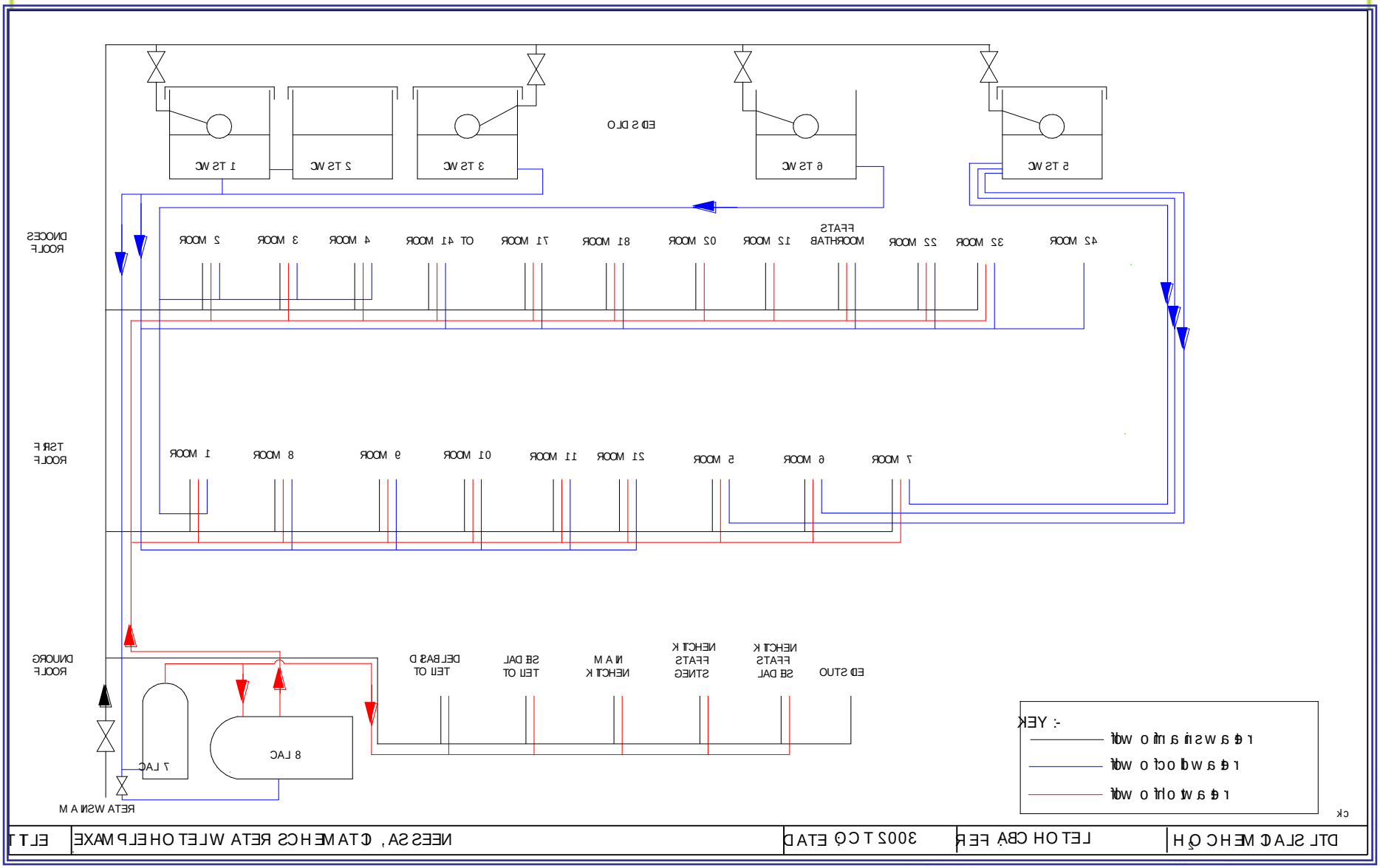
