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RISK ASSESSMENT

HOT & COLD WATER SERVICES

AS REQUIRED BY HEALTH AND SAFETY COMMISSION PUBLICATION L8 (fourth edition 2014)

Legionnaires' disease

The control of legionella bacteria in water systems

APPROVED CODE OF PRACTICE & GUIDANCE

St Dunstans Opco Ltd
20 St Dunstans Hill
London
EC3R 8HL

Undertaken by Daniel Coree of Phase Technology

Survey Date: 9th February 2023

CONTENTS

CLIENT AND SITE DATA

CLIENT	Peldon Rose (Mechanical And Electrical) Limited
SITE ADDRESS	St Dunstans Opco Ltd 20 St Dunstans Hill London EC3R 8HL

MAINTENANCE CONTRACTOR	Peldon Rose (Mechanical And Electrical) Limited

TYPE OF ASSESSMENT	**Domestic Water Risk Assessment**
DATE OF ASSESSMENT	**9th February 2023**
RE-ASSESSMENT DUE	**February 2024**
ASSESSOR	**Daniel Coree**
DOCUMENT NUMBER	**PELDONROSE\STDUNST20\90224994.RAS**

PROPOSED REVIEW DATE

The assessment must be reviewed regularly and specifically whenever there is a reason to suspect it is no longer valid.

The assessment should be reviewed after any alterations to the system, new usage pattern or in response to inspection and sampling results.

Annual management review is recommended as a minimum and a full re-assessment following:

(a) Changes to the water system or its use;

(b) Changes to the use of the building in which the water system is installed.

(c) The availability of new information about risks or control measures;

(d) The results of checks indicating that control measures are no longer effective.

(e) Changes to key personnel;

(f) A case of legionnaires disease / legionellosis associated with the system

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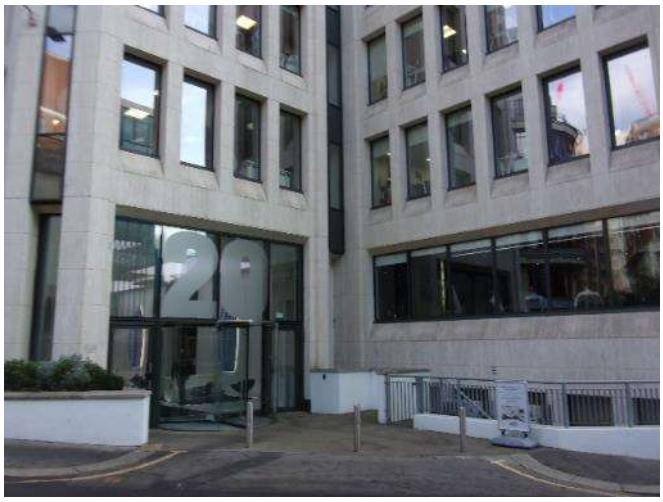
DESCRIPTION OF BUILDINGS

20 St Dunstan's Hill is a six-storey office building with a roof terrace and lower ground / basement floors.

There is an annexe to the side of the building which houses the cabins.



DESCRIPTION OF DOMESTIC WATER SERVICES

Potable water is boosted around the building from two tanks in the basement. Domestic cold water is boosted around the building from Basement cold water storage Tank.

Hot Water throughout the office building is supplied from local electric water heaters.

A Calorifier is present within the GF bin store, this supplies the Shower Room, Rest Room and Hair Salon.

The Annexe/Cabins are supplied by a Calorifier in the Basement plant room.

There are showers present throughout.

DESCRIPTION OF EXPOSED POPULATION

It cannot be disregarded that a member of staff / occupant may have an increased susceptibility to legionellosis. Little information is known about the health status of such occupants, and many are over the age of 45. Any legionella risk systems associated with the property are therefore assumed to have an elevated risk.

RELEVANT INFORMATION BEYOND THE SCOPE OF THE RISK ASSESSMENT

Only areas listed in the asset table are included in this assessment.

On previous assessments we have been unable to identify the hot water source for the LGF Restrooms. We were informed by Peldon Rose that this is supplied by CAL 2.

PERSONNEL INVOLVED IN THE CONTROL OF LEGIONELLA

SPECIALIST SERVICE PROVIDER

COMPANY	Phase Technology Ltd

ADDRESS	No 2&3 Ropley Business Park The Dean Ropley Hampshire SO24 0BG

SERVICE/MAINTENANCE COMPANY

COMPANY	Peldon Rose (Mechanical And Electrical) Limited

ADDRESS	Maintenance Division Sterling House 42 Worple Road London SW19 4EQ

SITE – Personnel responsible for Legionella control

Duty Holder	Not Recorded

Responsible Person	Not Recorded
Deputy Responsible Person	Not Recorded

RISK ASSESSOR

Daniel Coree	Holds the qualification -WMSoc and City & Guilds Accredited Legionella Risk Assessment of Water Systems (W015). He has four years' experience with water hygiene.
Phase Technology	Phase Technology are registered with the Legionella Control Association for the completion of Risk Assessments for Hot and Cold Water Systems, Cooling Systems and Process & Other Systems. Registration number is: 2005/243 and can be viewed on the Lp Control Association website.

RISK ASSESSMENT PEER REVIEW

NAME	**Karl Gailer**

GENERAL INTRODUCTION

The most recent (therefore relevant and applicable) publication by the Health and Safety Commission is Legionnaires' Disease 'The Control of Legionella Bacteria in Water Systems (L8) The Approved Code of Practice and Guidance on Regulations (Fourth edition) and HSG274 parts 1, 2 and 3 (2014).

L8 applies to the risk from legionella bacteria in any building (where the Health and Safety at Work act etc. 1974 applies) where there is a means of creating and transmitting droplets from stored or other sources of water.

One of the legal duties required by L8 is that sources of risk are identified and assessed.

L8 states that reasonably foreseeable risk of exposure exists in :

- *Cooling Tower Systems*
- *Evaporative Condenser Systems*
- *Hot and Cold water systems*
- *Any other plant or system containing water exceeding 20 ^{0}C and capable of producing droplets e.g. Humidifiers, Air Washers, Spa Baths, Pools, Water Fountains, Vehicle Washes*

Legal Information

The code gives practical advice on how to comply with the law. If the advice is followed this is normally enough to comply with the law.

Health and safety inspectors seek to secure compliance with the law and refer to the code (L8) as illustrating good practice.

The code has special legal status. It states that 'If you are prosecuted for breach of health and safety and it is proved that you did not follow the relevant provisions of the Code, you will need to show that you have complied with the law in some other way or a court will find you at fault'.

Please note that this Risk Assessment only addresses one of many requirements in L8 and is therefore in isolation not sufficient to comply with the Law.

SCOPE OF WORKS AND EXCLUSIONS

- This assessment is only valid for the plant listed. All other plant known or otherwise to Phase Technology has not been assessed.

- It is neither practical nor possible to assess all materials used in construction of complex multi-component systems such as those covered by this document. Therefore it should be noted that not all materials can or have been assessed for their suitability of use.

- Whilst all efforts have been made to identify any potential dead legs associated with the systems assessed the complex nature of pipe work installations within buildings prevents this from being a fully complete and accurate list.

- Phase Technology cannot be accountable for any information or data not reasonably accessible and made so by the client.

- This domestic water risk assessment does not comprise any of the following systems

    - Cooling towers / Condenser water pipe work
    - Swimming pool and spa systems
    - Closed water circuits – heating and chilled water systems
    - Fire hose or sprinkler systems
    - Steam humidifiers / boilers
    - Vending machines (unless disused and creating dead legs)

EXECUTIVE SUMMARY OF RECOMMENDATIONS

In line with our assessment findings and the risk rating applied - The domestic water services at this site requires some remedial works.

Please see the table below which gives details of all the hazards found and recommended actions.

ACTION ID/ ASSET	LOCATION	HAZARD DESCRIPTION	ACTUAL RISK RATING	RECOMMENDED ACTION	ACTION REQUIRED	COMPANY / DATE COMPLETED	RESIDUAL RISK FOLLOWING COMPLETION OF ACTION	SIGNED
01-Site	SoC	Whilst a System of Control was present, it is not considered fully comprehensive. There may be records present that were not available on the day of survey. There is no site-specific written scheme present.	**HIGH**	Review the System of Control to ensure that it meets all the requirements of the ACoP L8 and HSG274. A site-specific written scheme should be implemented and reflect the complexity of the system in question.	1 MONTH		**LOW**	
02-Site	Training	There is no evidence in the logbook that all site personnel have received suitable legionella awareness training.	**HIGH**	Provide legionella awareness training to site personnel and add certification to logbooks.	1 MONTH		**LOW**	
03- High Volume Water Heater	3F Cleaners Cupboard	Stored water temperature too low (less than 60 ºC).	**HIGH**	Increase water heater storage temperature to 60 ºC.	1 MONTH		**MEDIUM**	
04- High Volume Water Heater	4F Cleaners Cupboard	Stored water temperature too low (less than 60 ºC).	**HIGH**	Increase water heater storage temperature to 60 ºC.	1 MONTH		**MEDIUM**	
05-CAL 1	Basement Plant Room	Flow temperature was below 60°C.	**HIGH**	Increase storage temperature to achieve 60°C on flow.	1 MONTH		**MEDIUM**	

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06- Shower	LGF Maquarie	Although we were informed that these outlets are flushed, no records were seen on site.	**HIGH**	Flush weekly during low periods of use or low occupation. Record all actions.	1 MONTH		**MEDIUM**	
07- Shower	LGF Illawarra	Although we were informed that these outlets are flushed, no records were seen on site.	**HIGH**	Flush weekly during low periods of use or low occupation. Record all actions.	1 MONTH		**MEDIUM**	
08- Shower	GF Hesperus	Although we were informed that these outlets are flushed, no records were seen on site.	**HIGH**	Flush weekly during low periods of use or low occupation. Record all actions.	1 MONTH		**MEDIUM**	
09- Shower	GF Port Jackson	Although we were informed that these outlets are flushed, no records were seen on site.	**HIGH**	Flush weekly during low periods of use or low occupation. Record all actions.	1 MONTH		**MEDIUM**	
10- Shower	GF Harbinger	Although we were informed that these outlets are flushed, no records were seen on site.	**HIGH**	Flush weekly during low periods of use or low occupation. Record all actions.	1 MONTH		**MEDIUM**	
11- Shower	LGF Shower Room (x6)	Although we were informed that these outlets are flushed, no records were seen on site.	**HIGH**	Flush weekly during low periods of use or low occupation. Record all actions.	1 MONTH		**MEDIUM**	
12- Spray Outlet	LGF Hair Salon	The outlet does not appear to be in regular use and therefore forms a high risk deadleg in the pipework. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate in the system.	**HIGH**	Flush weekly and record actions.	1 MONTH		**MEDIUM**	

