Legionella Solutions Ltd.

Legionella Risk Assessment and Legionella Control Specialists

Legionella Bacteria Risk Assessment

Client: Arches Housing

Site Contact: Jamie Taylor

Premises: Richmond Street
Sheffield
South Yorkshire
S3 9EA

Telephone: 0114 228 8118

Risk Assessor: M. Glossop

Date: 28.03.2017

CONTENTS

1. EXPLANATION OF LEGIONELLA RISK, SITE INTRODUCTION AND SCOPE OF WORK

What is Legionnaires' disease?

Legionnaires' disease is a potentially fatal form of pneumonia and everyone is susceptible to infection. The risk increases with age but some people are at higher risk including:

- People over the age of 45
- Smokers and heavy drinkers
- People suffering from chronic respiratory or kidney disease, diabetes, lung or heart disease
- Anyone with an impaired immune system

The bacterium *Legionella pneumophila* and related bacteria are common in natural water sources such as rivers, lakes and reservoirs, but usually in low numbers.

Outbreaks of the illness occur from exposure to legionella growing in purpose-built systems where water is maintained at a temperature high enough to encourage growth, e.g. cooling towers, evaporative condensers, hot and cold water systems and spa pools used in all sorts of premises.

How do people get legionnaires' disease?

People contract Legionnaires' disease by inhaling small droplets of water (aerosols), suspended in the air, containing the bacteria. Certain conditions increase the risk from legionella if:

- The water temperature in all or some parts of the system are between 20-45 °C, which is suitable for legionella bacteria growth
- It is possible for breathable water droplets to be created and dispersed e.g. aerosol created by a cooling tower, spa pool or water outlets including showers and taps
- If water is stored and/or re-circulated in cold water tanks, hot water heaters, cooling towers or spa pools for example
- If there are deposits that can support bacterial growth providing a source of nutrients for the organism e.g. rust, sediment, scale, organic matter and biofilms. These can be commonly found on shower heads, on filters, in TMVs, in cold water storage tanks, hot water heaters, cooling towers and spa pools

How is the risk controlled?

If conditions are favorable, the bacteria may grow, thus increasing the risks of Legionnaires' disease and it is therefore important to control the risks by introducing appropriate measures outlined in ACoP - L8 *Legionnaires' disease - The Control of Legionella bacteria in water systems* and the technical guidance in HSG274.

This guidance gives clear instructions on controlling and managing the risks associated with legionella bacteria in water systems.

This guidance states that a legionella bacteria risk assessment should be undertaken to identify the risks present. From there, the risks can be properly managed and controlled.

Arches Housing
Richmond Street,
Sheffield, South Yorkshire. S3 9EA.

28.03.2017

Site Introduction

This legionella risk assessment has been undertaken on behalf of Arches Housing at Richmond Street, Sheffield. It is a 2 storey building consisting of 6 private flats. Although there are no communal water facilities, the water services to the flats are provided by a communal water system.

Members of staff, residents and visitors are male and female of all ages; some may be over the age of 45, be in poor health and may include smokers, so they fall into the susceptible risk group regarding legionella.

Communal Water System
There are no communal water services on site. However, all of the water services in the flats are provided by a communal water system. There are 3 Cold Water Storage Tanks located in the Roof Space that provide cold water services to the WCs, Showers and Baths in each flat. They also provide the cold water supply to Water Heater 1, which is located in the 1st Floor Cupboard and provides hot water services to all of the flats. The wash basins in the bathrooms and the sinks in the kitchens are provided by the direct mains supply.

Private Flats
There are 6 private flats on site. As part of this risk assessment, access was gained to Flat 16. The water services in that flat have been included in this assessment and we assume all the other flats have the same or a similar water system. The recommendations given in this assessment, will therefore apply to all of the flats in the building.

Scope of Work

The scope of work has been agreed with the client and includes the following elements:

- A full survey and risk assessment of the site (all communal water facilities and 1 private flat)
- A schematic drawing, showing the pipe work layout, cold water tanks and hot water vessels.
- A full outlet register and temperature profile (all communal water facilities and 1 private flat)
- A review of the current monitoring paperwork and written schemes
- Recommendations for remedial and monitoring actions required

In accordance with the ACOP(L-8) and the associated technical guidance in part 2 and 3 of the HSG274 and based on the level of risk on this site, we recommend this risk assessment is reviewed on a biennial basis. However, if any changes are made to the water services and the current assessment is no longer valid, the Responsible Person will require the assessment to be reviewed immediately.