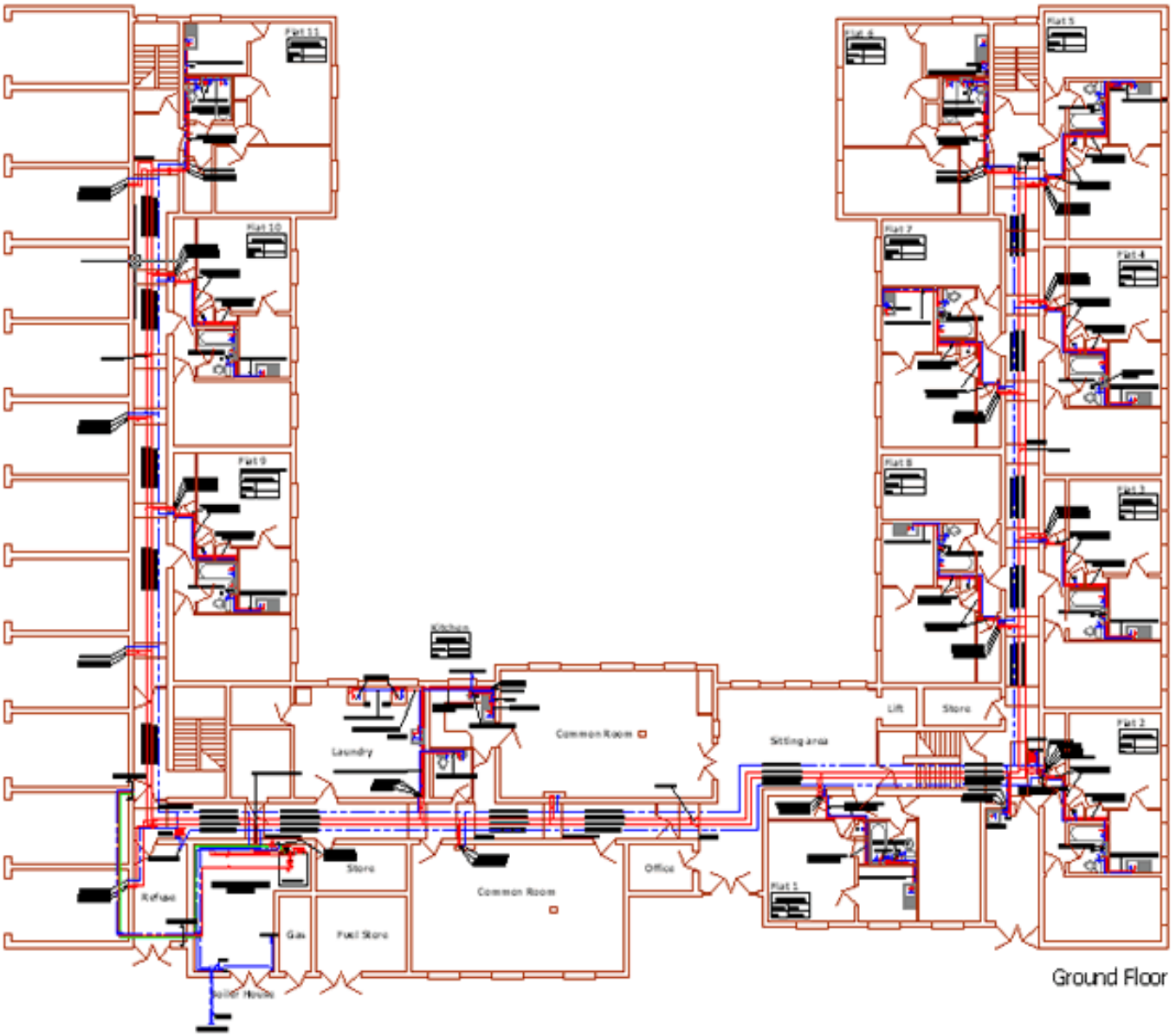
Schematics examples