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13- Deadend 1	LGF Old Accessible Toilet (Now Store)	We noted a deadend in the pipework and this can lead to an increase in the likelihood that legionella and other bacteria will proliferate in the system. Size: >6 times the diameter of the pipework.	**HIGH**	We recommend that all deadends on site be cut back to the live source.	1 MONTH		**NULL**	
14- Expansion Vessel	External Bin Store	It is not clear why these vessels have been installed on the secondary return and why there are three of them. We would not traditionally see these on the secondary return and they pose a stagnation risk as they were cold upon inspection.	**HIGH**	Investigate why these vessels have been installed in this configuration.	1 MONTH		**MEDIUM**	
15-CWST 2 (Potable)	Basement Plant Room	Potable tank identified (drinking water) and no testing regime was observed.	**MEDIUM**	Ensure tank is inspected every 6 months (12 months for non-potable). Establish bi-annual testing regime of the tank for TVCs and Pseudomonas Aeruginosa.	3 MONTHS		**LOW**	
16-CWST 3 (Potable)	Basement Plant Room	Potable tank identified (drinking water) and no testing regime was observed.	**MEDIUM**	Ensure tank is inspected every 6 months (12 months for non-potable). Establish bi-annual testing regime of the tank for TVCs and Pseudomonas Aeruginosa.	3 MONTHS		**LOW**	
17-CAL 2	External Bin Store	No flow or return temperature gauges.	**MEDIUM**	Fit flow and return temperature gauges.	3 MONTHS		**LOW**	

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18-Low Volume Water Heater	Roof Servery	Stored water temperature too low (less than 50-60 ^{o}C).	**MEDIUM**	Increase water heater storage temperature to achieve 50°C at all outlets.	3 MONTHS		**LOW**	
19- Deadleg 1	Basement Plant Room	The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.	**MEDIUM**	Flush weekly and record actions.	3 MONTHS		**LOW**	
20- Deadleg 2	Basement Plant Room	The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.	**MEDIUM**	Flush weekly and record actions.	3 MONTHS		**LOW**	
21- Deadleg 3	Basement Plant Room	The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.	**MEDIUM**	Flush weekly and record actions.	3 MONTHS		**LOW**	

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22- Deadleg 4	Basement Plant Room	The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.	**MEDIUM**	Flush weekly and record actions.	3 MONTHS		**LOW**	
23- Deadleg 5	External Bin Store	The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.	**MEDIUM**	Flush weekly and record actions.	3 MONTHS		**LOW**	
24-Bib Tap	See asset table for locations	Outlets such as these often have periods of low use, creating a potential deadleg in the pipework.	**MEDIUM**	Flush weekly at times of low use and record actions. Any hoses should be disconnected and drained when not in use and any spray attachment cleaned on a regular basis. Ensure appropriate backflow protection is fitted.	3 MONTHS		**LOW**	
25- Expansion Vessel	See asset table for locations- Electric Water Heaters	Expansion vessels are often supplied from long pipework legs which can create deadlegs or where pressure is constant.	**MEDIUM**	Flush to drain six monthly and record all actions.	3 MONTHS		**LOW**	
26- Expansion Vessel	See asset table for locations	Expansion vessels are often supplied from long pipework legs which can create deadlegs or where pressure is constant.	**MEDIUM**	Flush to drain monthly and record all actions.	3 MONTHS		**LOW**	

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27- Expansion Vessel	See asset table for locations- Electric Water Heaters	Expansion vessel installed horizontally / upside down.	**MEDIUM**	Reconfigure pipework to install vertically.	3 MONTHS		**LOW**	
28-Pump Set	Basement Plant Room	Pump set present.	**MEDIUM**	Ensure any standby pumps are used at least weekly to prevent stagnation, as per HSG 274, part 2. If not used, standby units must be flushed weekly.	3 MONTHS		**LOW**	
29-TMVS	See asset table for locations	It should be ensured that all TMVs have annual servicing and failsafe checks completed.	**MEDIUM**	There are no records present for annual failsafe checks and servicing. Consider removal of TMVs where not required.	3 MONTHS		**LOW**	
30-TMTS	See asset table for locations	It should be ensured that all TMTs have annual servicing and failsafe checks completed.	**MEDIUM**	There are no records present for annual failsafe checks and servicing.	3 MONTHS		**LOW**	
31-Hot and cold water services	See asset table for locations	No service schedule for the pressure reducing valves on the cold supply pipe work.	**MEDIUM**	Pressure reducing valve strainers /filters should be regularly inspected/cleaned as part of the maintenance regime.	3 MONTHS		**LOW**	
32-Scale – Shower	LGF Maquarie	Light scale deposits present to shower.	**MEDIUM**	Clean and descale outlet. Ensure a regular cleaning programme is in place to minimise the risk of microbial proliferation.	3 MONTHS		**LOW**	
33-Scale – Shower	GF Hesperus	Light scale deposits present to shower.	**MEDIUM**	Clean and descale outlet. Ensure a regular cleaning programme is in place to minimise the risk of microbial proliferation.	3 MONTHS		**LOW**	

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34-Scale – Spray Outlet	LGF Hair Salon	Light scale deposits present to outlet.	**MEDIUM**	Clean and descale outlet. Ensure a regular cleaning programme is in place to minimise the risk of microbial proliferation.	3 MONTHS		**LOW**	
35-Scald Risk	See Domestic Water Temperature Survey	Stored water temperature too high presenting scald risk (greater than 65ºC).	**MEDIUM**	Reduce water heater storage temperature to achieve 50-60°C at all outlets.	3 MONTHS		**LOW**	
36-TMV Outlet	See Domestic Water Temperature Survey	The temperature at the TMV outlet is outside the range 39°C to 43°C.	**LOW**	Adjust TMV so temperature is in the range 39°C to 43°C.	6 MONTHS		**LOW**	
37-Flexi Hoses	See asset table for locations	It could not be determined if the flexi hoses on site are WRAS approved.	**LOW**	We advise that all non-WRAS approved flexible hoses be replaced with fixed copper connections. If flexible hoses are required due to space restrictions, then WRAS compliant hoses should be fitted.	6 MONTHS		**LOW**	

Actioned Required: This is a recommended time frame from the date of the assessment to undertake the remedial work to eliminate or reduce the risk.

Date Completed: Enter the date the remedial work was completed.

Signed: To be signed by persons responsible for water management.

RECOMMENDED MINIMUM MONITORING REGIME

The water services at this site require the following checks to be conducted and recorded to comply with ACoP L8, HSG 274 and as best practice: -

Frequency	Checks to be conducted and recorded.
Weekly	Flushing of low use outlets, showers and bib taps- temperature and flush duration to be recorded.
Monthly	Record monthly hot and cold outlet temperatures. Hot water should be supplied to outlet or TMV within one minute of running at no less than 50°C. Cold water should reach outlet at 20°C or below within two minutes of running.
Monthly	Record hot water calorifier temperatures, to monitor whether the water heater is storing water at 60°C or above and the returning water is at 50°C or above.
Monthly	Record hot water temperatures of high volume electric water heaters, to monitor whether the water heater is storing water at 60°C
Quarterly	Any scaled or dirty outlets should be cleaned, disinfected and de-scaled as necessary.
Quarterly	Showerheads and hoses should be dismantled, cleaned, disinfected and de-scaled as necessary.
Six Monthly	Record temperatures of cold water storage tanks. Inspect tanks internally and clean as required, followed by disinfection.
Six Monthly	Record low volume water heater temperatures to monitor whether the water heater is storing water at 50°C or above.
Six Monthly	Sampling of hot and cold-water services.
Annually	Service and clean thermostatic mixer valves/taps to ensure correct and safe operation.
Annually	Inspect calorifiers, purge debris via drain. (Inspect and clean internally if access permits)
Annually	Clean and disinfection of Potable cold water storage tanks.
Annually	Undertake management review.
Remedial Works	Wherever problems are identified it must be ensured that suitable and sufficient corrective actions are taken and recorded.
Risk Assessment Actions	Complete actions raised on the legionella risk assessment.

These checks should be recorded within a suitable Log Book and it is now a requirement for these records to be held for five years.

DOMESTIC WATER ASSET REGISTER

Location	Plant / Assets	Other/Comments
Roof Cafe Servery	WHB x 1, SK x 1, DW x 1, ICE x 1, CM x 1, FH x 2, PRV x 1, EV x 1(UPSIDE DOWN), EWH x 1(15L)	
Roof Cafe Food Prep	SK x 1, WHB x 1, DW x 1, PRV x 1, FH x 4, SO/SH x 1, PWSH x 1, EWH 30L x 1, EV x 1	
Roof Cafe Toilet Corridor	EWH 30L x 1, EV x 1(UPSIDE DOWN), PRV x 1	
Roof Cafe WCs	WHB x 4, TMV x 4, WC x 4, FH x 8	
Roof Café Seating Area	CARBONATED TAP x 1	
Roof	BT x 2	
6F Tea Point	SK x 1, TMV x 1, DW x 2, BILLI TAP x 1, EV x 1(HOR), EWH x 1(15L)	
6F Gents Cleaners Cupboard	BSK x 1, EWH 30L x 1, EV x 1, PRV x 1	
6F Gents Toilet	WHB x 5, TMV x 2, WC x 6, FH x 10	
6F Accessible Toilet	WHB x 1, TMT x 1, WC x 1, FH x 2	
5F Tea Point	SK x 1, TMV x 1, DW x 2, BILLI TAP x 1, EV x 1(HOR), EWH x 1(15L)	
5F Ladies Cleaners Cupboard	BSK x 1, EWH 30L x 1, EV x 1, PRV x 1	
5F Ladies Toilet	WHB x 5, TMV x 2, WC x 6, FH x 10	
5F Accessible Toilet	WHB x 1, TMT x 1, WC x 1, FH x 2	
4F Tea Point	SK x 1, TMV x 1, DW x 2, BILLI TAP x 1, EV x 1(HOR), EWH x 1(15L)	
4F Gents Cleaners Cupboard	BSK x 1, EWH 30L x 1, EV x 1, PRV x 1	
4F Gents Toilet	WHB x 5, TMV x 2, WC x 6, FH x 10	
4F Accessible Toilet	WHB x 1, TMT x 1, WC x 1, FH x 2	
3F Tea Point	SK x 1, TMV x 1, DW x 2, BILLI TAP x 1, EV x 1(HOR), EWH x 1(15L)	
3F Ladies Cleaners Cupboard	BSK x 1, EWH 30L x 1, EV x 1, PRV x 1, FH x 2	
3F Ladies	WHB x 5, TMV x 2, WC x 6, FH x 10	
3F Accessible Toilet	WHB x 1, TMT x 1, WC x 1, FH x 2	
2F Tea Point	SK x 1, TMV x 1, DW x 2, BILLI TAP x 1, EV x 1(HOR), EWH x 1(15L)	
2F Gents Cleaners Cupboard	BSK x 1, EWH 30L x 1, EV x 1, PRV x 1	
2F Gents	WHB x 5, TMV x 2, WC x 6, FH x 10	
2F Accessible Toilet	WHB x 1, TMT x 1, WC x 1, FH x 2	
1F Tea Point	SK x 1, TMV x 1, DW x 2, BILLI TAP x 1, EV x 1(HOR), EWH x 1(15L)	
1F Ladies Cleaners Cupboard	BSK x 1, EWH 30L x 1, EV x 1(HOR), PRV x 1	
1F Ladies	WHB x 5, TMV x 2, WC x 6, FH x 10	
1F Accessible Toilet	WHB x 1, TMT x 1, WC x 1, FH x 2	
GF Client Kitchen	SK x 1, EWH 15L x 1, EV x 1(HOR), BILLI TAP x 1, DW x 1, PRV x 1	
GF Unisex Toilets	WHB x 4, TMV x 2, WC x 4, EWH x 1(15L), EV x 1(UPSIDE DOWN), TMV x 2	
GF Tea Point	SK x 1, DW x 2, BILLI TAP x 1, EV x 1(HOR), EWH x 1(15L), FH x 2, PRV x 1	
LGF Pantry	SK x 1, DWB x 1, DW x 1, WM x 1, EWH x 1(15L), EV x 1(HOR), DWC x 1, FH x 2	
LGF Restrooms	WHB x 5, TMV x 2, WC x 6, BSK x 1, FH x 10	
LGF Hair Salon	SK x 1, SK/MSHR x 1, FH x 2	
LGF Old Accessible Toilet -Now Store	DE x 3	

