Legionella in hot and cold water systems

"This table should be interpreted in the context of the outcome of your risk assessment (see http://www.hse.gov.uk/legionnaires/what-you-must-do.htm) and the principles outlined on the Hot and Cold Water System page (see http://www.hse.gov.uk/legionnaires/hot-and-cold.htm)."

As part of your risk assessment you will need to consider:				Notes
Cold water systems				
Cold water storage	Storage tanks	Keep volume of water stored to a minimum, ie just enough for one day's usage If using multiple tanks, ensure they are linked together so that water flows through each, avoiding stagnation in any one tank.	Record total consumption of cold water of a typical day	This check ensures the continuous flow of cold water to help avoid stagnation
	Water temperature	Ensure incoming and stored water remains at a temperature of less than 20 °C, eg if necessary site storage tank in a cool place and provide insulation	Check temperature at ball valve outlet every six months and record any findings	The most convenient place to measure is usually at the ball valve outlet to the cold water storage tank. Useful to consider maximum temperatures recorded by fixed max/min thermometer

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	Avoid external contamination and build up of sludge, scale and rust	Fit tank with tight fitting lid and air vent Maintain tank in a clean condition	Check to ensure tank remains clean, at least annually	Visually inspect cold water storage tanks and carry out remedial work where necessary
Cold water outlet, eg taps and showerheads	Water temperature	Check water temperature at sentinel outlets on monthly basis Check representative outlets for temperature as above on a rotational basis	After running for two minutes at sentinel taps, the temperature should be below 20 °C. Record findings Check annually	This action helps to ensure that the supply and flow of cold water remains at a temperature that will not encourage the growth of legionella Selection of representative outlets should be assessment-driven to ensure the entire system is covered over a period of time

Hot water systems

Hot water systems	Hot water cylinder/ calorifier Avoid contamination and build up of sludge, scale	Visual check, where possible on internal surfaces of cylinders for scale and sludge	Check to ensure tank remains clean, at least annually	Useful to sample water from hot water cylinders to note condition of drain water and assess cleanliness of tank

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	Water temperature	Check flow and return temperatures at calorifiers. Outgoing water should be at least 60 °C	Monthly checks should be carried out and findings recorded	Hot water should be stored at 60 °C at least in order to kill legionella bacteria. The thermometer pocket at the top of the cylinder and on the return leg, if fitted, is a useful point for accurate temperature measurement. If installed, these measurements could be carried out by a building management system
		Check water temperature at sentinel outlets on a monthly basis		
		Check representative outlets for temperature as above on a rotational basis	The water temperature should be at least 50 °C within one minute of running the water	
		If thermostatic mixer valves (TMV's) are fitted, measure temperature at the hot water inlet to the TMVs		This check makes sure that the supply and return temperatures on each hot water loop are unchanged, ie the loop is functioning as required
			The water supply to the TMV should be at least 50 °C within one minute of running the water	
				Selection of representative outlets should be assessment-driven to ensure the entire system is covered over a period of time

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				Selection of representative outlets should be assessment-driven to ensure entire system is covered over a period of time One way of measuring this is to use a surface temperature probe
Hot water pipe work		Avoid long pipe runs between TMV and outlet	Pipe runs should not exceed 2 m	
'At risk' population	Assessment should be carried out to determine if residents are immuno-compromised and consequently classified into the "at risk" group	Sampling for legionella from water system should be carried out	Samples should be taken from appropriate outlets and storage tanks/cylinders. These should be analysed by a competent company	Periodically (as identified through risk assessment)
For all hot and cold water systems				
Pipework	Avoid stagnation, unnecessarily long pipework runs, and	Remove dead ends/blind ends from the system and ensure regular flushing of dead legs	For infrequently used outlets, instigate a programme of regular flushing, ie weekly	Flush through and purge to drain, without release of aerosols

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	transfer of heat from other sources	Keep pipe runs as short as possible Insulate water pipes in work areas where heat may be transferred from other sources, ie hot water pipes		
Showerheads	Avoid build up contamination on showerheads	Dismantle, clean and descale showerheads		Should be carried out quarterly or as determined by risk assessment