

## Drain Protection in Hospitality

(Bars, Kitchens & Venues)

*“...nothing is worse than walking into the bar in the morning and disturbing a cloud of bar flies”*

Every bar deals with them to varying degrees.

\*wiki.webtender.com

The **Green Drain™** (GD) can help to prevent pest infiltration from unprotected exposed drains. It's an economical, Drain Trap Seal Device that allows water to flow down the drain while preventing Pests, Odours, Harmful Gases and Pathogens from infiltrating your establishment. GD is HACCP certified!



### Fruit / Bar Fly Infiltration (*Drosophila*

*melanogaster*)

Bar flies are attracted to sugary substances, as well as sticky and moist areas. Common areas found are behind the bar are beer taps / dried beer, fruit, drains, pipes, cloths, mops, rags, and sweet fruity liquors. Fruit fly larvae can only survive in moist, decaying matter. Each female become active only hours after hatching and can lay up to 100 eggs per day.

### Moth/ Drain Fly Infiltration (*Psychodidae* as pictured)

Drain flies feed on decomposing organic matter and sewage. Typical breeding sites include greasy drainpipes in kitchens and bathrooms, drains, moist compost, and septic tanks. Female drain flies deposit anywhere from 30 to 100 eggs per day on the surface of the breeding medium. The larvae and pupae thrive deep within the gelatinous film and extend breathing tubes to the surface. Drain fly eggs can mature to adults in 7 to 28 days.

### Life Cycle (48 Hrs)

Drain fly larvae grow and feed in polluted, shallow water or in highly moist organic solids prevalent in drains. The life cycle of drain flies can be completed in one to three weeks. Adults live about two weeks, with old ones dying and new ones emerging.



Counterclockwise from top left: Drain fly (*Diptera: Psychodidae*) larva, pupa, and adult. Photo credit: Matt Bertone



# Green Drain<sup>tm</sup>



## Preventative Cleaning

Bar flies have a life cycle of 48 hours, so interrupting their breeding pattern is paramount to stopping them or reducing their numbers. The best way to prevent bar flies is to keep your bar clean, dry and sanitized. Set up a cleaning roster so that all of those places no one likes to clean (dishwasher area, drains, pipes, fridge seals, corners of the bar) get cleaned on a regular basis.

\*wiki.webtender.co

## Proactive Drain Protection

The most effective way to prevent pest infestations is to eliminate their breeding places. Inside buildings, this would include cleaning the drainpipes, drain traps and other plumbing system components in an attempt to eliminate the bacterial scum (gelatinous rotting, organic matter) The

**Biofilm** that regularly coats the surfaces of plumbing. Using eco-friendly products such as bio-enzymatic solutions is preferable. Installing GD to seal access in or out of exposed pipes.

*Pests of any kind will leave a poor impression on the businesses and their ability to maintain the establishment clean and safe. Why Risk it?*

*Protect exposed drains & use eco-friendly solutions to maintain your floor waste system & grease traps.*

*Think of where chemicals end up downstream!*



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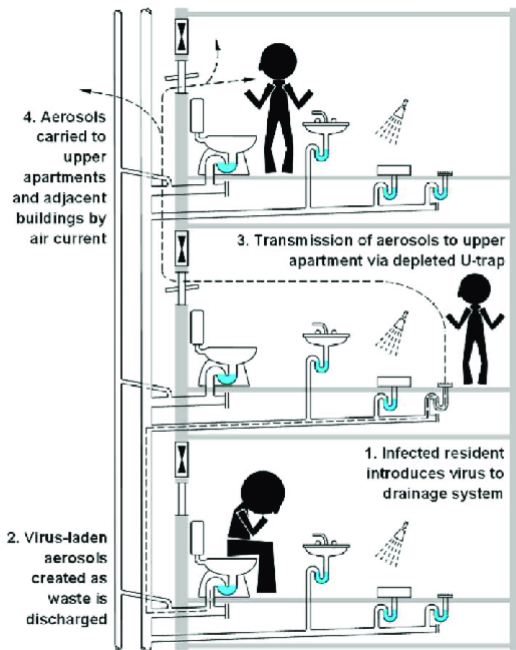


Fig 1. SARS transmission route at Amoy Gardens via the sanitary plumbing system.