Location	Plant / Assets	Other/Comments
External Bin Store	CAL 2, BT x 1, DL x 1, PRV x 2, EV x 4	
LGF Shower Room	MSHR x 6	
Basement Plant Room	CWST 1, CWST 2, CWST 3, DL x 6, CAL 1, PS x 1, EV x 3	
Annexe		
LGF Cabins -Illawarra	WHB x 1, TMV x 1, WC x 1, MSHR x 1, FH x 2	
LGF Cabins -Maquarie	WHB x 1, TMV x 1, WC x 1, MSHR x 1, FH x 2	
GF Cabins -Port Jackson	WHB x 1, TMV x 1, WC x 1, MSHR x 1, FH x 2	
GF Cabins -Harbinger	WHB x 1, TMV x 1, WC x 1, MSHR x 1, BATH x 1, FH x 2	
GF Cabins -Hesperus	WHB x 1, TMV x 1, WC x 1, MSHR x 1, FH x 2	

Key Asset Type**	Total
CAL	2
CWST	3
ESHR	0
MSHR	11
ST	3
TMV	33
TMT	6

**** The key asset table above is a summary only and may not fully quantify items that were not accessed such as exclusions. See page 2 for details.**

Key

CWST = Cold Water Storage Tank
CAL =Calorifier
EWH/IWH =Water Heater
TMV/T = Thermostatic Mixing Valve/Tap
ICE = Ice Machine
DW = Dish Washer
WM = Washing Machine
DWF = Drinking Water Fountain
DWB = Drinking Water Boiler
DWB/C = Drinking Water boiler/Cooler
DWC = Drinking Water Cooler
PU= Pressurisation Unit
DE = Deadend
FH= Flexi Hose
EV= Expansion Vessel
BSK =Butlers Sink
WC = Toilet Cistern
U = Urinal
MSHR = Mixer Shower
ESHR = Electric Shower
ST=Spray Tap
SK = Sink
WHB = Wash Hand Basin
ICM = Incoming Main
SO = Steam Oven
CM = Coffee Machine
PS= Pump Set
DL = Deadleg
STRAIN= Inline Strainer
B= Boiler

OBJECTIVE AND GRADING POLICY

AIM OF THE RISK ASSESSMENT

To enable the responsible person to make an informed decision regarding the adequacy of precautions currently in place to minimise the risk to health from legionellosis to both building occupants and the general public.

GRADING POLICY

Items of plant constituting a risk to health have an ***inherent risk*** and an ***actual risk***. The aim of the Risk Assessment is to identify all plant with an inherent risk and make an assessment of its actual risk. In making a valued assessment of the actual risk, condition of the plant, maintenance procedures, compliance with current guidelines and codes of practice will be examined.

Each section of Risk Assessment is accompanied by an explanation of the inherent risk with the actual risk reported and based on the grading system below.

Risk Assessment – Actual Risk Rating

HIGH	MEDIUM	LOW

The risk assessment rating has been divided into three categories as outlined above. A low risk rating indicates that satisfactory arrangements and precautions have been taken with regard to the control and prevention of legionellosis and legionnaires disease. A medium risk rating indicates that some remedial measures are required in order to reduce the risk to a satisfactory level. The remedial measures highlighted, although they may be required under L8 or similar documentation, are unlikely to be life threatening and may be acted upon within a framework of on-going maintenance. A high risk rating represents a wholly unsatisfactory arrangement with regard to the prevention and control of legionellosis and legionnaires disease and requires immediate attention in order to reduce the risk to a satisfactory level.

Accompanying each section of the assessment will be the recommendations to minimise the actual risk which may involve changes to the plant and upgrading maintenance regimes and documentation procedures.

Action required

This is a recommended time frame from the date of the assessment to undertake the remedial work to eliminate or reduce the risk. Some risks such as scaled outlets will require a schedule of ongoing works.

Date Completed

Enter the date the remedial work was completed.

Signed

To be signed by persons responsible for water management.

RISK ASSESSMENT REVIEW

Based on the findings of this Risk Assessment we advise the next Legionella Risk Assessment Audit and Review be conducted in February 2024.

OVERVIEW ASSESSMENT OF WATER SYSTEMS

	Suggested Review Date
Water Systems deemed high risk as per ACoP L8 and HSG 274 (e.g cooling towers present)	1 Year
No System of Control present or required monitoring insufficient, as per ACoP L8 and HSG 274. Once a System of Control has been implemented and deemed effective this interval will be reviewed.	1 Year
Water Systems deemed medium risk as per ACoP L8 and HSG 274	2 Years
System deemed low risk as per ACoP L8 and HSG 274	4 Years

The Risk Assessment should be reviewed regularly and in any case, whenever there is reason to believe that the original assessment may no longer be valid, a new one should be completed.

The new assessment will supersede the previous which should be archived for 5 years.

Below are examples of when a risk assessment may become invalid:

- If a system is involved or suspected of being involved in a Legionnaires Disease Outbreak
- It is not reviewed regularly
- Changes are made to plant or water systems or its use
- Changes are made to personnel managing, maintaining or monitoring the water systems
- Changes are made to building use in which the water system is installed
- New Information about risks or control measures becomes available
- Results of checks indicate that control measures are no longer effective.

DOCUMENTATION AND RECORDS

INTRODUCTION

INHERENT RISK

Documentation and Record keeping is at the core of L8. Whilst a site may be actually employing all the appropriate precautions if there is no Log Book detailing the relevant information the inherent risk must be considered high.

ACTUAL RISK

To ensure that adequate precautions are in place and continue to be carried out correctly it is essential that Documentation and Records are kept on site.

Below are examples of some requirements of L8 that each site should have readily available:

- Management structure and Communication Protocol
- Managerially Responsible Person
- Risk Assessment
- Plant Schematic
- Written Scheme for management of precautions
- Records of operation and maintenance
- Personnel training records

The documentation and records should be contained within a site based Water Management Log Book.

DOCUMENTATION AND RECORDS

DOCUMENTATION	YES/NO	COMMENTS
Is there a System of Control?	Yes	Phase Technology Log Book.
Is the System of Control Generally L8 Compliant?	No	
Are Particularly Susceptible Occupants Present?	Yes	Increased susceptibility, see page 2.
Is There a Site-Specific Written Scheme Present?	No	Basic scheme present but not completed.
Log Book Audit Undertaken?	Yes	Last completed on 10/2/22 e-report. Now due.
Management Structure Detailed?	No	
Lines of Communication Detailed?	No	
Responsible Person Nominated?	No	
Previous Risk Assessment Available? Date?	No	Superseded report from 13/11/20 filed, replace with most up to date report.
Description of Testing Regime?	No	
Description and Schematic Plan?	Yes	
Training Records Present?		
Water Treatment Company	Yes	
Maintenance Company	No	
Management/ Personnel Responsible for Legionella Control	No	
Is there a Regime of Tests / Sampling?	No	
Shut Down and Start Up Procedures for Complex Systems?	No	
Site specific emergency procedures in the event of Legionella bacteria being detected?	Yes	
Plant Inspection/Rotation Records for Complex Systems?	No	
Weekly Low Used Outlets Flushed?	No	No records seen.
TMVs inspected / Serviced?	No	
Expansion Vessels Flushed?	No	
Defects Entered into Defects Log?	No	Temperature defects not recorded.
Defects closed out with appropriate actions?	No	
Signatures or Electronic ID Against all Records?	Yes	
Calibration information for testing equipment?	No	

DOCUMENTATION AND RECORDS

Cold Water System Records	YES/NO	COMMENTS
Storage Tank Inspection Undertaken?	No	No records since 04/02/20.
Monthly 2 Minute Sentinel Tap Temp Readings?	Yes	
Annual 2 Minute Tap Temp Readings?	Yes	
Records of Cleaning / Disinfection?	Yes	Completed on 23/03/22.

Hot Water System Records	YES/NO	COMMENTS
Monthly Calorifier Readings?	No	No records since Jan 2022.
Monthly or Six-Monthly Testing of Water Heaters?	No	
Monthly 1 Minute Sentinel Tap Temp Readings?	Yes	
Annual 1 Minute Tap Temp Readings?	Yes	
Records of Inspection / Disinfection?	No	No records since 04/02/20

Shower/Spray Hose Records	YES/NO	COMMENTS
Regular Showerhead Cleans?	No	Only showers, no spray taps completed.

General Comments on the System of Control
Omissions as highlighted in yellow above should be actioned.

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DOCUMENTATION AND RECORDS

RISK RATING HIGH

RISK ASSESSMENT RATING COMMENTS
Whilst a System of Control was present, it is not considered fully comprehensive, as highlighted in the table above. There may be records present that were not available on the day of survey. There is no site-specific written scheme present. There is no evidence in the logbook that all site personnel have received suitable legionella awareness training.

RECOMMENDATIONS
We recommend that the System of Control be reviewed to ensure that it meets all the requirements of the ACoP L8 and HSG274. A site-specific written scheme should be implemented and reflect the complexity of the system in question. Provide legionella awareness training to site personnel and add certification to logbooks.

COLD WATER STORAGE TANKS

INTRODUCTION

INHERENT RISK

Cold Water Storage Tanks can become contaminated from mains water supplies and increased risk occurs when temperatures exceed 20 ^{0}C or stagnation, dead legs etc., occur. Should the installation become colonised with legionella the tanks may not in themselves present a high risk, but, when feeding other items of plant (cooling towers, calorifiers, showers) the risk will be substantially increased.