We recommend that any remedial or monitoring actions identified in this risk assessment in section 15 should be addressed in order to comply with your obligations under ACOP L8, HSG274 and more specifically obligations under the Control of Substances Hazardous to Health Regulations 2002, the Health and Safety at Work Act 1974 and Management of Health and Safety at Work Regulations 1999.

All information contained in this report, including any engineering conclusions, is based on information made available to Legionella Solutions Limited during our investigations. Because this report is based on available and possibly incomplete information, some of its conclusions could be different if the information on which it is based is determined to be false, inaccurate, or contradicted by additional information. This report represents a good faith effort conducted in a professional manner consistent with applicable environmental engineering standards.

This Legionella Bacteria Risk Assessment is in accordance with ACoP (L8), HSG274 and BS8580:2010 water quality risk assessments for Legionella.

M. Glossop
Legionella Risk Assessor
Legionella Solutions Ltd.

2. SUMMARY OF SYSTEMS INSPECTED AS PARK OF THIS LEGIONELLA BACTERIA RISK ASSESSMENT

SITE DETAILS	Richmond Street, Sheffield	
SITE CONTACT NAME	Jamie Taylor	
DATE OF RISK ASSESSMENT	28.03.2017	
RISK ASSESSOR	M. Glossop - Legionella Solutions Ltd	
DESCRIPTION	**PRESENT YES / NO**	**DETAILS / LOCATION**
Hot and Cold Water Systems		
Mains water supply	Yes	All areas.
Cold Water Storage Tanks	Yes	Cold Water Storage Tanks 1, 2 and 3 - Roof Space
Water Heaters	Yes	Water Heater 1 - 1st Floor Cupboard
Showers and Spray Taps	Yes	Showers - 1 in each flat
Other Risk Systems		
Header Tanks for Heating Systems	Yes	1 x Roof Space
Miscellaneous Equipment	Yes	Washing machines and dishwashers possible in some of the flats

3. RISK ASSESSMENT SCORING KEY

Each section is divided into the various factors under consideration; in general terms and specifically related to the equipment or system under assessment.

On completion of the above, each parameter will be allocated a risk score which will be commented on individually.

The key to risk scores is set out below:-

Individual items scoring 0 are considered low risk and therefore no further action is required.
Individual items scoring 1 require further clarification or regular monitoring to control the risk
Individual items scoring 2 require remedial action to reduce the risk and comply with current guidelines - these are highlighted in red in the risk assessment.

Individual items are totalled to produce a total risk score for each section and the following priority category is then applied.

TOTAL RISK SCORE	RISK CATEGORY
8 and above	**HIGH**
5 - 7	**MEDIUM**
0 - 4	**LOW**

Please see Section 15 for any risks identified and the recommended actions to take.

4. MANAGEMENT RESPONSIBILITIES AND TRAINING

In 2013 the Health and Safety Executive issued the revised ACOP(L-8) and in 2014 the associated technical guidance notes HSG274 part 1, 2 and 3. This guidance gives practical advice on the legal requirements of the Health and Safety at Work Act 1974, the Control of Substances Hazardous to Health Regulations 2002 concerning the risk from exposure to legionella, and guidance on compliance with the relevant parts of the Management of Health and Safety at Work Regulations 1999.

This guidance is for Duty Holders, which includes employers, those in control of premises and those with health and safety responsibilities for others, to help them comply with their legal duties as specified in the *ACOP (L-8) Legionnaires' disease: The control of legionella bacteria in water systems*. It gives specific information on the health and safety law that applies.

The guidance includes identifying and assessing sources of risk, preparing a scheme to prevent or control the risk, implementing, managing and monitoring precautions, keeping records of precautions and appointing a manager responsible for others.

Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you follow the guidance, you will normally be doing enough to comply with the law. Health and Safety Inspectors seek to secure compliance with the law and may refer to this guidance.

Under general health and safety law, Duty Holders, including employers or those in control of premises, must ensure the health and safety of their employees or others who may be affected by their undertaking.

They must take suitable precautions to prevent or control the risk of exposure to legionella. They need to appoint somebody competent, who knows how to identify and assess sources of risk, manage those risks, prevent or control any risks, keep records and carry out any other legal duties that they may have.

In the Approved Code of Practice L-8, there is a requirement to prepare a Legionella Bacteria Risk Assessment and a Written Scheme of Control. It is essential they remain up to date as required under Health and Safety law.