## *Drain Protection in multi-level living*

The spread of disease via building environmental systems is, on the whole, little understood. Sporadic investigations on pathogen transmission have mostly focussed on *Legionella pneumophila* in air conditioning and water supply systems [1-5] with some additional work being carried out on biofilm formation in sinks and pathogen fallout from flushing toilets [6-9].

While the study of *L. pneumophila* transmission from water supply systems is now well understood, principally due to the steady, predictable nature of the water flows involved, this is not the case for the transmission of pathogens from the sanitary plumbing system. These systems are characterized by unsteady and turbulent wastewater flows due to random discharges from sanitary fittings such as sinks, baths, showers and toilets. These flows, in turn, induce unsteady transient airflows inside the plumbing pipe network. Wastewater flows inside the sanitary plumbing system lead to pressure fluctuations

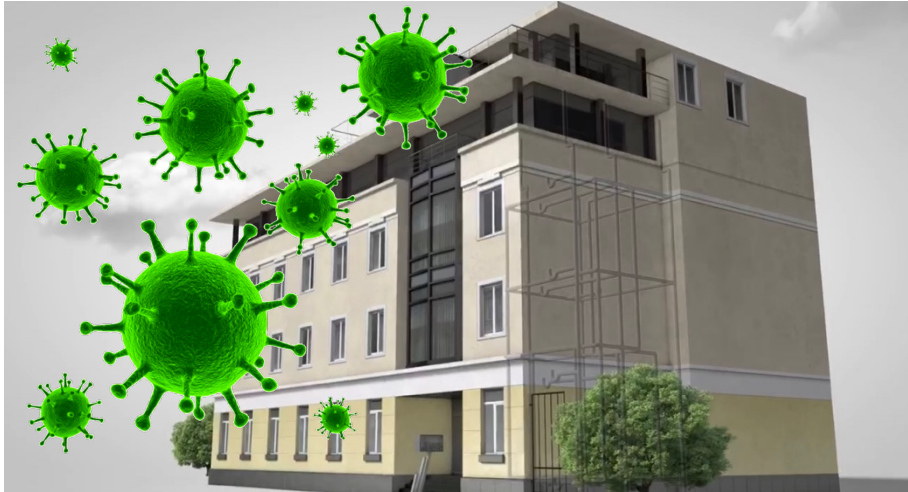
which can compromise the fragile water trap seals (U-traps) which form the only protection between the sanitary plumbing system and the people within buildings.

Since the SARS outbreak in 2002/2003 [10], there has been growing concern regarding the role that the sanitary plumbing system played in the transmission of the virus. The World Health Organisation (WHO) Consensus Document [11] on the epidemiology of the outbreak included a report on the transmission of SARS in one particular housing block in Hong Kong (Amoy Gardens) which was considered as a 'super-spreading event'. A total of 341 cases of SARS were reported at Amoy Gardens, resulting in 42 deaths. One of the reasons cited for this high infection rate was the spread of the virus via the building's sanitary plumbing system. The WHO conjecture stated that "dry U-traps in bathroom floor drains provided a conduit for contaminated sewage droplets to enter households. A significant virus load had built up in the sewer system as an increasing number of SARS cases with diarrhoea excreted virus. Virus was aerosolized within the confines of very small bathrooms and may have been inhaled, ingested or transmitted indirectly by contact with fomites as the aerosol settled" [11]. The U-traps (particularly in floor gullies) were found to be depleted of water, thus having lost their sealing function and providing an open connection between the sanitary plumbing system and different apartments within the building. As the number of SARS cases increased, the sanitary plumbing system became a reservoir for the virus due to diarrhoeal excretion. The WHO hypothesis followed that the virus became aerosolised when discharged into the sanitary plumbing system which provided a conduit for virus-laden aerosols to enter apartments via depleted U-traps. This process was exacerbated by the naturally occurring airflows within the sanitary plumbing system and the negative pressures within bathrooms as a result of extract fans. The combination of these factors presented a pathway for pathogen transmission heretofore unexplored. The process is illustrated in Fig 1.