ACTUAL RISK

The following points should be considered:

- Correctly fitting and vented lid
- Rodent /Insect screens fitted to overflows and vents
- Insulation if storage temperatures in excess of 20C are possible
- Correct size and capacity
- Temperatures in excess of 20 °C to be avoided
- Avoiding Stagnation
- Regular inspection and disinfection if required
- Regular monitoring
- Internal support bars / system being suitable construction

Further L8 good practice also dictates:

- Warning pipe required on tanks of > 1000 ltrs but < 5000 ltrs
- Level indicator required on tanks of > 5000 ltrs but < 10000 ltrs
- Alarm required on tanks of > 10000 ltrs
- Minimum space between top of tank and ceiling/roof of 0.35 m
- Rodent/insect screen should have maximum mesh opening of 0.65 mm

COLD WATER STORAGE TANKS

TECHNICAL DATA	
Location	Basement Plant Room
Tank Designation/Asset Number	CWST 1
Make up supplied from	Mains
Services supplied	Boosted Domestic Cold Water to Non-Potable Outlets
CONSTRUCTION	
Type	Rectangular Single
Materials of Construction	GRP
Overall Size (L x W x H) m	2m x 1m x 2.25m
Capacity (approx) litres	5000L
Split Section Sizes (L x W x H) m	N/A
Make up Valve Type and Size	42mm Ball Valve
RISK ASSESSMENT DATA	
Rodent screens fitted	Yes
Suitable lid fitted	Yes
Make up and outlet on same side	No
Type and Thickness of insulation	Integral 5cm
Distribution pipe work Insulated	Yes
Distribution pipe work labelled	Yes
Calorifier Vent	No
Solid Structure internal support bars	Yes
Ease of access for cleaning/inspection	Good, ladders required
Evidence of corrosion	No
Evidence of sludge/debris	Trace
Evidence of biofouling	No
Evidence of stagnation	No
Evidence of Osmosis – tank fabric / lining deterioration	No
Temperature of stored water	7.9 stored / Unable to record an inlet temperature

RISK RATING MEDIUM

COMMENTS
Cold water storage tanks considered to be a risk, HSG 274.

RECOMMENDATIONS
No specific recommendations at time of survey.

COLD WATER STORAGE TANKS – Photos

	
Tank External	**Tank Internal**

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COLD WATER STORAGE TANKS

TECHNICAL DATA	
Location	Basement Plant Room
Tank Designation/Asset Number	CWST 2
Make up supplied from	Mains
Services supplied	Boosted Potable Water To Building
CONSTRUCTION	
Type	Twined Vertical with Internal Booster
Materials of Construction	Plastic
Overall Size (L x W x H) m	1.5m x 0.8m x 0.75m
Capacity (approx) litres	480L
Split Section Sizes (L x W x H) m	N/A
Make up Valve Type and Size	22mm Ball Valve
RISK ASSESSMENT DATA	
Rodent screens fitted	No
Suitable lid fitted	Yes
Make up and outlet on same side	No
Type and Thickness of insulation	Integral
Distribution pipe work Insulated	Yes
Distribution pipe work labelled	Yes
Calorifier Vent	No
Solid Structure internal support bars	N/A
Ease of access for cleaning/inspection	Good
Evidence of corrosion	No
Evidence of sludge/debris	Trace
Evidence of biofouling	No
Evidence of stagnation	No
Evidence of Osmosis – tank fabric / lining deterioration	No
Temperature of stored water	Stored 11.2 / Inlet 7.2

RISK RATING MEDIUM

COMMENTS
Cold water storage tanks considered to be a risk, HSG 274. Potable tank identified (drinking water) and no testing regime was observed.

RECOMMENDATIONS
Ensure tank is inspected every 6 months (12 months for non-potable). Establish bi-annual testing regime of the tank for TVCs and Pseudomonas Aeruginosa.

COLD WATER STORAGE TANKS – Photos

	
Tank External	**Tank Internal**

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COLD WATER STORAGE TANKS

TECHNICAL DATA	
Location	Basement Plant Room
Tank Designation/Asset Number	CWST 3
Make up supplied from	Mains
Services supplied	Boosted Potable Water to Building
CONSTRUCTION	
Type	Twined Vertical with Internal Booster
Materials of Construction	Plastic
Overall Size (L x W x H) m	1.5m x 0.8m x 0.75m
Capacity (approx) litres	480L
Split Section Sizes (L x W x H) m	N/A
Make up Valve Type and Size	22mm Ball Valve
RISK ASSESSMENT DATA	
Rodent screens fitted	No
Suitable lid fitted	Yes
Make up and outlet on same side	No
Type and Thickness of insulation	Integral
Distribution pipe work Insulated	Yes
Distribution pipe work labelled	Yes
Calorifier Vent	No
Solid Structure internal support bars	N/A
Ease of access for cleaning/inspection	Good
Evidence of corrosion	No
Evidence of sludge/debris	Trace
Evidence of biofouling	No
Evidence of stagnation	No
Evidence of Osmosis – tank fabric / lining deterioration	No
Temperature of stored water	Stored 9.5 / Inlet 7.1

RISK RATING MEDIUM

COMMENTS
Cold water storage tanks considered to be a risk, HSG 274. Potable tank identified (drinking water) and no testing regime was observed.

RECOMMENDATIONS
Ensure tank is inspected every 6 months (12 months for non-potable). Establish bi-annual testing regime of the tank for TVCs and Pseudomonas Aeruginosa.

COLD WATER STORAGE TANKS – Photos

	
Tank External	**Tank Internal**

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HOT WATER HEATERS

INTRODUCTION

INHERENT RISK

Large Hot water heaters and calorifiers

Large Hot water heaters and calorifiers in themselves, represent a low risk in general terms. However, where the hot water is stored for supplying other plant which have high inherent risk factors (such as showers) the potential risk from calorifiers is much greater. Therefore, large water heaters and calorifiers can be a major source of proliferation for Legionella.

Local water heaters

Local and point of use water heaters take various forms, instantaneous; where mains water is heated immediately before use, low volume storage where a small reserve (7-15 litres) of hot water is prepared for use by local sinks and cistern type with an integral header tank and moderate storage volume.

Most are mains fed (though they can be tank fed and vented) and as such have a fresh clean water supply to them.

As these water heaters are usually low volume storage and close to the point of use, hot water storage temperatures of 60°C may present a scald risk. As a consequence point of use and instantaneous water heaters can be adjusted down to a minimum of 50°C (at all outlets supplied by the water heater). The risk of legionella growth from operating mains fed, low volume, water heaters at less than 60°C is low.

Cistern heaters are designed to be mains fed and hold a volume of water in a cistern above the heater ready for use. They store from 25 to 125 litres of water for local or multiple outlet use.
The header tanks can become contaminated with sediment and can reach temperatures of 30°C presenting a risk of legionella growth if not routinely cleaned and regularly used.

Point of use water heaters present a low risk of legionella growth if used daily and operated at 50°C or above, but present a moderate to high risk if rarely used or if the header tank water is contaminated.

ACTUAL RISK

The following points should be considered:

- Use of approved fittings and materials
- Large water heaters and calorifiers should be capable of heating their entire contents to 60°C throughout or techniques such as trace heating and on-line pasteurisation be available to prevent the growth of legionella.
- Large water heaters and calorifiers should be accessible for cleaning and incorporate a drain valve for periodic purging.
- Local water heaters should deliver at least 50°C to all the outlets they supply.
- Water temperatures are monitored monthly.
- Large water heaters and calorifiers are inspected annually.
- On-line treatment such as trace heating is regularly checked.
- Records kept of all monitoring and checking procedures.

HOT WATER HEATERS

Technical Data	
Asset reference	CAL 1
Make	Megaflo
Location	Basement Plant Room
Configuration	Vertical
Re-circulating\gravity\pressurised	Recirculating
Construction	
Dimensions (H x D) m	2m x 0.5m
Water Volume (Est. litres)	300L
Materials of Construction	Not seen
Make-up Source	CWST 1
Pre-Treatment Plant / Softened	No
Process Served by water heater	Domestic hot water to Annexe and LGF Toilets
Calorifier Insulated	Yes
Condition of Insulation	Good
System Circulated	Yes
Shunt (Stratification) Pump Fitted	No
Heat Source	Immersion
Thermostat Set Point	Not seen
Vent pipe to tundish	Unvented
Drain Valve Present	Yes, on cold inlet
Access/Ease of Cleaning/Inspection	Good external access, no internal access
Distribution pipe work Insulated	Yes
Distribution pipe work labelled	Yes
Flow Temperature Gauge Present	Yes
Return Temperature Gauge Present	Yes
Risk Assessment Data	
Storage Temperature (60 ºC Min)	56.0
Return Temperature (50 ºC Min)	52.2
Evidence of Stratification	No

RISK RATING HIGH

COMMENTS
High volume water heater considered to be a risk, HSG 274. Flow temperature was below 60°C.

RECOMMENDATIONS
Increase storage temperature to achieve 60°C on flow.

HOT WATER HEATERS – Photos

Calorifier

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HOT WATER HEATERS

Technical Data	
Asset reference	CAL 2
Make	Andrews
Location	External Bin Store
Configuration	Vertical
Re-circulating\gravity\pressurised	Recirculating
Construction	
Dimensions (H x D) m	2m x 0.5m
Water Volume (Est. litres)	300L
Materials of Construction	Not seen
Make-up Source	CWST 1
Pre-Treatment Plant / Softened	No
Process Served by water heater	Domestic hot water to LGF Shower Room, LGF Hair Salon and presumed to supply LGF Rest Rooms (Peldon Rose Informed)
Calorifier Insulated	Yes
Condition of Insulation	Good
System Circulated	Yes
Shunt (Stratification) Pump Fitted	No
Heat Source	Direct Gas Fired
Thermostat Set Point	Not seen
Vent pipe to tundish	Unvented
Drain Valve Present	Yes on cold pipework
Access/Ease of Cleaning/Inspection	Good external no internal
Distribution pipe work Insulated	Yes
Distribution pipe work labelled	Yes
Flow Temperature Gauge Present	No
Return Temperature Gauge Present	No
Risk Assessment Data	
Storage Temperature (60 ºC Min)	63.7
Return Temperature (50 ºC Min)	62.4
Evidence of Stratification	No

RISK RATING MEDIUM

COMMENTS
High volume water heater considered to be a risk, HSG 274. No flow or return temperature gauges.

RECOMMENDATIONS
Fit flow and return temperature gauges.

HOT WATER HEATERS – Photos

Calorifier

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HOT WATER HEATERS

Technical Data	
Asset reference	High Volume Water Heater
Make	Ariston
Location	3F Cleaners Cupboard – Representative of 4F Cleaners Cupboard
Risk Assessment Data	
Pipework Insulated	Yes
Size in litres	30L
Storage Temperature (60 ºC Min)	46.0

RISK RATING HIGH

COMMENTS
High volume water heater considered to be a risk, HSG 274. Stored water temperature too low (less than 60 ºC).

RECOMMENDATIONS
Increase water heater storage temperature to 60 ºC.

