

WRITTEN SCHEME FOR CONTROLLING THE RISK OF EXPOSURE TO LEGIONELLA BACTERIA IN WORCESTERSHIRE COUNTY COUNCIL PREMISES

The following written scheme is issued in accordance with HSC Approved Code of Practice L8, and contains a summary of the requirements of the County Council's Water Quality Guidance document, to which reference should also be made.

(a) Schematic Diagram

The schematic diagram for the particular premises is contained in the Water Services Log Book, located at the premises. A further copy is held by the Water Management Officer in the Property Services Division at County Hall.

(b) Description of correct and safe operation of systems

The water services systems at the premises operate under the following conditions of temperature:

Cold water storage cisterns: below 20°C

Hot water storage: 60–65°C

Hot water distribution: 60–65°C

Hot water service return: 50°C or above

Hot water to be heated to 60–65°C before first draw-off takes place

All outlets to be flushed weekly unless used more frequently

Hot water outlets with blending valves set to 41-46°C as appropriate

(c) Precautions to be taken

Design and construction of new systems and alterations to be in accordance with HSC ACoP L8, BS6700, WCC Water Quality Policy and WCC Standard Mechanical Technical Clauses/Trade Preambles appropriate to the contract.

New and modified pipework to be disinfected and sampled as per BS6700 and WCC Water Quality Guidance document.

Hot water outlets which pose a scalding risk to be fitted with thermostatic mixing valves within 2 metres of point of draw-off or mechanical mixing valves with high temperature limit stops, depending on the risk assessment for the particular outlet and persons at risk.

Showers and outlets shall be flushed in a manner that removes the possibility of creating an aerosol. With flexible shower hoses, the spray head should be lowered temporarily into a bucket placed on a stool, and the water run to drain that way without creating an aerosol. In the case of fixed high-level shower heads, the most simple and practical way of achieving safe flushing is to fabricate a length of rigid plastic piping, of the required length to suit the shower, fitted with a tundish at the upper end. The tundish is positioned underneath the shower head and the discharged water is conveyed safely into the shower tray/outlet without generating an aerosol. With careful selection of the length of the pipe, the system can be made self-supporting.

(d) Checks to be carried out to ensure efficacy of scheme

Checks, their frequency and the persons responsible for carrying them out are in accordance with Table 1 of this document.

(e) Remedial actions to be taken

The expected results of the checks set out in Table 1, and the actions to be taken in the event of non-compliance, are listed below under the reference number for each check.

(1) No reporting appropriate.

(2) Temperature at blended outlets should be nominally 43°C but specifically in the range 39°C for bidets, 41-43°C for showers, washbasins and unattended baths, and 46°C for attended baths. Record discrepancies, call in Maintenance Contractor and request adjustment or replacement.

(3) Temperatures at sentinel taps should be within range and times stated in Table 1. Record discrepancies and report to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

(4) Temperatures at calorifiers should be within range stated in Table 1. Record discrepancies and report to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

(5) If shower roses and hoses cannot be cleaned or descaled effectively, call in Maintenance Contractor and request replacement.

(6) Temperatures at incoming main and storage tanks should be below 20°C in all cases. Record discrepancies and report to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

(7) Cold water temperature rise should be less than 2-3°C under constant flow conditions. Record discrepancies and report to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

(8) Water from calorifier drains should be clean and free from visible debris. Record discrepancies and report to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

(9) Calorifiers should be clean internally and free from sludge or heavy scaling. Record discrepancies and report to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

(10) Compare temperature of water from taps checked with original values measured at Risk Assessment. If any differ by more than 5 degrees or fall outside the control parameters in Table 1 (3) above, record discrepancies and report to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

(11) Cold water storage cisterns should be serviced in accordance with the requirements of the Mechanical Maintenance Service Contract. Record work done and discrepancies, and report to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

(12) Report any discrepancies between the schematic drawing and the physical arrangements of water services found on site to Area Engineer or Water Management Officer at Property Services, County Hall for investigation and remedial action.

