Coronavirus Guidance Webinar
2nd June, 2020
All slides and a recording of the webinar are available on the website later this afternoon

- CLC People Survey
- Legionella considerations when re-activating buildings – Ed Morris, Altecnic Ltd
- Q&A
PLEASE TAKE PART IN THE CLC PEOPLE SURVEY

The Construction Leadership Council is asking all employers to complete its 10 minute survey to understand the implications of a reduced workload on the construction workforce, including apprentices and graduates.

Closes this Friday

https://www.surveygizmo.eu/s3/90240740/CLC-People-Survey
All slides and a recording of the webinar are available on the website later this afternoon

- CBI Update
- CLC People Survey
- Legionella considerations when re-activating buildings – Ed Morris, Altecnic Ltd
- Q&A
Legionella considerations when re-activating buildings
POINTS TO BE COVERED:

A. Water Systems Pre Covid19
B. What happens to systems during prolonged shut down periods.
C. Different Building Types
D. Risk Factors
E. Control Measures
F. Other Considerations
Water Systems pre Covid19
Water systems pre-shutdown.

Water Systems pre COVID19:

- Accurately controlled water temperatures within both hot and cold systems, this would include cold water stored and circulated below 20°C and hot water stored at temperatures above 65°C
- Good amount of water turnover through the building in both hot and cold systems to avoid stagnation.
- Correctly installed pipework as to remove the issues of thermal gain (or loss).
- Removal of dead legs or dead zones.
- Legionella control provisions in place.
- Building Closure Plan....
What happens to systems during extended lockdown periods.
Water systems during prolonged periods of lockdown.

The Risks

- Stored cold water tanks suffer elevated temperatures increasing the risk of bacterial growth.
- Stored hot water temperatures reduce increasing the risk of bacterial growth.
- No turnover of water allowing stagnation.
- Degradation of internal components of valves and vessels etc.
- Potable water is no longer potable.
- Stagnant water within expansion vessel which is difficult to remove.
- Cleaning of filters and aerators.

Buildings that have remained empty with static water systems, or those that have been subject to flushing that does not represent normal usage, are likely to require recommissioning.

Those that have remained in normal use or where flushing has approximated normal usage (evidenced by water meter readings) may still require additional control measures due to the additional risk factors posed by closure.
Building Types
Building Types

Glass

No glass, insulated cladding

Few windows with brick exterior

No windows, communal washing

Internal offices
Risk Factors
Risk Factors

Additional Risks for Legionella – This is an overview and not an exhaustive list

- **Rushed shutdown of buildings**
  - Correct procedures not considered
  - Lack of staff to help maintain the building

- **Stagnation**
  - Bacterial Growth
  - Degradation of system components
  - Mechanical deterioration as a result of corrosion and settlement of system debris

- **Temperature increases within buildings aiding the growth of harmful bacteria**
  - General thermal gain particularly in buildings with large amounts of glass where the air conditioning has been switched off.
  - Water left in hot water systems that has cooled and aided growth
  - Cold water systems suffering thermal gain

- **Stand-alone Water Systems**
  - Point of use water dispensers
  - Vending machines.

- **COVID-19 increases the risk of legionellosis as a secondary infection.**
  - Consider this risk before allowing people back inside of the building.
Control Measures
Control Measures

System Flushing.

Flushing a water system will change the bulk water and, depending on flow velocity, may have a shearing effect on biofilm and move other contaminants through the system. Flow velocity is likely to be reduced by outlet fittings and flow restrictors. These will reduce the effectiveness of flushing and consideration should be given to temporarily removing these during the process. Flushing activities need to consider:

- Sufficient volume of water change
- Circulation of all hot water services, including return pipework
- Flushing all dead legs and dead ends
- Remove all fouling such as scale within system components including exposed outlets (tap ends, filters etc)
Control Measures

System Flushing.