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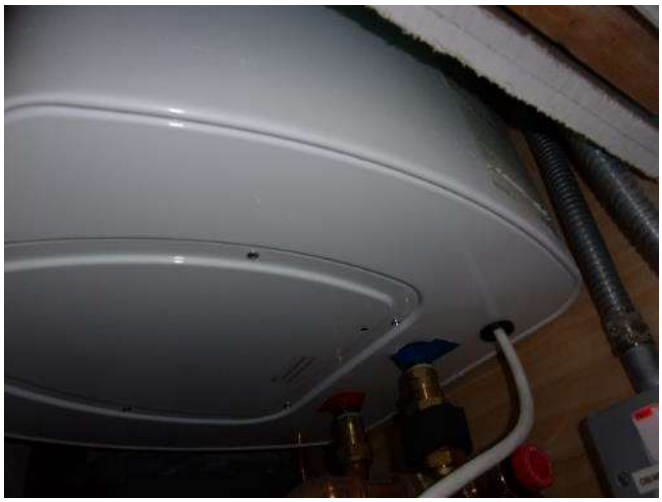
HOT WATER HEATERS

Technical Data	
Asset reference	High Volume Water Heater
Make	Zip
Location	Roof Corridor Hatch – Representative of Roof Food Prep, 6F Cleaners Cupboard, 5F Cleaners Cupboard, 2F Cleaners Cupboard, 1F Cleaners Cupboard
Risk Assessment Data	
Pipework Insulated	Yes
Size in litres	30L
Storage Temperature (60 °C Min)	60.8



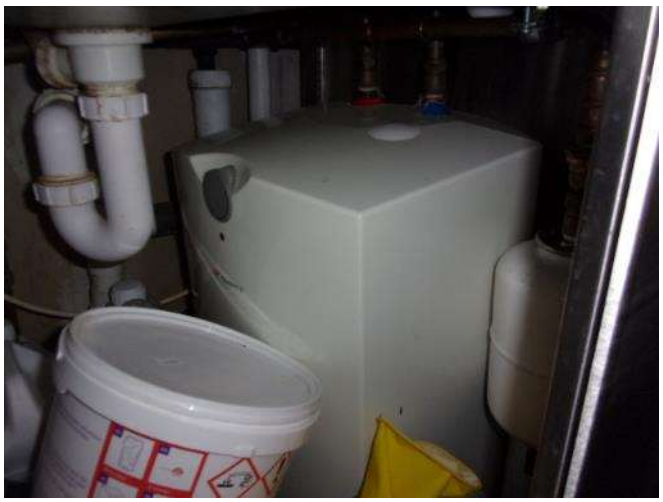
RISK RATING MEDIUM

COMMENTS
High volume water heater considered to be a risk, HSG 274.

RECOMMENDATIONS
No specific recommendations at time of survey.

HOT WATER HEATERS

Technical Data	
Asset reference	Low Volume Water Heater
Make	Zip
Location	Roof Servery
Risk Assessment Data	
Pipework Insulated	No – Not Required
Size in litres	15L
Storage Temperature (50 ºC Min)	47.0



RISK RATING MEDIUM

COMMENTS
Low volume water heater (15 litres or less) considered to be low risk in normal operation, HSG 274. Stored water temperature too low (less than 50-60 ºC).

RECOMMENDATIONS
Increase water heater storage temperature to achieve 50°C at all outlets.

HOT WATER HEATERS

Technical Data	
Asset reference	Low Volume Water Heater
Make	Zip
Location	6F Tea Point – Representative of 5F Tea Point, 4F Tea Point, 3F Tea Point, 2F Tea Point, 2F Tea Point, GF Tea Point, GF Unisex Toilet, GF Client Kitchen and LGF Pantry
Risk Assessment Data	
Pipework Insulated	No – Not Required
Size in litres	15L
Storage Temperature (50 °C Min)	67.7

RISK RATING LOW

COMMENTS
Low volume water heater (15 litres or less) considered to be low risk in normal operation, HSG 274.

RECOMMENDATIONS
No specific recommendations at time of survey.

HOT AND COLD WATER SERVICES

INTRODUCTION

INHERENT RISK

The inherent risk from hot and cold water outlets is minimal, except where the outlet installation and configuration allow the formation of aerosols. Outlet design, condition and temperature of the water have the most significant effect upon the risk.

Outlets such as showers may represent a high risk potential. The risk potential is largely dependent on the quality of the supply water and is therefore dependant on the condition of the water heaters/calorifiers and storage tanks.

The risk may also vary depending on the general cleanliness of the shower heads and the design configuration of the associated pipe work.

ACTUAL RISK

The following points should be considered:

- Water Management Log Book
- Cold Water Distribution at 20 ^{0}C or below within 2 Minutes of flushing
- Hot Water Distribution at 50 ^{0}C or above within 1 Minute of flushing
- Approved fittings and materials should be used
- Dead legs and unnecessarily long pipe runs should be avoided
- Monthly checks of water temperatures
- All outlets to be checked annually

The high risk from showers is by virtue of their ability to produce fine spray droplets. The level of risk is largely dependent on the spray head condition and the quality of the supply water.

Domestic Water Temperature Survey

Area/ Floor Location	Hot water			Cold water		REF
	Source	Supply °c	TMV °c	Source	°c	
Roof Toilet WHB	EWH 30L	60.8	33.1	CWST 1	14.4	
Roof Servery SK	EWH 15L	47.0	N/A	CWST 2 & 3	13.9	
Roof Food Prep SK	EWH 30L	67.5	41.9	CWST 2 & 3	14.5	
6F Tea Point SK	EWH 15L	67.7	41.7	CWST 2 & 3	13.5	
6F Cleaners Cupboard BSK	EWH 30L	69.1	N/A	CWST 1	9.0	
5F Tea Point SK	EWH 15L	66.1	42.4	CWST 2 & 3	13.3	
5F Cleaners Cupboard BSK	EWH 30L	65.7	N/A	CWST 1	9.0	
4F Tea Point SK	EWH 15L	54.5	41.8	CWST 2 & 3	13.2	
4F Cleaners Cupboard BSK	EWH 30L	57.5	N/A	CWST 1	9.2	
3F Tea Point SK	EWH 15L	58.9	43.1	CWST 2 & 3	13.1	
3F Cleaners Cupboard BSK	EWH 30L	46.0	N/A	CWST 1	9.0	
2F Tea Point SK	EWH 15L	70.2	45.8	CWST 2 & 3	12.9	
2F Cleaners Cupboard BSK	EWH 30L	60.3	N/A	CWST 1	8.8	
1F Tea Point SK	EWH 15L	50.1	40.3	CWST 2 & 3	12.9	
1F Cleaners Cupboard BSK	EWH 30L	72.4	N/A	CWST 1	8.6	
GF Tea Point SK	EWH 15L	55.4	N/A	CWST 2 & 3	12.5	
GF Unisex Toilet WHB	EWH 15L	51.1	40.2	CWST 1	9.7	
GF Client Kitchen SK	EWH 15L	58.2	41.1	CWST 2 & 3	13.9	
GF Hesperus WHB	CAL 1	55.6	45.5	MAINS	15.4	
LGF Restrooms WHB	CAL 1	66.3	41.2	CWST 1	9.0	
LGF Pantry SK	EWH 15L	59.2	N/A	CWST 2 & 3	14.0	
LGF Hair Salon SK	CAL 2	65.8	N/A	CWST 1	19.6	
LGF Maquarie WHB	CAL 1	55.6	42.9	MAINS	15.4	

RISK RATING HIGH

COMMENTS
EWH outlet temperatures are less than 50°C. TMV outlets are outside the recommended range 39 to 43°C. Stored water temperature too high presenting scald risk (greater than 65ºC).

RECOMMENDATIONS
Refer to Hot Water Heaters for recommendations. Adjust TMVs to achieve recommended range 39 to 43°C. Reduce water heater storage temperature to achieve 50-60°C at all outlets.

SHOWERS & SPRAY DEVICES

INTRODUCTION

INHERENT RISK

The high inherent risk from showers is by virtue of their ability to produce fine spray droplets. The level of risk is largely dependent on the spray head condition and the quality of the supply water.

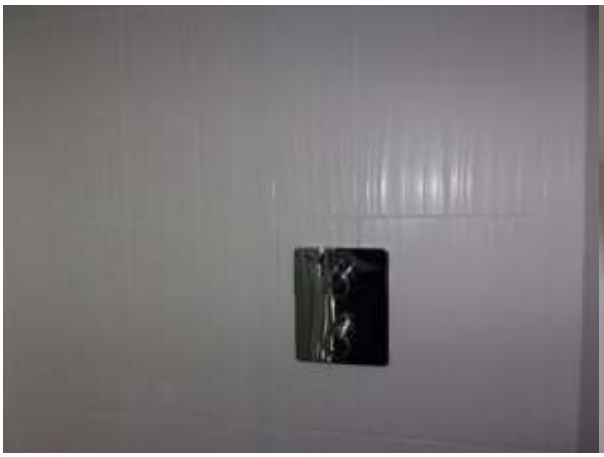
ACTUAL RISK

Outlets such as showers may represent a high risk potential. The risk potential is largely dependent on the quality of the supply water and is therefore dependant on the condition of the calorifiers and storage tanks.

The risk may also vary depending on the general cleanliness of the showerheads and the design configuration of the associated pipe work.

SHOWERS

Technical Data	
Shower Type	Mixer Shower
Location	LGF Maquarie – Representative of GF Hesperus
Shower Fed from	Mains and CAL 1
Risk Assessment Data	
Shower condition	Good
Estimated frequency of use	Little Used – Flushing records not seen
Nature of exposed population	INCREASED SUSCEPTIBITLY , SEE PAGE 2
Degree of exposure	Low (<1 hrs/wk)
Direct Spray Formation	Yes
Dirt / Scale Present	Light
Biological Slime Present	None
Extent of Corrosion	None



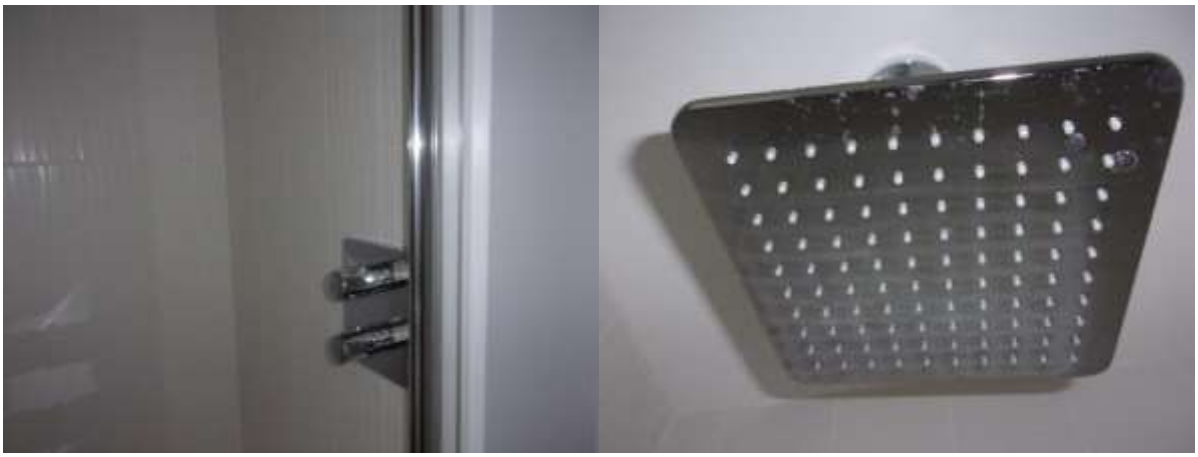
RISK RATING HIGH

COMMENTS
This is considered a risk system as defined in the ACoP L8. Light scale deposits present to shower. Although we were informed that these outlets are flushed, no records were seen on site.

RECOMMENDATIONS
Clean and descale outlet. Ensure a regular cleaning programme is in place to minimise the risk of microbial proliferation. Flush weekly during low periods of use or low occupation. Record all actions.