In the management of risks from legionella bacteria, the Duty Holder must appoint a competent person known as the Responsible Person to take day-to-day responsibility for managing the control scheme. The responsible person should prepare a Written Scheme of Control for legionella bacteria and ensure that all operational procedures are carried out in a timely and effective manner. The responsible person should ensure adequate records are maintained and available for inspection and auditing, for at least five years. A Deputy Responsible person should also be appointed to take care of the day-to-day responsibilities should the Responsible person be absent due to holidays and illness etc. The Duty Holder should also ensure that all employees involved in work that may expose an employee or other people to legionella are given suitable and sufficient information instruction and training.

If you decide to employ contractors to carry out water treatment works, it is still the responsibility of the Responsible Person to ensure that the treatment is carried out to the required standards.

Staff responsibilities and lines of communication must be properly defined in writing and clearly set out. Staff responsibilities must be understood by all concerned. Staff must be properly trained and competent. Arrangements should be made to allow for staff that leave or are absent.

Shared premises

Those who have, to any extent, control of premises for work-related activities or the water systems in the building, have a responsibility to those who are not their employees, but who use those premises.

In estate management, it is increasingly common for there to be several duty holders in one building. In such cases, duties may arise where persons or organisations have clear responsibility, through an explicit agreement, such as a contract or tenancy agreement. The extent of the duty will depend on the nature of that agreement.

For example, in a building occupied by one lease holder, the agreement may be for the owner or lease holder to take on the full duty for the whole building or to share the duty. Alternatively, it might be that the duty is shared where, e.g. the owner takes responsibility for the common parts while the leaseholder takes responsibility for the parts they occupy.

In other cases, there may be an agreement to pass the responsibilities to a managing agent. Where a managing agent is used, the management contract should clearly specify who has responsibility for maintenance and safety checks, including managing the risk from Legionella.

4. MANAGEMENT RESPONSIBILITIES AND TRAINING continued

DUTY HOLDER
Name: John Hudson (Director of Operations)
Telephone: 0114 228 8100

RESPONSIBLE PERSON
Name: Sally Steade (Head of Property Services)
Telephone: 0114 228 8100

DEPUTY TO RESPONSIBLE PERSON
Name: Luigi Iantorno (Deputy Head of Property Services)
Telephone: 0114 228 8100

SERVICE PROVIDERS

Water Treatment/Hygiene -	Name: **To be confirmed** Telephone:
Cleaning & Disinfection -	Name: **To be confirmed** Telephone:
Legionella Bacteria Risk Assessment Survey -	Name: Legionella Solutions Ltd Telephone: 01706 419 424

SITE PERSONNEL
Name: Not applicable - No site staff

REF.	MANAGEMENT RESPONSIBILITIES AND TRAINING	RISK SCORE
4A	Has a Duty Holder been nominated and clearly defined in writing?	0
	Yes	
4B	Has a Responsible Person been nominated and clearly defined in writing?	0
	Yes	
4C	Has a Deputy Responsible Person been nominated and clearly defined in writing?	0
	Yes	
4D	Are the roles and responsibilities of all staff involved in the control regime clearly defined in writing?	0
	Yes	
4E	Are the roles and responsibilities of external contractors clearly defined in writing?	2
	No, to be confirmed	
4F	Have all staff involved in the control regime received appropriate training within the last 2 years?	2
	No training records found	
	TOTAL RISK SCORE	4
	RISK CATEGORY	LOW

5. HOT AND COLD WATER SYSTEM DESIGN AND CONSTRUCTION

Temperature control is the traditional strategy for reducing the risk of legionella in water systems. Cold water temperatures should be maintained, where possible, at a temperature below 20°C. Hot water should be stored at least at 60°C and distributed so that it reaches a temperature of 50°C within one minute at the outlets (55°C in healthcare premises).

Water fittings and components should be used that comply with the Water Regulations Advisory Scheme (WRAS) and compliant with BS6920.

All parts of the hot and cold water services should be in regular use with all outlets being used at least weekly (twice weekly in healthcare premises). Pipe work should be insulated and free from dead legs. All water based equipment, pipe work, fittings and outlets should be free from scale and corrosion.

The following section is intended to survey all of the domestic hot and cold water distribution services to evaluate the risk of proliferation by legionella bacteria.