Pathogen cross-transmission via building sanitary plumbing systems in a full-scale pilot test-rig

PLOS ONE | DOI:10.1371/journal.pone.0171556 February 10, 2017 Michael Gormley\*, Thomas J. Aspray, David A. Kelly, Cristina Rodriguez-Gil School of Energy, Geoscience, Infrastructure and Society, Heriot-Watt University, Riccarton Campus, Edinburgh, United Kingdom

## *Drain Protection in Hospitals & Aged Care*



*“The WHO report conjectured that the sanitary plumbing system was one transmission route for the virus. Empty U-traps allowed the aerosolized virus to enter households from the sewerage system”*

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***Out of sight out of mind...*** Biofilm in healthcare drains are rarely maintained and have the potential of spreading even more resistant bacteria. Due to the contact time required for strong chemicals to kill biofilm, eradicating it is almost impossible. Numerous studies stress the importance of maintaining physical barrier between drainage systems and surroundings. This means one of two things

1. Installing Automatic trap primers, which can be unreliable and a costly exercise to pre-install or retrofit. OR
2. Manually ensure someone goes around each room to CHARGE (top up) each drain trap to keep the water barrier high. This is time consuming and wasteful exercise.

Green Drains is the ideal cost-efficient solution compared to the above-mentioned points.

Plumbing systems, along with exposed drains are potential sources for contamination that provide a hospitable habitat for waterborne and airborne pathogens. Eg. Legionella, Listeria, SARS, MERS, Carona, Klebsiella, Dengue, Salmonella etc.

*The bathroom floor drains with dried up ‘P traps’ provided a pathway through which residents came into contact with small droplets containing viruses from the contaminated sewage. These droplets entered the bathroom floor drain through negative pressure generated by exhaust fans when the bathroom was being used with the door closed.*

*\*Author S H Lee PubMed – SARS epidemic in Honk Kong Aug 21, 2003*





# Listeria Healthcare Kitchens & Food serving areas

*We protect our hands and surfaces why don't we protect our drains; they are an open connection to the sewer lines.*

The Green Drain™ will protect facilities from exposed drains. It's an economical, Drain Trap Seal Device that allows water to flow down the drain while preventing Pests, Odors, Harmful Gases and Pathogens from infiltrating your establishment. **HACCP International certified!**



*The truth remains that Listeria present in drains can easily reach food and food-contact areas. Listeria pathogens in floor drains may be carried on shoes and transferred onto food preparation areas or directly onto food items themselves when someone picks up a dropped object from the floor. Additionally, pests like fruit flies, drain flies or cockroaches have the potential to spread Listeria pathogens from drains to other areas of the facility.*

*The Reputation Drain: Listeria in Drains Threatens a Store's Image When Uncontrolled February 1, 2007 • By Dale Grinstead, Phd*

Antibiotic-resistant superbug bacteria grow up hospital drains and can splash out into sinks and onto counters, researchers reported Friday.

Their experiment helps explain just how such germs cause outbreaks of disease in hospitals. And it also demonstrates just how hard it will be to prevent this kind of spread, because the bacteria are especially difficult to kill when they are growing in pipes.

NBCNEWS

Feb. 25, 2017, 9:05 AM GMT+11 / Updated Feb. 25, 2017, 9:05 AM GMT+11 / By Maggie Fox

It is estimated that **30%** of floor **Drains** in food & beverage production facilities **test positive for Listeria \***

*If you pride yourself on the quality of your product, safety protocols and sanitary standards of your facility but have exposed drains..., **You're taking a risk!***



\*Ref : Union Jack | March 2020 \ Preventing Listeria In Your Brewery Or Food Processing Drainage System ; <https://www.foodstandards.gov.au/consumer/safety/listeria/Pages/default.aspx>

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