SHOWERS

Technical Data	
Shower Type	Mixer Shower
Location	LGF Illawarra – Representative of GF Port Jackson and GF Harbinger
Shower Fed from	Mains and CAL 1
Risk Assessment Data	
Shower condition	Good
Estimated frequency of use	Little Used – Flushing records not seen
Nature of exposed population	INCREASED SUSCEPTIBITLY , SEE PAGE 2
Degree of exposure	Low (<1 hrs/wk)
Direct Spray Formation	Yes
Dirt / Scale Present	Trace
Biological Slime Present	None
Extent of Corrosion	None



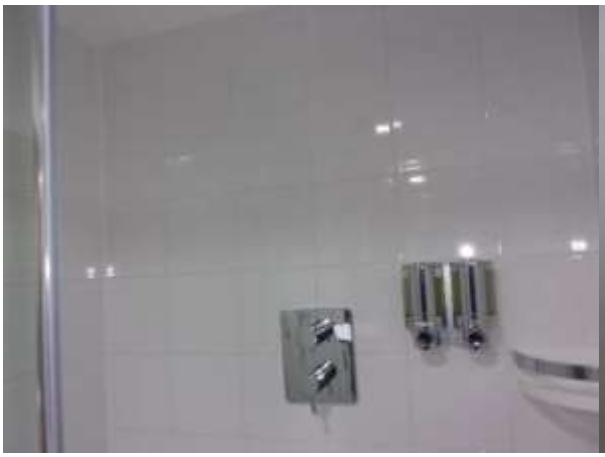
RISK RATING HIGH

COMMENTS
This is considered a risk system as defined in the ACoP L8. Although we were informed that these outlets are flushed, no records were seen on site.

RECOMMENDATIONS
Flush weekly during low periods of use or low occupation. Record all actions.

SHOWERS

Technical Data	
Shower Type	Mixer Shower
Location	LGF Shower Room x 6
Shower Fed from	CWST 1 and CAL 2
Risk Assessment Data	
Shower condition	Good
Estimated frequency of use	Little Used – Flushing records not seen
Nature of exposed population	INCREASED SUSCEPTIBITLY , SEE PAGE 2
Degree of exposure	Low (<1 hrs/wk)
Direct Spray Formation	Yes
Dirt / Scale Present	Trace
Biological Slime Present	None
Extent of Corrosion	None



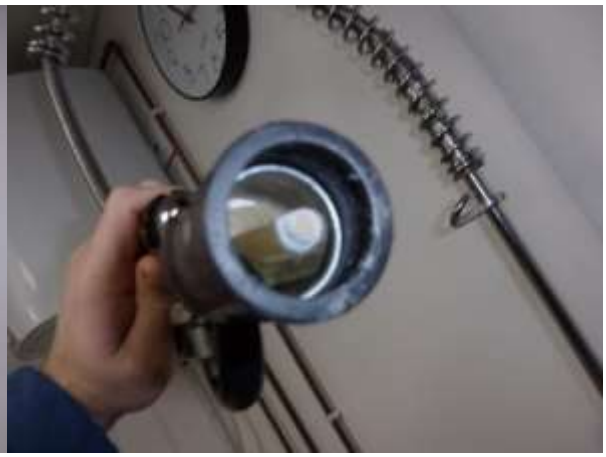
RISK RATING HIGH

COMMENTS
This is considered a risk system as defined in the ACoP L8. Although we were informed that these outlets are flushed, no records were seen on site.

RECOMMENDATIONS
Flush weekly during low periods of use or low occupation. Record all actions.

SPRAY OUTLET

Technical Data		
Outlet Type	Pot Wash Spray Hose	
Location	Roof Food Prep	
Outlet Fed from	CWST 2 & 3 and EWH 30L	
Risk Assessment Data		
Outlet condition	Good	
Estimated frequency of use	Daily	
Nature of exposed population	INCREASED SUSCEPTIBITLY , SEE PAGE 2	
Degree of exposure	Moderate (3 to 30 hrs/wk)	
Direct Spray Formation	Yes	
Dirt / Scale Present	Trace	
Biological Slime Present	None	
Extent of Corrosion	None	
Temperature ^{o}C	CWS 14.5^{o}C	HWS 67.5^{o}C



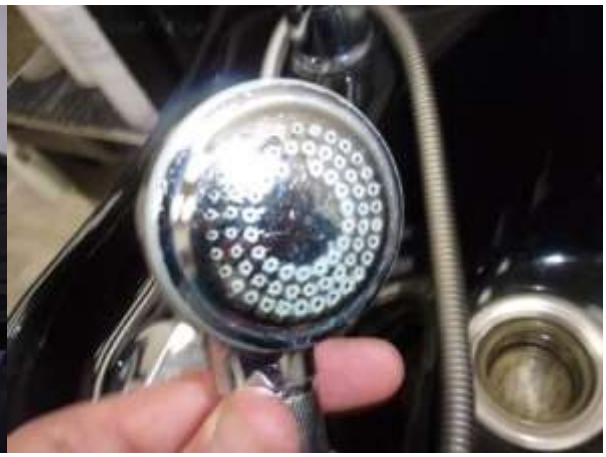
RISK RATING MEDIUM

COMMENTS
This is considered a risk system as defined in the ACoP L8.

RECOMMENDATIONS
Ensure it is in regular use and clean/de-scale at least quarterly.

SPRAY OUTLET

Technical Data		
Outlet Type	Sink / Spray Hose	
Location	LGF Hair Salon	
Outlet Fed from	CWST 1 and CAL 2	
Risk Assessment Data		
Outlet condition	Good	
Estimated frequency of use	Little Used	
Nature of exposed population	AVERAGE / INCREASED SUSCEPTIBITLY , SEE PAGE 2	
Degree of exposure	Low (<1 hrs/wk)	
Direct Spray Formation	Yes	
Dirt / Scale Present	Light	
Biological Slime Present	None	
Extent of Corrosion	None	
Temperature ^{o}C	CWS 19.6^{o}C	HWS 65.8^{o}C



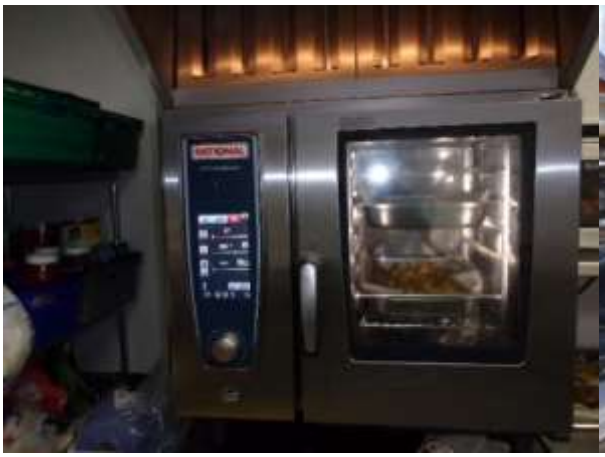
RISK RATING HIGH

COMMENTS
This is considered a risk system as defined in the ACoP L8. Light scale deposits present to spray outlet. The outlet does not appear to be in regular use and therefore forms a high risk deadleg in the pipework. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate in the system.

RECOMMENDATIONS
Clean and descale outlet. Ensure a regular cleaning programme is in place to minimise the risk of microbial proliferation. Flush weekly and record actions.

SPRAY OUTLET

Technical Data	
Outlet Type	Steam Oven Spray Hose
Location	Roof Food Prep
Outlet Fed from	CWST 2 & 3
Risk Assessment Data	
Outlet condition	Good
Estimated frequency of use	Daily
Nature of exposed population	INCREASED SUSCEPTIBITLY , SEE PAGE 2
Degree of exposure	Moderate (3 to 30 hrs/wk)
Direct Spray Formation	Yes
Dirt / Scale Present	Trace
Biological Slime Present	None
Extent of Corrosion	None



RISK RATING MEDIUM

COMMENTS
This is considered a risk system as defined in the ACoP L8.

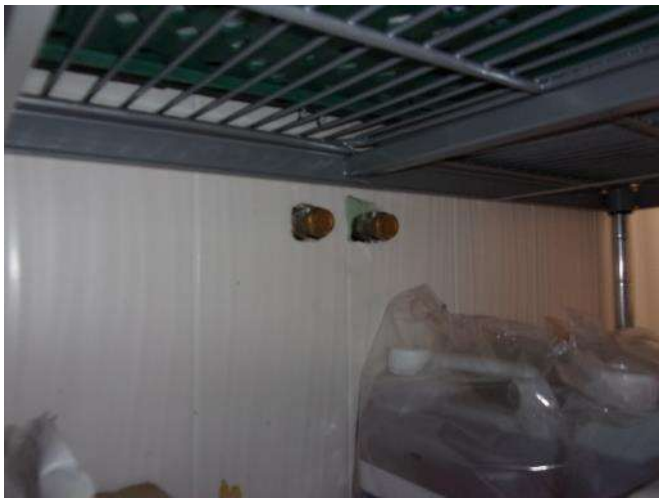
RECOMMENDATIONS
Ensure it is in regular use and clean/de-scale at least quarterly.

EMAIL: info@phasetechnology.co.uk
WEB: www.phasetechnology.co.uk
EXTRANET http://my.phasetechnology.co.uk

OTHER SYSTEMS

Deadends

Technical Data	
System Type	Deadend 1
Location	LGF Old Accessible Toilet (Now Store)
System Serves	Removed Outlets
System Fed from	UNKNOWN and CWST 1
Risk Assessment Data	
Size	15mm x Unknown (Hot and Cold Supplies)
Risk Rating High/Medium	High



RISK RATING HIGH

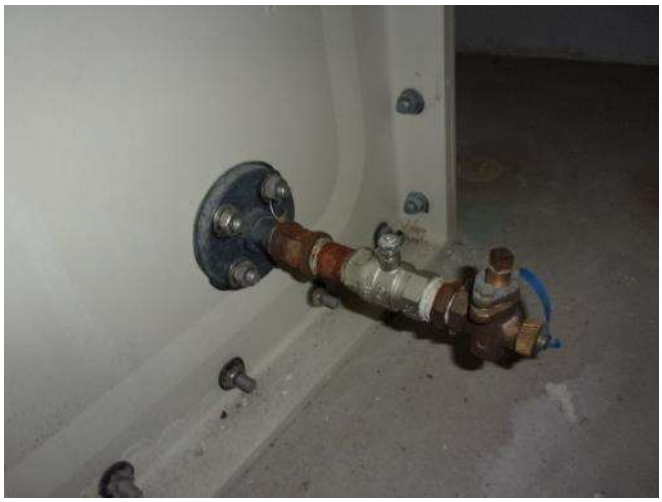
COMMENTS
We noted a deadend in the pipework and this can lead to an increase in the likelihood that legionella and other bacteria will proliferate in the system. The size of the deadend will determine whether it is considered a high or medium risk. Any pipework greater than 6 times the pipework diameter will be considered high risk.

RECOMMENDATIONS
We recommend that all deadends on site be cut back to the live source.