REF.	HOT AND COLD WATER SYSTEM DESIGN AND CONSTRUCTION		RISK SCORE
5A	**Dead leg identification**		0
	Have any dead legs been identified?	No	
5B	**Little used outlets**		0
	Have any little used outlets been identified?	No	
5C	**Materials in use**		0
	Based on available information, are all materials used WRAS approved	Yes	
	Are there any signs of scale or corrosion on any of the hot and cold water pipe work or outlets?	No	
5D	**Hot and cold distribution pipe work insulation**		0
	Is the hot and cold distribution pipe work fully insulated where possible?	Yes	
5E	**Potential for droplet formation**		1
	Possible		
5F	**Are there any users in the susceptible category**		1
	Yes, staff, residents and visitors over 45 years of age, possible smokers and people of ill health		
5G	**Routine sampling for legionella required**		0
	No		
		TOTAL RISK SCORE	2
		RISK CATEGORY	**LOW**

5.1 COLD WATER SYSTEM OVERVIEW AND DESIGN

There are 3 Cold Water Storage Tanks and a direct mains supply on site.

DESCRIPTION	LOCATION	SERVICES IT FEEDS
Direct Mains Supplies	All areas	Cold water supply to the sinks and wash basins in each flat, and the cold supply to Cold Water Storage Tanks 1, 2, 3, and the header tank for the heating system.
Cold Water Storage Tanks 1, 2 and 3	Roof Space	Cold water supply to the WCs, Showers and Baths in each flat and the cold supply to Water Heater 1.

REF	COLD WATER SYSTEM DESIGN		RISK SCORE
5.1A	Are all cold taps inspected 20^{U}C or below within 2 minutes of running?	Yes	**1**
5.1B	Are any outlets on the cold water system out of service or faulty?	No	**0**
5.1C	Is the cold water system pumped?	No	**0**
5.1D	Are there any filters on the cold water system?	No	**0**
5.1E	**Cold Water Storage Tank nearest and furthest points - location and temperatures (^{O}C)**		**n/a**
	Nearest points		
	Cold Water Storage Tanks 1, 2 and 3 - N/a - Private flats only		
5.1F	**Furthest points**		**n/a**
	Cold Water Storage Tanks 1, 2 and 3 - N/a - Private flats only		
		TOTAL RISK SCORE	**1**
		RISK CATEGORY	**LOW**

5.2 **COLD WATER STORAGE TANK INSPECTION REPORT - Tank 1 (Linked to Tanks 2 and 3)**

REF.	COLD WATER TANK INSPECTION REPORT				RISK SCORE
5.2A	Location	Roof Space			0
	Access for inspection/C&D	Ladder required			
	Tank usage	Cold water services and Water Heater 1 cold supply			
	Material of construction	Plastic			
5.2B	Tank volume	350 Litres approx.			1
	Does the tank hold enough water 24 hours use only (12 hours in healthcare premises)	Yes			
5.2C	Cross-flow of water	Ok			0
	Are hollow tube supports in use	No			
5.2D	**Is the tank**:				0
	Insulated	Yes			
	Covered and sealed	Yes			
	Overflow fitted with insect screens	Yes			
5.2E	Is there an expansion vessel associated	No			0
	Is there an expansion pipe feeding into the tank	No			
5.2F	**Visual condition**				2
	Condition of stored water	Clear			
	Signs of sediment	Heavy sediment			
5.2G	Signs of scale/corrosion	No			0
	Internal condition	Ok			
5.2H	**Water temperature ^{O}C**				1
	At the inlet	12	In the tank	14	
5.2i	**Clean and disinfection**				1
	Date of last clean and disinfection	Not known			
				TOTAL RISK RATING	5
				RISK CATEGORY	MEDIUM

5.2 **COLD WATER STORAGE TANK INSPECTION REPORT - Tank 2 (Linked to Tanks 1 and 3)**

REF.	COLD WATER TANK INSPECTION REPORT				RISK SCORE
5.2A	Location	Roof Space			0
	Access for inspection/C&D	Ladder required			
	Tank usage	Cold water services and Water Heater 1 cold supply			
	Material of construction	Plastic			
5.2B	Tank volume	350 Litres approx.			1
	Does the tank hold enough water 24 hours use only (12 hours in healthcare premises)	Yes			
5.2C	Cross-flow of water	Ok			0
	Are hollow tube supports in use	No			
5.2D	**Is the tank**:				0
	Insulated	Yes			
	Covered and sealed	Yes			
	Overflow fitted with insect screens	Yes			
5.2E	Is there an expansion vessel associated	No			0
	Is there an expansion pipe feeding into the tank	No			
5.2F	**Visual condition**				2
	Condition of stored water	Clear			
	Signs of sediment	Heavy sediment			
5.2G	Signs of scale/corrosion	No			0
	Internal condition	Ok			
5.2H	**Water temperature ^{O}C**				1
	At the inlet	12	In the tank	14	
5.2i	**Clean and disinfection**				1
	Date of last clean and disinfection	Not known			
				TOTAL RISK RATING	5
				RISK CATEGORY	**MEDIUM**