Flat 11
Flat 10
Flat 9
Kitchen
Laundry
Common Room
Sitting area
Lift
Store
Flat 6
Flat 5
Flat 7
Flat 4
Flat 8
Flat 3
Flat 2
Flat 1
Refuse
Store
Common Room
Office
Gas
Fuel Store
Boiler House
Ground Floor

Testing

Legionella testing will not normally be required in a typical office environment, however there are many circumstances where sampling is advocated.

For example where temperatures cannot be controlled within the desired range.

Furthermore, Legionella sampling will demonstrate that the control scheme is working effectively and will provide employers with documented evidence of the quality of water at their sites.

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Monitoring for Legionella

It is recommended that this should be carried out:

(a) in water systems treated with biocides where storage and distribution temperatures are reduced from those recommended.

This should be carried out on a monthly basis. The frequency of testing should be reviewed after a year and may be reduced when confidence in the efficacy of the biocide regime has been established.

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(b) in systems where control levels of the treatment regime (e.g. temperature, biocide levels) are not being consistently achieved. As well as carrying out a thorough review of the system and treatment regime, frequent samples e.g. weekly, should be taken until the system is brought back under control.

(c) when an outbreak is suspected or has been identified or

(d) in places the immunologically compromised are present.

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Samples should be taken as follows:

cold water system –

from the cold water storage tank and the furthest outlet from the tank. Samples may also be required from outlets in areas of particular concern, e.g. in hospital wards, care homes, etc. with ‘at risk’ patients.

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hot water system –

from the Calorifier outlet or the nearest tap to the Calorifier outlet, plus the return supply to the Calorifier or nearest tap to that return supply.

Samples should also be taken from the base of the Calorifier where drain valves have been fitted.

The furthest outlet from the Calorifier should also be sampled.

Samples may also be required from outlets in areas of particular concern, e.g. in hospital wards, care homes, etc. with ‘at risk’ patients.

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What do you do if you get a Legionella positive result?

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Do not panic!

If Legionella is identified in your system there are many measures that you can take to eradicate it, such as:

- thermal disinfections,
- chemical disinfections and
- temperature management

You do not need to report a Legionella positive result to the HSE.

If you obtain a Legionella positive result and need advice or support contact Steve Bacon.

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We recommend that ALL hot and cold water outlets without exception are flushed for a minimum of 2 minutes daily until a clear Legionella sample is received.

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Legionella - Effective Management

- Identify where it is present – hot/cold water system, air conditioner, etc.
- Assess the condition – how bad is the infestation
- Determine likelihood and severity of exposure
- Management plan

SERAM & Log Book together form the management plan and must be kept up to date and signed where identified.

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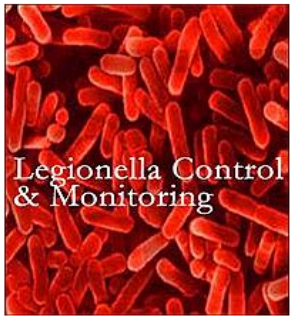
Further Information

Legionella Management - The Control of Bacteria in Hot and Cold Water Systems

This section of the safety manual gives information for managers on what is needed to comply with City Council requirements. More detailed information on this subject can be found within the Downloads section.

The Manager (duty holder) has to ensure that a robust system for water management is in place within their premises to control the levels of Legionella within their water system. The Duty Holder must also ensure that the delegated persons they have identified, are able to undertake their duties.



Manager (Duty Holder) Information

- Undertake training through ATERM to ensure you understand your responsibilities for water management
- Ensure that the testing regime identified is implemented
- Ensure that staff undertaking the testing (delegated person) have received suitable training
- Ensure the Legionella log book is kept up to date and the forms are completed by the delegated persons

Delegated Person Information

- Undertake the testing regime as per the training provided
- Complete the Legionella Log book in accordance with that training
- Complete the SERAM database in accordance with training received

SERAM Database

The City Council also utilises a on-line database system called 'SERAM' which is able to record specific data used in the monitoring of temperatures and other Legionella checks. You can access the SERAM database from the links section but if you do not have access to this database and consider that it would be useful, contact ATERM for advice and support

Employee Information

Downloads

- Guidance & Information: Legionella Management [101kb]
- ACOP - Legionnaires Disease: The Control of Legionella Bacteria in Water Systems (L8) [6Mb]

Related Pages

- Legionella Log Book Forms

External Links

- HSE - Legionella Management
- SERAM Database

Local intranet

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Outstanding Issues – Who to Contact

Legionella matters must be addressed:

- ✓ Issues concerning the Log Book or Legionella compliance issues, contact Steve Bacon Property Safety & Compliance 0115 87 63050 email: steve.bacon@nottinghamcity.gov.uk
- ✓ General Legionella queries, contact Corporate Safety Advice

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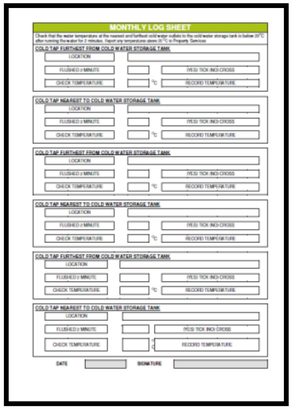
Legionella Log Book and documentation requirements



MONTHLY LOG SHEET

Check that the water temperature at the nearest and furthest cold water outlets to the cold water storage tank is below 20°C after running the water for 2 minutes. Report any temperature above 20°C to Property Services