BSI document PD855468 differentiates between hygiene flushing (to prevent stagnation) and cleansing flushing (to remove debris or organic matter) and it states that it is important to include cleansing flushing as part of the recommissioning process rather than hygiene flushing.

All valves should be operated in the fully open position so that any particulate matter can be flushed from the supply pipe. Of particular importance are float-operated or other restrictive valves which need to be induced to fully open to ensure clearing of particulates and prevent fouling of the valve.

*Where a clearing velocity cannot be achieved, consideration should be given to removal of valves to enable the cleansing flush*
Control Measures

System Disinfection

Disinfection of a water system can be achieved thermally (normally hot water systems only) or chemically.

Guidance Documents:

HSG274 Part 2 2.126-2.137 but note, the reference to BS8558 is no longer current. Readers should now refer to guidance in BSI PD855468 for flushing and disinfection.

After a period of prolonged stagnation it is possible for a single disinfection to be unsuccessful and the process may need to be repeated. When scoping this type of service it is important to agree the process, and not to guarantee the result.
Control Measures

System Disinfection

Some areas may require more attention during disinfection and maintaining a slow flow of disinfectant over these areas for the full contact time may improve the chances of success. *Areas with flexible hoses or tap tails, sections downstream of TMVs or mixer taps, or other problem areas may benefit from this process.*

In line with BSI PD855468 it may be helpful to flush the stagnant water from system prior to commencing the disinfection, to remove bulk contamination and reduce the likely demand on the disinfectant.

Draining and refilling storage tanks (if present) may speed this process. Disinfection should be carried out in line with normal practice and impact on any building occupants should be considered.
Control Measures

Water Sampling

To provide evidence and reassurance that the system is safe to use, validation sampling can be useful after actions such as cleansing flushing and disinfection. Samples should not be taken immediately after disinfection to avoid false negatives. Samples should be taken 2-7 days after disinfection.

Sample methodology needs to be considered to ensure samples give a representative answer to the question being asked. For example:

- Sample of existing water prior to disinfection from high risk outlets (such as showers).
- Post flush samples, with the removal of tap inserts and outlet disinfection would represent bulk water condition.

Pre-flush samples should be taken 2-7 days following system disinfection with some post-flush samples (guidance)
Relevant Documents

_**PUBLISHED DOCUMENT**_

Guide to the flushing and disinfection of services supplying water for domestic use within buildings and their curtilages

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Legionnaires' disease
The control of legionella bacteria in water systems

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bsi.  
"making excellence a habit"
Other Considerations

Risk to Operators During System Works

Water systems that have been stagnant for some time will present a greater risk to staff engaged in flushing, disinfection and other work involved in recommissioning. Care should be taken to minimise exposure to potentially contaminated aerosol and the elevated risk should be considered in work task risk assessments. Task risk assessment should also include operator susceptibility to COVID-19 infection.

Interim Protection Measures

If buildings must reopen before the water system can be safely recommissioned then consideration should be given to supplementary measures to control risk for example - point of use <0.2 micron filters can be a useful short term measure to reduce risk in individual areas.

Care should be taken in their selection to ensure they are the correct type and there is sufficient pressure to give good flow at the outlet. Poor flow can result in users removing the filter and exposure to potentially contaminated water.

Filters will not remove dissolved contaminants, such as metals in solution from corrosion or leached chemicals from plumbing materials. Drinking water areas may still need to be flushed to reduce these to an acceptable level.
Other Considerations

Written schemes of control for legionella should always have included start-up and shut-down procedures for water systems.

COVID-19 has highlighted that many schemes do not include this or that the process is unworkable or unsuitable.

Written schemes of control should be reviewed to ensure any future emergency shutdown of a building includes safe decommissioning and recommissioning of the water systems.
THANK YOU
Q&A

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Webinar Programme

Coming Up:

**Friday 5th June – Productivity** – We are joined by Brian Green from Brickonomics to discuss challenges of productivity and the implications of Covid19.
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