5.2 **COLD WATER STORAGE TANK INSPECTION REPORT - Tank 3 (Linked to Tanks 1 and 2)**

REF.	COLD WATER TANK INSPECTION REPORT				RISK SCORE
5.2A	Location	Roof Space			0
	Access for inspection/C&D	Ladder required			
	Tank usage	Cold water services and Water Heater 1 cold supply			
	Material of construction	Plastic			
5.2B	Tank volume	350 Litres approx.			1
	Does the tank hold enough water 24 hours use only (12 hours in healthcare premises)	Yes			
5.2C	Cross-flow of water	Ok			0
	Are hollow tube supports in use	No			
5.2D	**Is the tank**:				0
	Insulated	Yes			
	Covered and sealed	Yes			
	Overflow fitted with insect screens	Yes			
5.2E	Is there an expansion vessel associated	No			2
	Is there an expansion pipe feeding into the tank	Yes from Water Heater 1			
5.2F	**Visual condition**				2
	Condition of stored water	Clear			
	Signs of sediment	Heavy sediment			
5.2G	Signs of scale/corrosion	No			0
	Internal condition	Ok			
5.2H	**Water temperature ^{O}C**				1
	At the inlet	12	In the tank	14	
5.2i	**Clean and disinfection**				1
	Date of last clean and disinfection	Not known			
				TOTAL RISK RATING	7
				RISK CATEGORY	**MEDIUM**

5.3 HOT WATER SYSTEM OVERVIEW AND DESIGN

There is 1 Water Heater on site.

DESCRIPTION	LOCATION	FED BY	AREAS IT FEEDS
Water Heater 1	1st Floor Cupboard	Tanks 1, 2 and 3	Hot water supply to all of the flats.

REF.	HOT WATER SYSTEM DESIGN		RISK SCORE
5.3A	Are all hot taps inspected 50^{0}C or above within 1 minute of running?	Yes	**1**
5.3B	Are any outlets on the hot water system out of service or faulty?	No	**0**
5.3C	Is the hot water system pumped?	No	**0**
5.3D	Are there any filters on the hot water system?	No	**0**
5.3E	**Hot water system nearest and furthest point location and temperatures (^{O}C)**		**n/a**
	Nearest points		
	Water Heater 1 - N/a - Private flats only		
5.3F	**Furthest points**		**n/a**
	Water Heater 1 - N/a - Private flats only		
		TOTAL RISK SCORE	**1**
		RISK CATEGORY	**LOW**

5.4 WATER HEATER INSPECTION REPORT - Water Heater 1

REF.	WATER HEATER INSPECTION REPORT		RISK SCORE
5.4A	Location	1st Floor Cupboard	0
	Water heater type	Vented calorifier	
	Access to Water heater	Ok	
	Water heater usage	Hot water services	
5.4B	Volume	350 Litres Approx.	1
	Make-up supply	Tanks 1, 2 and 3	
	Shunt pump installed/on a timer?	No	
5.4C	Is the water heater insulated?	Yes	0
5.4D	Is there an expansion vessel associated with this water heater?	No	0
5.4E	Is there an inspection hatch	No	0
	Is there a drain valve fitted	Yes	
5.4F	**Condition of drain water**		1
	Clear		
5.4G	**Water temperatures (℃)**		1
	Stored water temperature	68	
	Flow temperature	68	
5.4H	Return temperature	N/a	n/a
5.4i	**Disinfection**		1
	Date of last disinfection	Not known	
		TOTAL RISK SCORE	4
		RISK CATEGORY	LOW

6. SHOWERS AND SPRAY TAPS

Where showers and spray taps are fitted they should be in regular use (at least weekly) and all their removable parts, heads, inserts and hoses should be cleaned, descaled and disinfected on a 3 monthly basis. The risk associated with a shower or spray tap is affected by the quality of the hot and cold water supply.

