



ENSURING THE SAFETY OF BUILDING WATER SYSTEMS FOLLOWING THE COVID-19 LOCKDOWN

Introduction

As businesses return to buildings following the COVID-19 Lockdown, it is important to ensure the safety of building water systems before occupancy resumes.

While restaurants, gyms, leisure centres, schools and other buildings have been unoccupied during the lockdown to prevent the spread of COVID-19, water left sitting in pipes could change in quality

Stagnant or standing water can cause conditions that increase the risk for growth and spread of Legionella, other biofilm-associated bacteria and harmful contaminants. When water is stagnant, hot water temperatures can decrease to the Legionella growth range (25–42°C). Stagnant water can also lead to low or undetectable levels of disinfectant, such as chlorine. It is therefore vital to ensure that water systems are safe to use after a prolonged shutdown to minimise the risk of Legionnaires' disease and other diseases associated with water.

For further information see HSE Guidance: <https://www.hse.gov.uk/legionnaires/>

Water Stagnation

When water is not drawn through a building's water system over an extended period, the water becomes stagnant, which is normally prevented through regular water use, inducting fresh water from the public mains (typically containing disinfectant).

Indicators of stagnation include: a bad or 'off' taste; unpleasant odour; and/or discoloration. These factors can indicate bacteriological growth and/or pipe corrosion. Stagnation can support the accelerated growth of bio-slime, waterborne micro-organisms and pathogens, such as Legionella, as well as heavy metals which can cause harm to building occupants and users.

For residential properties the following document applies: PD 855468:2015 – *Guide to the flushing and disinfection of services supplying water for domestic use within buildings and their curtilages*, published by the British Standards Institution (September 2015).

An empty system that has been drained results in very damp pipe work that contains oxygen. Over a period of time this will increase the corrosion inside the pipe work especially at compression (screwed) joints. When the system is re-commissioned leaks may occur which can be difficult to trace and especially hard to repair.

It is recommended that a competent person is appointed to oversee plumbing and heating engineering work to ensure the integrity of the plumbing. Commissioning in line with a Water Safety (Management) Plan should be carried out including pressure testing of all systems.

Flushing water systems

Flush your water system before your business or building reopens. Flush water through all points of use within the building before re-opening (e.g. showers, sinks, toilets).

Flushing procedures will vary depending on the building and may need to occur in sections (e.g. floors or individual rooms) due to facility size and water pressure. In some properties it is appropriate to flush plumbing systems on a weekly basis. It is important to document and keep up to date records of all such maintenance activities. The purpose of building flushing is to replace all water inside building piping with fresh water in line with the Water Safety Plan and Policy.

Note: when developing a flushing procedure, consideration should be given to any insurance policy requirements and restrictions which may be in place.

Example procedure for flushing a building water supply system

Step One:

Remove tap aerators, point-of-use filters, shower hoses and strained baskets where possible.

Note: their removal will allow the water flow rate to be faster and limit the amount of sediment trapped during flushing.

Step Two:

Organise flushing to maximise the flow of water; for example:

- a) Open all cold water outlets simultaneously to flush the service line and internal pipework, or
- b) Flush all outlets individually, starting near where the water enters the building and moving systematically through the building to the most distant outlet.

Note: flush all the cold water pipework first, and then the hot water.

Step Three:

Run enough water through all outlets to replace all water inside building piping with fresh water. *Note: the required duration will vary based on pipework volume and outlet velocity.*

Step Four:

Replace all tap aerators, point-of-use filters, shower hoses and strainer baskets.

Additional precautions may be warranted if there is excessive disruption of limescale or if there are concerns about biofilm development. Remedial action that might be warranted would be to disinfect/flush through the plumbing system.

Additional considerations

Floor drains

If the building has floor drains, pour water into the drain to make sure that the trap water seal is fully restored in order to keep sewer gases from entering the building. Trap water seals can be lost due to evaporation within unoccupied buildings.

Building Services (HVAC/fire/electrical/gas systems etc)

Each building is different and depending on the level that a building was shut down prior to lockdown, additional work may be necessary to ensure buildings are safely recommissioned before occupancy. It is recommended that building supervisors ensure buildings are safely recommissioned by a competent person before occupancy where necessary.

Hotels and Leisure complexes

When systems have been shut down or not used in total or part, full system disinfection should be implemented (usually hyperchlorination), following guidance from a recognized expert group such as the ESGLI *Legionella* in buildings' water systems during the COVID-19 pandemic; a European working party which has developed guidelines specifically for hotels; <https://tinyurl.com/y8dez9dz>. If these guidelines are not practical an alternative disinfection procedure is to be carried out under the supervision of a competent Water or Building Services Engineer.

Pool hygiene and safety

Recommissioning should include the thorough cleaning of pools and filters; dosing equipment for disinfectant, pH, flocculant; ensuring the integrity and correct pressures and flows of sand or other types of filter; checking pump and circulation rates; and, where applicable, the visual inspection for water slide safety.

Further information

More information on the management of reactivating buildings is available here: www.sfg20.co.uk

Competent Persons

Information about competent persons can be obtained from:

Chartered Institute of Plumbing and Heating Engineering – www.ciphe.org.uk

Chartered Institution of Building Services Engineering – www.cibse.org

If you have any queries on the above information please contact:

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