Table 1

Frequency	Action	Responsibility
1. Weekly	Flush little-used outlets to drain without release of aerosols. Record.	Occupier
2. Weekly	Check and record blended water temperatures from thermostatic mixing valves where fitted. Confirm that stable temperature is attained within one minute.	Occupier (2)
3. Monthly	Check water temperatures at sentinel taps. Hot water >50°C after 1 minute, cold water <20°C after 2 minutes. Record.	Occupier (2)
4. Monthly	Check calorifier temperatures. Flow 60°C, return >50°C. Record.	Occupier (3)
5. Quarterly or as necessary	Dismantle, clean and descale shower heads and hoses. Record.	Occupier (1)
6. Six monthly	Measure incoming water temperature to cold water cisterns and water temperature remote from float valve. Record.	Maintenance Contractor
7. Six monthly (January and July)	Measure cold water temperature rise between incoming main and most distant outlet. Should be less than 2-3°C. Record.	Occupier (4)
8. Annually	Take sample and record condition of water from HWS calorifier drains.	Maintenance Contractor
9. Annually	Open and inspect internal surfaces of HWS calorifiers for scale and sludge and clean or descale as necessary. Record.	Maintenance Contractor
10. Annually	Check and record temperatures at a representative number of taps throughout the system, on a rotational basis.	Occupier (2)
11. Annually	Inspect cold water cisterns and carry out remedial work as necessary. Record work done and report outstanding defects.	Maintenance Contractor
12. Annually	Physically inspect the hot and cold water systems and check accuracy of schematic drawings. Note changes. Check for under-used fittings and report recommendations.	Scientific Services and/or Specialist Contractors

Notes

- 1) May be undertaken by competent Caretaker or maintenance operative using proprietary domestic kettle descaler (COSHH Regulations apply to use of chemicals at work), or by Maintenance Contractor. However, the person responsible must be clearly defined by the Occupier. Currently undertaken twice yearly at premises covered by Mechanical Maintenance Service Contract.
- 2) Shall be done using a simple digital thermometer with immersion probe.
- 3) Readings to be taken from fitted temperature gauges.
- 4) Should be done using digital thermometer as in (2). Sample points can be the nearest tap to the incoming main, and the most distant tap. These points should be labelled permanently to identify them.
- 5) Water samples for analysis, where appropriate, are to be taken at the same time as the visual survey is undertaken. In addition samples will be taken at a greater frequency, to be agreed with Scientific Services, where the water supply is obtained from a private source.

Definitions and explanations

Sentinel tap: a 'sentinel' is a sentry who stands guard over something, watching and keeping an eye on safety, and the term is used to describe the taps which are used regularly to monitor, sample and check the water quality and temperature. Basically, the sentinel taps are defined as the first and last ones on the system. For the cold water, they will be the taps nearest to and furthest from the incoming cold water main or cold water storage cistern, and for the hot water, they will be the nearest to and furthest from the hot water source, be it calorifier, vessel or water heater. All buildings will have at least two mains cold water, two stored cold water and two hot water sentinel taps, and they are usually easy to identify. For larger buildings, and campuses with several blocks, there may be more sentinel taps, which can be identified by reference to the water services schematic diagram for the site. Once identified and labelled, they will not change unless some major alterations are done to the water systems. Schematic diagrams are prepared when a formal Risk Assessment is undertaken, as part of the County Council's five-year programme of re-surveys and updates.

Calorifier: a calorifier is nothing more than an industrial-size version of the indirect domestic hot water cylinder found in houses. Calorifiers tend to be fitted in larger premises, High Schools etc whereas smaller properties often have point-of-use electric water heaters, which pose fewer risks. Calorifiers rely on thermal stratification where the hot water collects at the top and is drawn off for use. A pumped circulation main is often fitted in larger premises, and the returning slightly cooler water is injected back into the calorifier cylinder part way up. Cold feed water from a tank enters at the bottom. Close control and monitoring of the temperatures in and around the calorifier and pipework is necessary to ensure that water is heated to and held at 60degC before being drawn off, in order to kill any bacteria present in the feed water.

Contacts and further advice

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