REF.	SHOWERS AND SPRAY TAPS INSPECTION REPORT	RISK SCORE
6A	Location	**n/a**
	Showers - 1 in Each Flat	
6B	Hot water supply	**0**
	Water Heater 1	
6C	Cold water supply	**1**
	Tanks 1, 2 and 3	
6D	Condition of the spray heads	**1**
	Showers - Good condition in Flat 16, condition of the others is not known	
6E	Are the showers in regular use (at least weekly) or flushed weekly if not in regular use?	**1**
	The showers in the flats are expected to be in regular use	
6F	Potential for droplet formation	**1**
	High	
6G	Nature of persons using the showers	**1**
	Users are male and female of all ages and may include smokers, persons over the age of 45, and persons possibly in poor health, who are in the susceptible category regarding legionella.	
	TOTAL RISK SCORE	**5**
	RISK CATEGORY	**MEDIUM**

12. OTHER RISK SYSTEMS

12.1 HEADER TANKS FOR HEATING SYSTEMS

REF.	HEADER TANKS FOR HEATING SYSTEMS INSPECTION REPORT	RISK SCORE
12.1A	1 x Roof Space The header tank and the heating system are fully enclosed and no reasonably foreseeable risk regarding Legionella. However, care must be taken during maintenance to avoid any exposure to water from the system.	**0**
	TOTAL RISK SCORE	**0**
	RISK CATEGORY	**LOW**

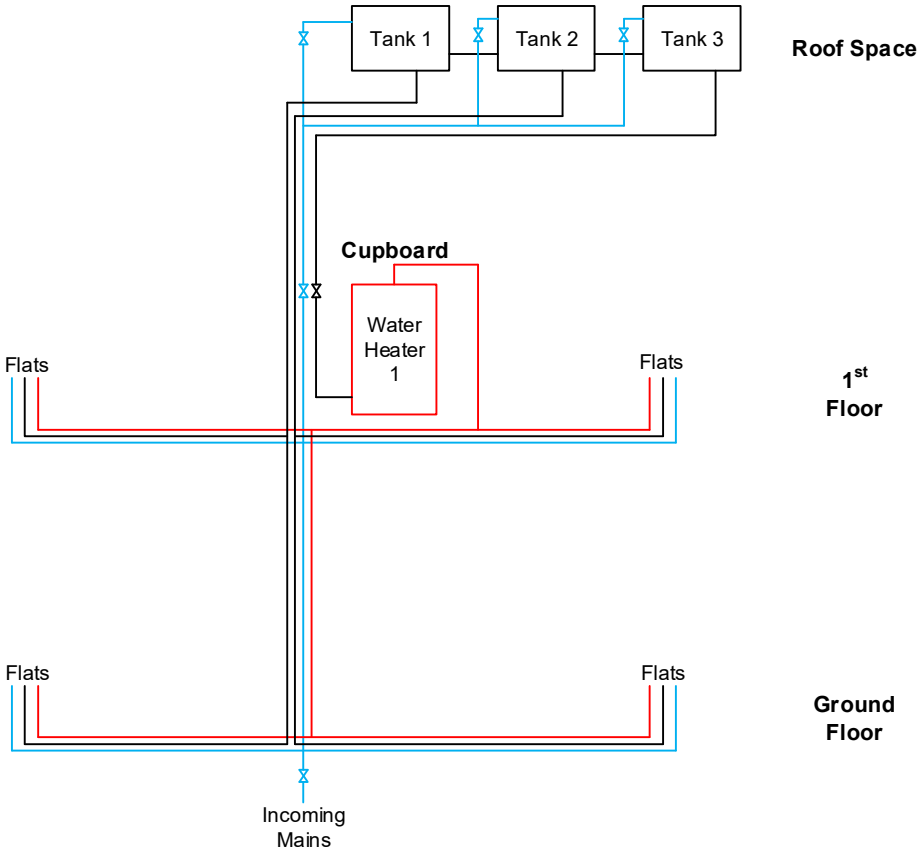
12. OTHER RISK SYSTEMS

12.2 MISCELLANEOUS EQUIPMENT

REF.	MISCELLANEOUS EQUIPMENT INSPECTION REPORT	RISK SCORE
12.2A	Possible washing machines and dishwashers in the flats.	0
	TOTAL RISK SCORE	0
	RISK CATEGORY	LOW

No action is required as long as kept in regular use and operated and maintained in accordance with the manufacturer's instructions.

