CONCEPT

Legionella Risk Assessment and Control in Building Water Systems

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Introduction:

Legionella risk assessment and control fails in many buildings for ordinary reasons: tepid calorifier outlets, dead legs left after refurbishment, unflushed guest rooms and schematic drawings that no longer match the pipework. Each gap lets Legionella grow in biofilm and reach occupants through shower and tap aerosols. This Core Concept course gives facilities, estates, hotel engineering and HSE teams the methods to survey building water systems, set temperature and flushing regimes, run disinfection and sampling, and respond to a suspected case. Participants leave with a Legionella Risk Assessment and Written Control Scheme Pack for their own premises.

Course Objectives:

- Identify the conditions that let Legionella multiply in hot and cold water systems, including stagnation, sediment, biofilm and temperatures between 20 and 50 °C
- Carry out a Legionella risk assessment of a building water system and produce an accurate schematic drawing of its storage, heating and distribution
- Write a control scheme that sets precautions, monitoring frequencies, responsible persons and corrective actions for each water asset
- Operate temperature monitoring, little-used outlet flushing and routine descaling within documented tolerances
- Select and supervise thermal, chlorine, chlorine dioxide and copper-silver ionisation disinfection and interpret Legionella sampling results
- Coordinate the building response to a suspected Legionnaires' disease case, from system isolation to stakeholder communication and record review

Target Audience:

- Facilities and property teams responsible for water hygiene across offices, residential blocks and mixed-use buildings
- Hospital estates staff responsible for water systems serving wards, theatres and augmented care areas
- Hotel and resort engineering teams responsible for guest room outlets, spa pools and kitchen water services
- HSE practitioners responsible for health risk assessments, contractor oversight and audit of water safety records
- Maintenance supervisors and plumbing technicians responsible for calorifiers, cold water storage tanks, mixing valves and outlet checks

Course Outline:

Day 1: Legionella Biology, Exposure Routes and the Building Water Estate

- Legionella pneumophila Ecology: Biofilm, Amoebae Hosts and the 20 to 50 °C Growth Band
- Aerosol Exposure Routes and Susceptible Occupant Groups in Hospitals, Hotels and Offices
- Risk Factor Register: Stagnation, Dead Legs, Sediment, Nutrients and Tepid Water
- Building Water Asset Inventory: Cold Water Storage Tanks, Calorifiers, Mixing Valves and Outlets
- Aerosol-Generating Equipment Overview: Showers, Spa Pools, Humidifiers, Fountains and Cooling Towers

Day 2: Guidance Frameworks and the Legionella Risk Assessment

- L8 Approved Code of Practice Structure: Dutyholder, Risk Assessment, Control Scheme and Review
- HSG274 Technical Guidance Applied to Hot and Cold Water Services
- WHO Water Safety Plan Approach Compared with ASHRAE Standard 188 Water Management Programmes
- Site Survey Method: Asset Tagging, Temperature Spot Checks and Condition Photographs
- Schematic Drawing Production: Flow Paths, Isolation Valves and Little-Used Outlet Marking

Day 3: The Written Control Scheme and Routine Monitoring

- Written Control Scheme Content: Precautions, Frequencies, Named Duties and Corrective Actions
- Temperature Regime Setting: Hot Water Stored at or Above 60 °C and Cold Water Below 20 °C
- Sentinel and Representative Outlet Temperature Monitoring Schedule and Tolerance Bands
- Little-Used Outlet Weekly Flushing Procedure and Flushing Log
- Shower Head, Hose and Thermostatic Mixing Valve Descale and Disinfect Routine

Day 4: Disinfection, Sampling and Outbreak Response

- Thermal Disinfection Procedure with Scald Risk Controls and Outlet Temperature Proof
- Chlorine and Chlorine Dioxide Dosing: Residual Testing, Contact Time and Dosing Records
- Copper-Silver Ionisation and Monochloramine Systems: Operating Checks and Known Limitations
- Legionella Sampling Plan: Pre-Flush and Post-Flush Samples, Chain of Custody and Result Interpretation
- Suspected Case Response Protocol: System Isolation, Remedial Disinfection and Stakeholder Communication

Day 5: Plant Room Inspection Walkthrough and the Control Scheme Pack

- Plant Room and Riser Inspection Walkthrough Against a Water Hygiene Checklist
- Hospital Estates Case: Augmented Care Ward with Low Hot Water Return Temperatures
- Hotel Case: Recommissioning Guest Floors after Low Occupancy and Stagnant Pipework
- Logbook and Records Audit: Responsible Person Appointment, Competence Records and Contractor Reports
- Legionella Risk Assessment and Written Control Scheme Pack Build and Peer Review

Skills You Will Gain:

- Legionella Risk Assessment
- Water System Schematic Drawing
- Temperature Regime Monitoring
- Outlet Flushing Management
- Water Disinfection Supervision
- Legionella Sample Result Interpretation
- Water Hygiene Record Auditing
- Legionnaires' Disease Incident Response

Why Attend This Course:

- Return with a Legionella Risk Assessment and Written Control Scheme Pack built from your own building's assets, drawings and temperature readings
- Find the dead legs, tepid outlets and unflushed rooms in your estate before a positive sample or a suspected case exposes them
- Brief managers and contractors with a clear division of duties between the dutyholder, the responsible person and the water treatment provider
- Compare water hygiene practice with peers from hospitals, hotels, offices and residential property portfolios

Conclusion:

Legionella is controlled in buildings by knowing every water asset, keeping water out of the growth temperature band, moving stagnant water and proving it all in records. The week moves from Legionella ecology and risk factors, through the L8 and HSG274 structure and the site survey, to the written control scheme, monitoring and flushing, then to disinfection, sampling and suspected case response. The final day applies these in a plant room walkthrough and case work, producing a Legionella Risk Assessment and Written Control Scheme Pack.