OTHER SYSTEMS

Deadlegs

Technical Data	
System Type	Deadleg 1
Location	Basement Plant Room
System Serves	CWST 1 Drain Valve
System Fed from	CWST 1
Risk Assessment Data	
Size	22mm x 10cm
Risk Rating High/Medium	Medium



RISK RATING MEDIUM

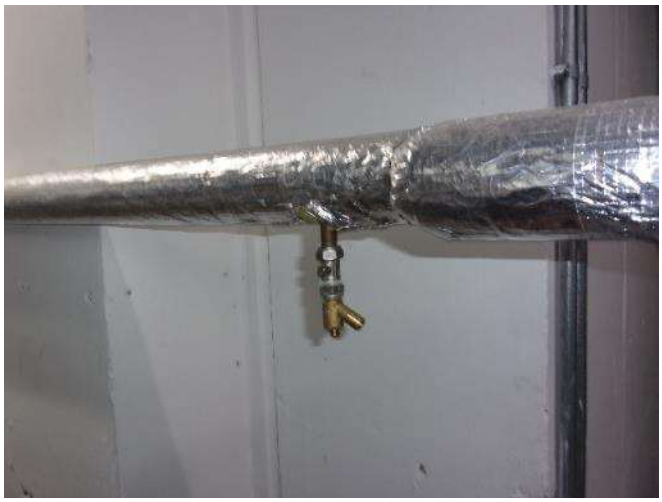
COMMENTS
The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.

RECOMMENDATIONS
Flush weekly and record actions.

OTHER SYSTEMS

Deadlegs

Technical Data	
System Type	Deadleg 2
Location	Basement Plant Room
System Serves	Drain Valve
System Fed from	CWST 1
Risk Assessment Data	
Size	15mm x 40mm
Risk Rating High/Medium	Medium



RISK RATING MEDIUM

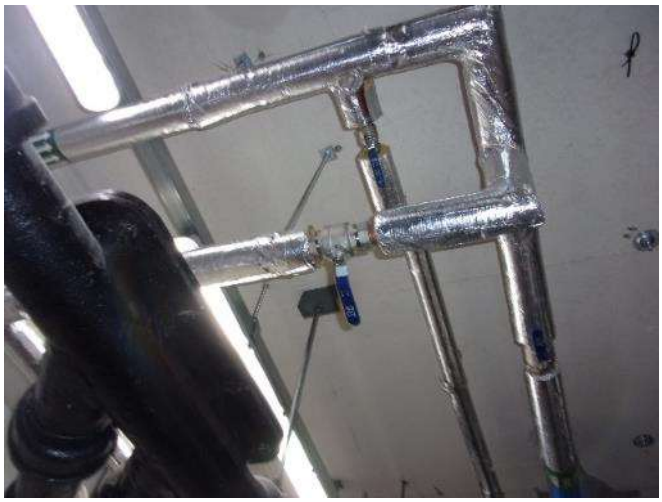
COMMENTS
The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.

RECOMMENDATIONS
Flush weekly and record actions.

OTHER SYSTEMS

Deadlegs

Technical Data	
System Type	Deadleg 3
Location	Basement Plant Room
System Serves	Mains Bypass
System Fed from	CWST 1 / MAINS
Risk Assessment Data	
Size	42mm x 1m / 42mm x 40cm
Risk Rating High/Medium	Medium



RISK RATING MEDIUM

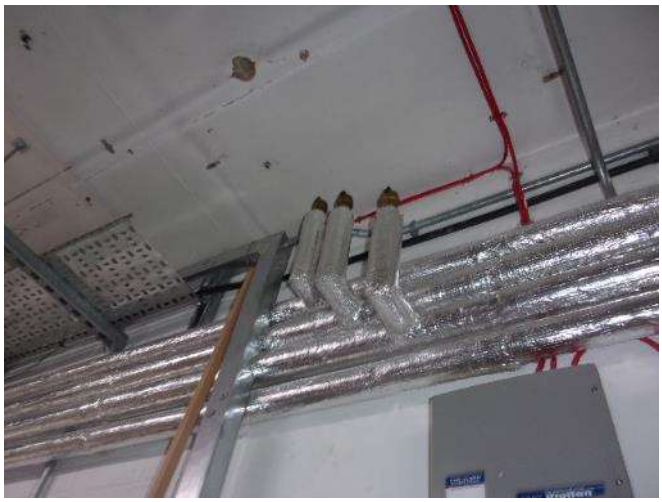
COMMENTS
The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.

RECOMMENDATIONS
Flush weekly and record actions.

OTHER SYSTEMS

Deadlegs

Technical Data	
System Type	Deadleg 4
Location	Basement Plant Room
System Serves	Air Valve x 3
System Fed from	MAINS, CWST 1 and CAL 1
Risk Assessment Data	
Size	15mmx 30cm x 3
Risk Rating High/Medium	Medium



RISK RATING MEDIUM

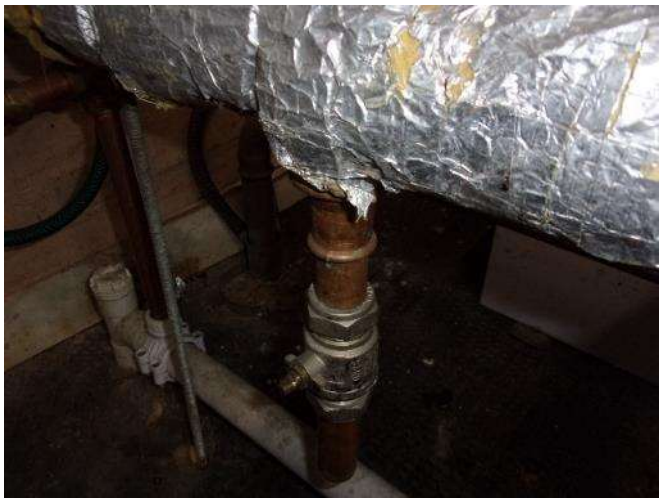
COMMENTS
The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.

RECOMMENDATIONS
Flush weekly and record actions.

OTHER SYSTEMS

Deadlegs

Technical Data	
System Type	Deadleg 5
Location	External Bin Store
System Serves	Drain Valve
System Fed from	CWST 1
Risk Assessment Data	
Size	28mm x 10cm
Risk Rating High/Medium	Medium



RISK RATING MEDIUM

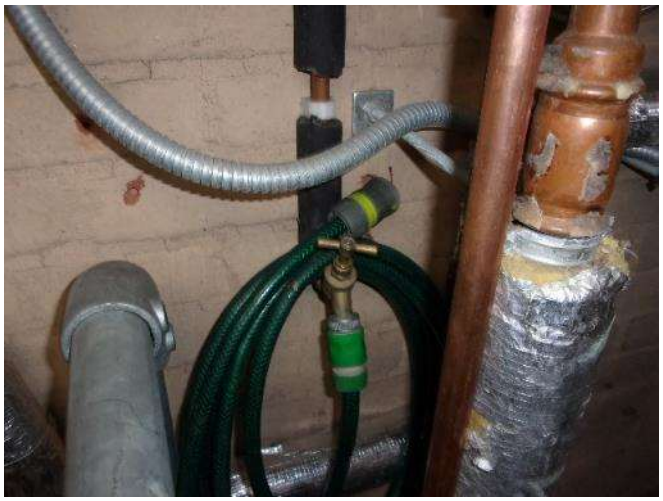
COMMENTS
The outlet / pipework does not appear to be in regular use and therefore forms an effective deadleg in the system. This can lead to an increase in the likelihood that legionella and other bacteria will proliferate.

RECOMMENDATIONS
Flush weekly and record actions.

OTHER SYSTEMS

Bib Tap

Technical Data	
System Type	Bib Tap
System Reference	BT
Location	See asset table for locations
System Fed from	CWST 1
Risk Assessment Data	
System condition	Good
Estimated frequency of use	Unknown
Direct Spray Formation	Unknown



RISK RATING MEDIUM

COMMENTS
Outlets such as these often have periods of low use, creating a potential deadleg in the pipework.

RECOMMENDATIONS
Investigate frequency of use of the outlet and if little-used consider removal, otherwise flush regularly and record actions. Any hoses should be disconnected and drained when not in use. Any spray attachment should be cleaned and disinfected on a regular basis. Ensure appropriate backflow protection is fitted.

OTHER SYSTEMS

Ice Making Machine

Technical Data	
System Type	Ice Making Machine
System Reference	ICE
Location	Roof Servery

RISK RATING MEDIUM

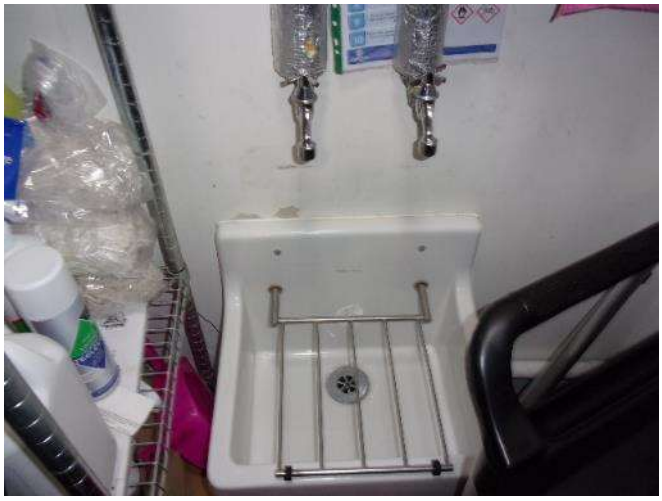
COMMENTS
This is considered a risk system as defined in the ACoP L8.

RECOMMENDATIONS
Ice should not be allowed to stagnate in the machine's storage bin but should be changed frequently. All machines should be cleaned regularly in accordance with the manufacturer's recommendations.

OTHER SYSTEMS

Butlers Sinks / High Drop Outlets

Technical Data	
System Type	Butler Sink/High Drop Sink
System Reference	BSK
Location	See asset table for locations
System Fed from	EWH 30L and CWST 1
Risk Assessment Data	
Potential aerosol formation	Potential spray in operation
Outlet Condition	Trace Scale



RISK RATING MEDIUM

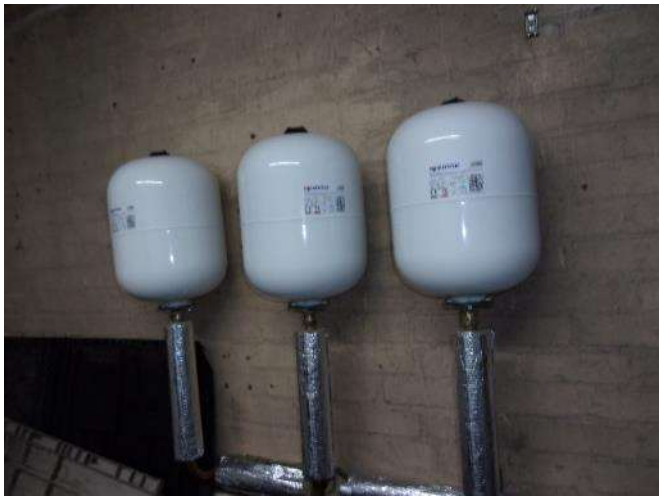
COMMENTS
This is considered a risk system as defined in the ACoP L8.

RECOMMENDATIONS
No specific recommendations at time of survey.