13. SCHEMATIC DRAWING



Legionella Solutions Ltd.
Legionella Risk Assessment and Legionella Control Specialists

Site: Arches Housing, Richmond Street
Date: 28.03.2017
Drawn by: M. Glossop

Mains cold water
Tank cold water
Hot water flow

Isolation valve

13. OUTLET REGISTER AND TEMPERATURE PROFILE

LOCATION	SINK	TMV	WHB	TMV	WC	URINAL	SHOWER/ POT SPRAY/ SPRAY TAP	TMV	BATH	BIB TAP	OTHERS	MAINS	TANK	HOT WATER SUPPLY	TEMPERATURE PROFILE ^{O}C		
															HOT	PRE TMV	COLD
Communal Water Facilities																	
None on site																	
Typical Flat (Flat 16)																	
Kitchen	1										1 Washing machine	✓		Water Heater 1	60		10
Bathroom			1		1*		1 Shower*		1*			✓	Tanks 1, 2, 3*	Water Heater 1	60		10 13*

14. RECORD KEEPING

14.1 REVIEW OF THE EXISTING LOG BOOK AND MONITORING RECORDS

This section is a review of the current site log book. The following table indicates what records should be in place and whether the appropriate actions are being undertaken and recorded in accordance with the guidelines set out in ACOP L8 and parts 2 and 3 of the HSG274. **Records should be kept for 5 years.**

REF.	EXISTING LOG BOOK AND MONITORING INSPECTION REPORT				RISK SCORE
14.1A	**Is there a log book in place?**				2
	No				
Are the following actions being undertaken:		YES	NO	N/A	
14.1B	Weekly flushing and recording of little used outlets			✓	n/a
14.1C	Monthly inspection and recording of the calorifier/water heater flow temperatures		To be instigated		2
14.1D	Monthly inspection and recording of combination water heater temperature taken at an outlet			✓	n/a
14.1E	Monthly temperature inspection and recording of the hot water system nearest and furthest points (recorded pre TMV where applicable) (Communal areas only)			✓	n/a
14.1F	Monthly temperature inspection and recording of the cold water tank nearest and furthest points on the system			✓	n/a
14.1G	Monthly temperature inspection and recording of the long branches on the tank cold water system			✓	n/a
14.1H	3 monthly dismantling, cleaning, descaling and disinfection of the showers (Communal areas only)			✓	n/a
14.1i	3 monthly cleaning, descaling and disinfection of the spray tap (Communal areas only)			✓	n/a
14.1J	3 monthly temperature inspection and recording of the hot water system subordinate loops			✓	n/a
14.1K	6 monthly inspection and recording of the POU water heater temperature taken at an outlet			✓	n/a
14.1L	6 monthly expansion vessel flushing and purging to drain			✓	n/a
14.1M	Annual expansion vessel bladder test			✓	n/a
14.1N	Annual tank inspection and recording of the water temperature		To be instigated		2
14.1O	Annual calorifier/water heater internal inspection or drain water clarity test		To be instigated		2
14.1P	Annual combination water heater header tank inspection			✓	n/a
14.1Q	Annual cleaning, descaling and disinfection of the filters and strainers associated with the TMVs/Thermotap TMVs			✓	n/a
14.1R	Annual temperature inspection and recording of a representative number of hot and cold taps on a rotational basis (recorded pre TMV where applicable) (Communal areas only)			✓	n/a
				TOTAL RISK SCORE	8
				RISK CATEGORY	HIGH

14. RECORD KEEPING

14.2 REVIEW OF THE EXISITING WRITTEN SCHEME

The risk from exposure will normally be controlled by measures which do not allow the proliferation of legionella bacteria in the system. Once the risk is identified and assessed, a written control scheme should be prepared, implemented and properly managed. The scheme should specify the various control measures and how to carry out those measures. The scheme should be specific and relate to the water services being operated on site.

The following table identifies which information has or has not been included in the current written scheme.

REF.	EXISTING WRITTEN SCHEME INSPECTION REPORT				RISK SCORE
14.2A	**Is there a Written Scheme for controlling the risk from exposure to legionella bacteria?**				2
	No				
Does the written scheme include the following sections:		YES	NO	N/A	
14.2B	An introduction into the system		✓		2
14.2C	Names and positions of those responsible for carrying out the tasks		✓		2
14.2D	Complete schematics, reviewed and updated annually		✓		2
14.2E	Cold water storage tanks		✓		2
14.2F	Calorifiers/water heaters		✓		2
14.2G	Point of use water heaters(POU's)			✓	n/a
14.2H	Non-Storage water heaters/Combination water heaters			✓	n/a
14.2 I	Hot and cold water systems		✓		2
14.2J	Thermostatic Mixing Valves (TMV's)			✓	n/a
14.2K	Temperature monitoring		✓		2
14.2L	Showers and Spray Taps		✓		2
14.2M	Expansion Vessels			✓	n/a
14.2N	Water softeners			✓	n/a
14.2O	Parts of site temporarily out of use			✓	n/a
14.2P	Water treatment			✓	n/a
14.2Q	Other risk systems			✓	n/a
14.2R	Escalation procedures for out of specification conditions		✓		2
14.2S	Details of record keeping		✓		2
				TOTAL RISK SCORE	22
				RISK CATEGORY	HIGH

