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Re-Opening Buildings after Covid-19 Restrictions

Safety of Water & Wastewater Systems in Non-Domestic Buildings



Part of **ervia** group

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Introduction

Irish Water is working with our partners in Local Authorities to maintain safe and reliable public water supply networks that will continue to supply clean drinking water when non-domestic buildings (incl. commercial and industrial) begin to re-open as Covid-19 restrictions are lifted.

However, the owners and managers of non-domestic properties should be aware of the potential for serious water quality and public health hazards to develop in the water and cooling systems of their buildings when those buildings have been closed and/or under-utilised for a period of time.

Irish Water would like to raise awareness of potential hazards associated with under-used water systems and to provide information to non-domestic premises owners and managers which may assist them now and also once they begin preparations to re-open their buildings safely.

This note is to be taken as guidance and information and has been prepared in an effort to provide assistance only. As every building is different, with unique plumbing systems, this advisory note can only be general in nature. Therefore, owners and managers of non-domestic premises should satisfy themselves in relation to the quality of any drinking water or water used for any purposes within the premises that may have become impaired during the non-use / under-use of the building; and obtain any necessary professional advice that is required in advance of reopening.

Further, this note is not intended to address measures to prevent the spread of Covid-19 in buildings; however, we have included current relevant information from the World Health Organisation (WHO) at the end of this document which may be useful but also is subject to change over time.

Hazards

Normally, and with appropriate maintenance, a building's internal plumbing system should not confer any public health risk to drinking water, water for sanitation or through the heating/cooling systems. However, the growth of pathogenic bacteria can become established in water that is left standing in plumbing systems and storage tanks for an extended period of time (as may be the case following recent movement restrictions). When the water and heating/cooling systems are restored, these pathogens, if present, could potentially cause illness.

Legionnaires' disease, which is a potentially fatal form of pneumonia, is the most significant illness that could occur. The bacteria which cause this disease multiply in warm and stagnant water and therefore can proliferate in disused or inadequately configured plumbing systems and air conditioning systems. The Health Protection Surveillance Centre (HPSC) of the HSE provides detailed information and guidance about Legionnaires' disease at <https://www.hpsc.ie/a-z/respiratory/legionellosis>.

Where buildings have been unoccupied for a period, there is a higher risk of infestation by vermin or similar, which may result in biological contamination of water in storage tanks. In older buildings with lead pipes and fittings, small amounts of lead can dissolve into the water where it is left standing in the pipes for long periods of time. Similarly with older metal pipes, particulates can settle in the water and be disturbed when the water systems are turned back on after a lengthy period. We offer further guidance on dealing with lead in drinking water on our [website](#).

It is also important to recognise that the wastewater systems, including toilets and shower rooms, will have been dormant for several weeks, and need to be checked to ensure that they remain hygienically safe. In particular, the water trap seal under toilets and drains, which prevents the transmission of pathogens and odours, may have evaporated or otherwise been lost. Therefore, we advise that toilets, shower rooms and drains are also considered in your maintenance and reopening plans.

Guidance

The Health & Safety Authority (HSA) has issued a guidance note on the [Control of Legionella bacteria during and after the Covid-19 pandemic](#). This document provides information on steps to be taken both to maintain systems during a building closure, and to prepare for reopening. Similarly the Health Services Executive (HSE) has published a series of [advice notes for managing water systems in a shutdown](#). There is further advice from the Health Protection Surveillance Centre (HPSC) of the HSE in a [Checklist for the Prevention of Legionnaires' Disease in Leisure Centres](#) and similar advice notes are on their website for other types of buildings such as hotels and leisure centres.

It is expected that building owners and managers would be familiar with the routine maintenance required to prevent contamination of water systems during normal operations. Where possible the water and wastewater systems in a building should be kept operational and fully maintained during closure to minimise the risk of disease and infections after reopening. This would reduce the need to take special measures to ensure the water systems are safe before reopening.

All fittings and fixtures, such as taps, sprinklers, hot-tubs, fountains, etc., should be thoroughly cleaned and disinfected if being brought back into use after a period of closure; and pipes and tanks should be purged of standing water. A building owner should also consider if certain fixtures do not need to be brought back into service immediately.

While preparing to reopen, building owners and managers are reminded of their general responsibilities to not allow any unsuitable products or chemicals into the drains and wastewater networks, including (but not limited to) food waste, chemicals, sanitary items and non-biodegradable products. Trade Effluent producers may have more specific requirements set out in their Trade Effluent discharge licences to which they must adhere.