OTHER SYSTEMS

Expansion Vessel Configuration Issue

Location	External Bin Store
Service/Equipment supplied	CAL 2



RISK RATING HIGH

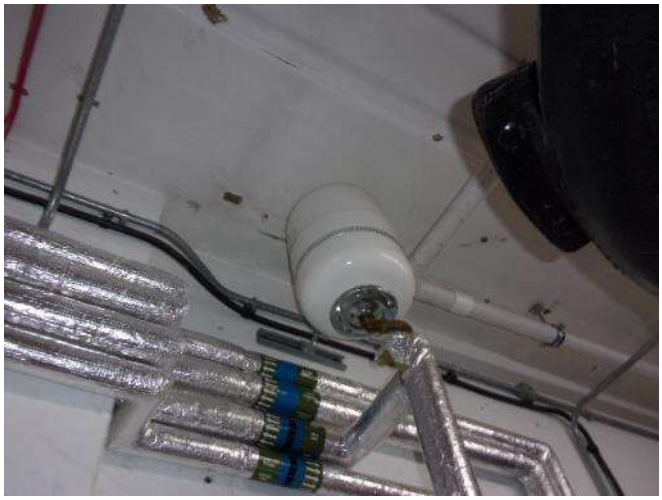
COMMENTS
It is not clear why these vessels have been installed on the secondary return and why there are three of them. We would not traditionally see these on the secondary return and they pose a stagnation risk as they were cold upon inspection.

RECOMMENDATIONS
Investigate why these vessels have been installed in this configuration.

OTHER SYSTEMS

Typical Expansion Vessel

Location	See asset table for locations
Service/Equipment supplied	Calorifiers / Pumps Sets



RISK RATING MEDIUM

COMMENTS
Expansion vessels are often supplied from long pipework legs which can create deadlegs or where pressure is constant.

RECOMMENDATIONS
Flush to drain monthly and record all actions.

OTHER SYSTEMS

Expansion Vessel – Horizontal / Upside down

Location	See asset table for locations
Service/Equipment supplied	Electric Water Heaters

RISK RATING MEDIUM

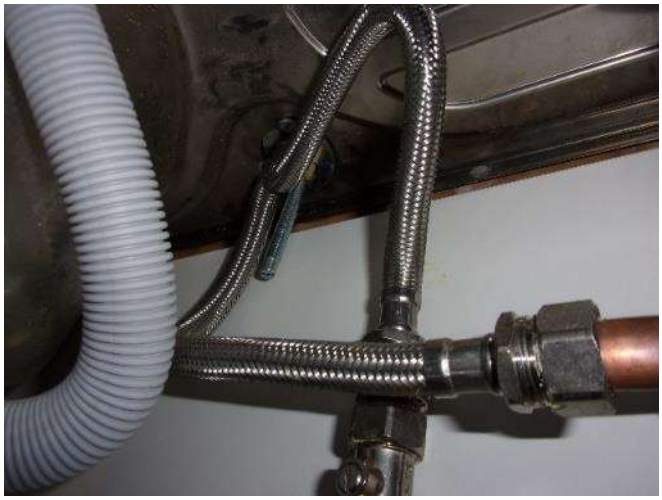
COMMENTS
Expansion vessel installed Horizontally / Upside down. Expansion vessels should be installed vertically as per WRAS recommendations, to prevent stagnation and microbial proliferation. Expansion vessels are often supplied from long pipework legs which can create deadlegs or where pressure is constant.

RECOMMENDATIONS
Reconfigure to install vertically. Flush to drain six monthly and record all actions.

OTHER SYSTEMS

Typical Flexi Hose

Location	See asset table for locations
Service/Equipment supplied	Standard and potable outlets



RISK RATING LOW

COMMENTS
It could not be determined if the flexi hoses on site are WRAS approved.

RECOMMENDATIONS
We advise that all non-WRAS approved flexible hoses be replaced with fixed copper connections. If flexible hoses are required due to space restrictions, then WRAS compliant hoses should be fitted.

OTHER SYSTEMS

Typical Pump/Booster Set

Location	Basement Plant Room
Service/Equipment supplied	CWST 1

RISK RATING MEDIUM

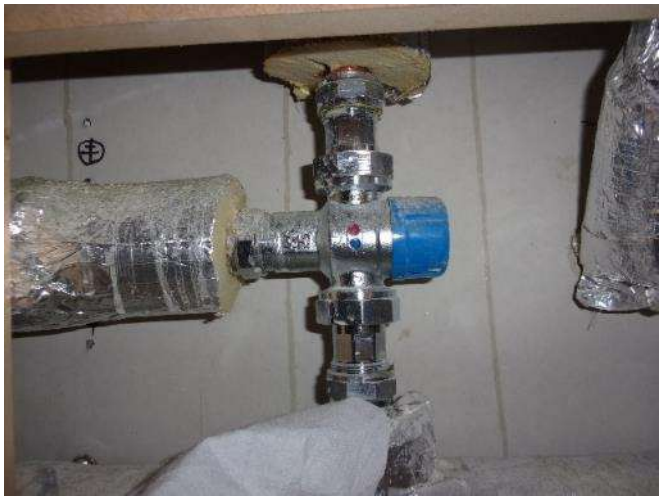
COMMENTS
Pump set present.

RECOMMENDATIONS
Ensure any standby pumps are used at least weekly to prevent stagnation, as per HSG 274, part 2. If not used, standby units must be flushed weekly.

OTHER SYSTEMS

Typical TMV (Thermostatic Mixing Valves)

System Type	Thermostatic Mixing Valve
Location	See asset table for locations



RISK RATING MEDIUM

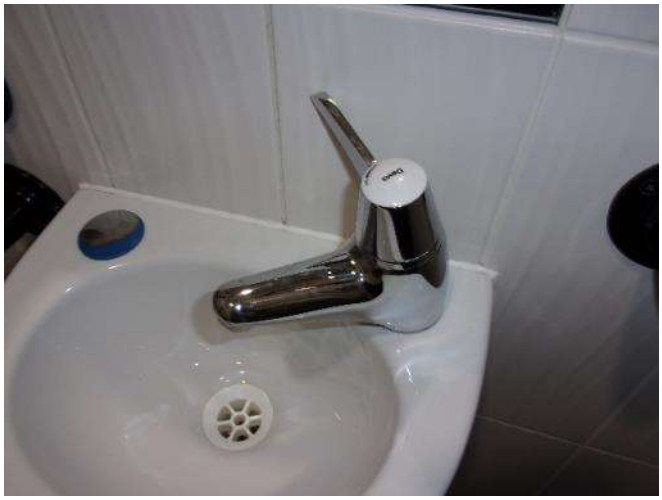
COMMENTS
"The blended water downstream of TMVs may provide an environment in which legionella can multiply, thus increasing the risks of exposure". "The use and fitting of TMVs should be informed by a comparative assessment of scalding risk versus the risk of infection from legionella. Where a risk assessment identifies the risk of scalding is insignificant, TMVs are not required". The temperatures provided by thermostatic mixing valves should generally be in the range 39°-43°C. The cold water supplied to the valve should be <20°C and the hot water >50°C. It should be ensured that all TMVs have annual servicing and failsafe checks completed.

RECOMMENDATIONS
Consider removal of TMVs where not required. There are no records present for annual failsafe checks and servicing.

OTHER SYSTEMS

Typical TMT (Thermostatic Mixing Tap)

System Type	Thermostatic Mixing Tap
Location	See asset table for locations



RISK RATING MEDIUM

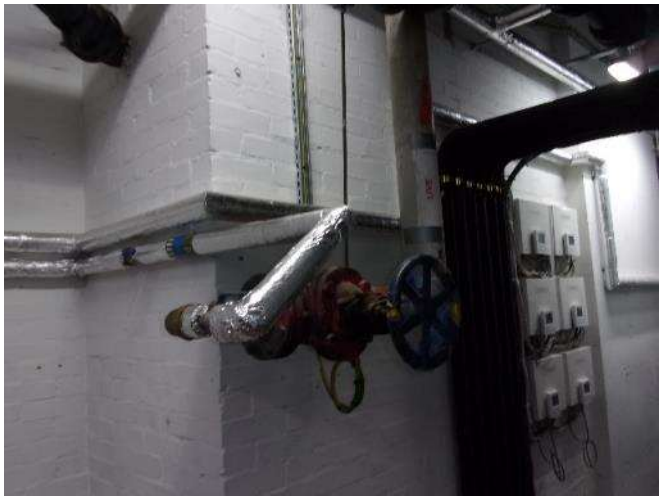
COMMENTS
It should be ensured that all TMTs have annual servicing and failsafe checks completed.

RECOMMENDATIONS
There are no records present for annual failsafe checks and servicing.

OTHER SYSTEMS

Incoming Main

Technical Data	
System Type	Incoming Main
System Reference	ICM
Location	Basement Plant Room
Injection Point Present?	None Seen



RISK RATING LOW

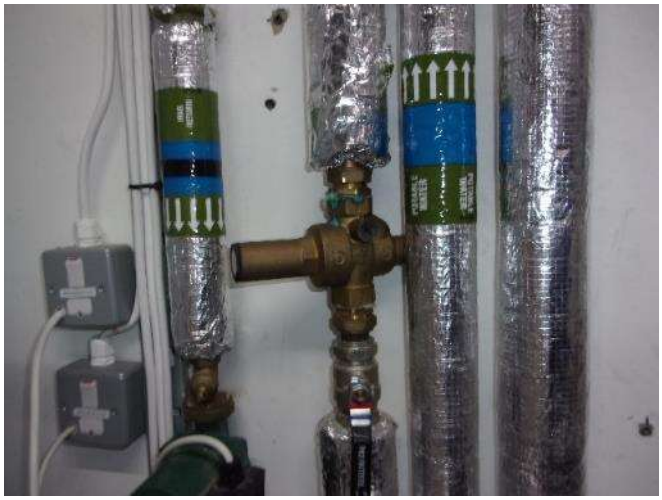
COMMENTS
Added to report for reference.

RECOMMENDATIONS
No specific recommendations made at the time of assessment.

OTHER SYSTEMS

Pressure Reducing Valve (Presumed with Filter)

System Type	Typical Pressure Reducing Valve (Presumed with Filter)
Location	See asset table for locations



RISK RATING MEDIUM

COMMENTS
No service schedule for the pressure reducing valves on the cold supply pipe work.

RECOMMENDATIONS
Pressure reducing valve strainers /filters should be regularly inspected/cleaned as part of the maintenance regime.

OTHER SYSTEMS

Typical drinking water dispensers, hot and cold vend

System Type	Drinking water dispensers, hot and cold vend
Location	See asset table for locations

RISK RATING LOW

COMMENTS
The risk from this equipment is considered low, provided it is suitably maintained.

RECOMMENDATIONS
Drinking water boilers, coolers, coffee and vending machines should be maintained per manufacturer's instruction and the nozzles kept free of scale and regularly disinfected.

SCHEMATICS

Every effort has been made to make the accompanying schematics as accurate as possible but they are not formal technical drawings and are for indicative purposes only. Technical or 'as built' drawings should be commissioned if more detailed information is required to aid Legionella Management.

SCHEMATICS HAVE BEEN PRODUCED IN PDF FORMAT AND ISSUED SEPARATELY.