COLD TAP FURTHEST FROM COLD WATER STORAGE TANK

LOCATION
FLUSHED 2 MINUTE | (YES) TICK (NO) CROSS
CHECK TEMPERATURE | °C | RECORD TEMPERATURE

COLD TAP NEAREST TO COLD WATER STORAGE TANK

LOCATION
FLUSHED 2 MINUTE | (YES) TICK (NO) CROSS
CHECK TEMPERATURE | °C | RECORD TEMPERATURE

COLD TAP FURTHEST FROM COLD WATER STORAGE TANK

LOCATION
FLUSHED 2 MINUTE | (YES) TICK (NO) CROSS
CHECK TEMPERATURE | °C | RECORD TEMPERATURE

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FLUSHED 2 MINUTE | (YES) TICK (NO) CROSS
CHECK TEMPERATURE | °C | RECORD TEMPERATURE

COLD TAP FURTHEST FROM COLD WATER STORAGE TANK

LOCATION
FLUSHED 2 MINUTE | (YES) TICK (NO) CROSS
CHECK TEMPERATURE | °C | RECORD TEMPERATURE

COLD TAP NEAREST TO COLD WATER STORAGE TANK

LOCATION
FLUSHED 2 MINUTE | (YES) TICK (NO) CROSS
CHECK TEMPERATURE | °C | RECORD TEMPERATURE

DATE | SIGNATURE

WEEKLY LOG SHEETS

RARELY USED OUTLETS
E.g. taps, WC's

- Flush all infrequently used hot and cold water outlets for at least 2 minutes to remove any stagnant water in the system.
  Please note: **'infrequently used outlets' may be defined as outlets that have not been used within the last seven days.**
- Record in the comments section time and dates that flushing procedures were completed and sign entry.

LOCATION	FLUSHED FOR 2 MINUTES	COMMENTS

DATE	
SIGNED	

MONTHLY LOG SHEET

Check that the water temperature at the nearest and furthest cold water outlets to the cold water storage tank is below 20°C after running the water for 2 minutes. Report any temperatures above 20°C to Property Services

COLD TAP FURTHEST FROM COLD WATER STORAGE TANK

LOCATION			
FLUSHED 2 MINUTE			(YES) TICK (NO) CROSS
CHECK TEMPERATURE		°C	RECORD TEMPERATURE

COLD TAP NEAREST TO COLD WATER STORAGE TANK

LOCATION			
FLUSHED 2 MINUTE			(YES) TICK (NO) CROSS
CHECK TEMPERATURE		°C	RECORD TEMPERATURE

COLD TAP FURTHEST FROM COLD WATER STORAGE TANK

LOCATION			
FLUSHED 2 MINUTE			(YES) TICK (NO) CROSS
CHECK TEMPERATURE		°C	RECORD TEMPERATURE

COLD TAP NEAREST TO COLD WATER STORAGE TANK

LOCATION			
FLUSHED 2 MINUTE			(YES) TICK (NO) CROSS
CHECK TEMPERATURE		°C	RECORD TEMPERATURE

COLD TAP FURTHEST FROM COLD WATER STORAGE TANK

LOCATION			
FLUSHED 2 MINUTE			(YES) TICK (NO) CROSS
CHECK TEMPERATURE		°C	RECORD TEMPERATURE

COLD TAP NEAREST TO COLD WATER STORAGE TANK

LOCATION			
FLUSHED 2 MINUTE			(YES) TICK (NO) CROSS
CHECK TEMPERATURE		°C	RECORD TEMPERATURE

DATE		SIGNATURE	

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WORK REPORT SHEET

SITE ADDRESS	
DETAILS OF WORK CARRIED OUT	
COMPANY NAME	

PRINTED		SIGNATURE	
SIGNATURE OF RESPONSIBLE PERSON		DATE	

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Appropriate Records

- Legally compliant
- Responsible persons
- Significant findings of the risk assessment
- Written scheme of actions and control measures
- Results of any monitoring, inspection, test or check carried out

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Typical log book records

- Risk Assessments
- Plans or schematic drawings
- Training records
- Lines of communication
- Current state of operation
- Checks, testing (relevant findings)
- Signatures of Responsible persons
- Visit log for contractors, council staff

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Why keep records?

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Why keep records?

- To demonstrate compliance with the law
- Show what control measures are being taken
- Monitor water temperatures, system cleanliness, bacteria levels (if appropriate)
- Show trend analysis learn more about the systems
- Review performance
- **Provide evidence**

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NCC Legionella Management Plan

- Survey (schematic)
- Risk assessment
- Monitor
- Restrict access or isolate
- Control of work & contractors
- Maintain log
- Duty holder?
- Inform
- Training
- Permit to work

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Session objectives

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Any Questions?

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