Particular basic measures for consideration may include:

- Flush water pipes by running taps until the water temperature is constant and mains water is drawn through the system;
- Clean all drinking water outlets with suitable disinfectants;
- Flush all toilets, and run water through sinks and shower basins, to ensure that the water trap seal is replenished in the u-bends;
- Inspect all storage tanks and cisterns, and drain, clean, disinfect and refill as necessary;

- Clean shower-heads with disinfectant and flush water through until clean, with a minimum temperature of 60°C for hot water showers;
- Empty hot water tanks and refill with water heated to 70° C for at least an hour before use;
- Replace filter cartridges in water filters and clean & disinfect the cartridge holder according to manufacturer's instructions, then run water through to flush clear;
- Check pumps on the building's water/wastewater system to ensure that they are operating correctly;
- Check sewer & drains and clear any blockages promptly;
- On-site wastewater treatment systems should be checked to ensure they are operating correctly.

Specialist advice should be sought for healthcare settings, swimming pools, leisure centres, gyms, saunas and similar facilities. Equally, food and drink production and hospitality services may require more detailed measures associated with water-using equipment.

Sampling and monitoring of water quality should be continued after the water systems have been cleaned in accordance with water safety plans and maintenance practice.

There are a number of Irish and international agencies that have prepared guidance for both the general maintenance of buildings and for special measures appropriate to reopening buildings after a prolonged closure due to Covid-19. We have referenced some of the international guidance at the end of this note for your information.

Support

We would encourage the owner or manager of any non-domestic building to prepare a plan for reopening and to ensure that internal water systems and fittings are safely operational and maintained in advance of planned reopening dates. Where specialist advice is required, it should be sought in a timely manner and allowing for demand on specialist service providers.

We would also caution that last minute uncoordinated flushing of water systems could place exceptional pressure on public water supplies and cause avoidable disruptions to supply. Please consider that you may also find leaks and air-locks within your water systems. We would urge you to get leaks repaired while the property is closed if possible.

If there is any external issue with the water supply when you are preparing to reopen, e.g. loss of pressure or discolouration, please contact us through our [website](#) or 1800 278 278 and we will investigate any issues in the public water mains network.

***** End *****

Supplementary International References:

There are a number of international agencies that have prepared guidance for both the general maintenance of buildings and for special measures appropriate to reopening buildings after a prolonged closure due to Covid-19, which we have gathered below for your information and further guidance. Please note that this material may have references that are not directly applicable to an Irish context, and specialist professional advice should always be obtained if you are unsure.

The German Technical and Scientific Association for Gas and Water (DVGW) has prepared a brief guidance note "[Temporary shutdowns of Drinking Water Installations in buildings \(e.g. during the holidays or in the event of ordered operation interruptions in the course of measures against the coronavirus\)](#)". This advice note provides basic guidance to business owners and is not specific to any one pathogen or contaminant. The DVGW recommends that if a building is being shutdown at this time, then the water system should be left filled with water and not drained down.

Similarly, EPAL (Empresa Portuguesa das Águas Livres) in Portugal have prepared guidance for customers that include recommendations for flushing pipework and cleaning taps and showerheads; and an [English translation](#) is available.

The European Society of Clinical Microbiology and Infectious Diseases (ESGLI) has established a working group that has prepared detailed [guidance for managing Legionella in building water systems during the COVID-19 pandemic](#). Within this document you will find detailed procedures to maintain the water system during a shutdown and prepare the system and fittings for reopening. A recent paper from [The Lancet](#) provides some background to the risks associated with the spread of pathogens through loss of the water trap seal in the u-bend beneath toilets and drains in particular.

In the USA, the Council of Governments in the Metropolitan Area of Washington, has provided guidance prepared by ESPRI (Environmental Science Policy & Research Institute), called "[Building Water Quality and Coronavirus: Flushing Guidance for Periods of Low or No Use](#)" to help those responsible for maintaining building water systems.

The American Industrial Hygiene Association (AIHA) has produced a guidance document called "[Recovering from Covid-19 building closures](#)" that identifies risk areas and steps required to maintain water and air conditioning systems during a period of shutdown. This, in turn, refers to the US Centers for Disease Control and Prevention (CDC) website on [Guidance for Building Water Systems \(to\) ensure the safety of your building water system and devices after a prolonged shutdown](#). The CDC website contains guidance on 8 steps to take before reopening a building, with links to detailed advice for specific types of business and activities, e.g. swimming pools.

While this advisory note is intended to focus on the specific issues surrounding building reopening, it is useful to be aware of the World Health Organisation (WHO) guidance on "[Water, sanitation, hygiene, and waste management for the COVID-19 virus](#)" that addresses some of the issues relating to water services within buildings during a Covid-19 period.

Please note that all references to documents from external sources are correct at the time of publication; however are subject to change. Therefore you are recommended to refer to the original sources directly.

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