15. ASSESSMENT OF RISK AND RECOMMENDED ACTIONS

REF.	DESCRIPTION	RISK SCORE AND CATEGORY	RECOMMENDED ACTIONS	DATE OF COMPLETION AND SIGNATURE
14.2	Review of the Existing Written Scheme	**22 HIGH**	A written scheme of control for legionella should be created. It should be reviewed regularly, be kept up to date, and include the following information: An introduction to the system, the names and positions of those responsible in the control regime, complete schematic drawings, details of record keeping and escalation procedures for out of specification conditions. It should also include the maintenance, operating and control procedures for: Cold Water Storage Tanks, Water Heaters, Showers and Spray Taps, Temperature Monitoring and Hot and Cold Water Systems.	
14.1	Review of the existing logbook and monitoring records	**8 HIGH**	A Legionella control book should be created, be kept up to date and include the following records: Any outlets that aren't used at least weekly should be flushed for 2 minutes and recorded on a weekly basis. This includes any flats that become vacant. The flow temperature of Water Heater 1 should be recorded on a monthly basis to ensure it is set at a minimum of 60^{O}C. The 3 Cold Water Storage Tanks should be internally inspected and the temperatures recorded on an annual basis. The condition of the drain water from Water Heater 1 should be recorded on an annual basis.	

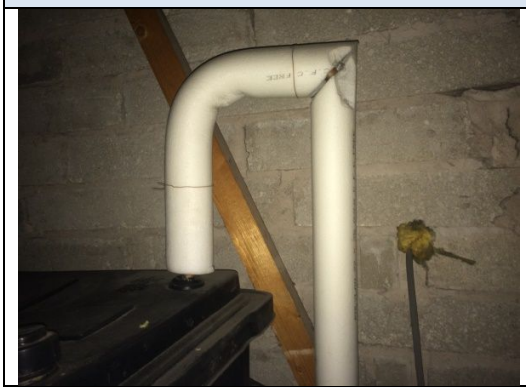
15. **ASSESSMENT OF RISK AND RECOMMENDED ACTIONS** Continued.

REF.	DESCRIPTION	RISK SCORE AND CATEGORY	RECOMMENDED ACTIONS	DATE OF COMPLETION AND SIGNATURE
5.2	Cold Water Storage Tank 3	**7 MEDIUM**	There was heavy sediment found on the base of the tank. It should be cleaned and disinfected as soon as possible. The expansion pipe feeding into the tank from Water heater 1 should be rerouted away from the tank to a tun-dish/drain. The tank should be internally inspected and the temperature recorded on an annual basis.	
5.2	Cold Water Storage Tank 1	**5 MEDIUM**	There was heavy sediment found on the base of the tank. It should be cleaned and disinfected as soon as possible. The tank should be internally inspected and the temperature recorded on an annual basis.	
5.2	Cold Water Storage Tank 2	**5 MEDIUM**	There was heavy sediment found on the base of the tank. It should be cleaned and disinfected as soon as possible. The tank should be internally inspected and the temperature recorded on an annual basis.	
6.	Showers and Spray Taps	**5 MEDIUM**	The risk associated with a shower is affected by the quality of the water supply. As the showers are being supplied by medium risk tanks, the legionella risk is increased until the remedial actions identified on the tanks have been undertaken. The tenants should be advised to regularly clean their shower heads and keep them free from scale. The tenants should be advised to use their showers at least weekly, or flush them for 2 minutes, once a week if not.	

15. **ASSESSMENT OF RISK AND RECOMMENDED ACTIONS** Continued.

REF.	DESCRIPTION	RISK SCORE AND CATEGORY	RECOMMENDED ACTIONS	DATE OF COMPLETION AND SIGNATURE
4.	Management responsibilities and training	**4 LOW**	The roles and responsibilities of the external contractors involved in the control regime should be clearly defined in writing. All staff involved in the control regime should have received appropriate legionella training within the last 2 years.	
5.4	Water Heater 1	**4 LOW**	No action required while the water heater is set at a minimum of 60^{O}C. The flow temperature should be tested and recorded on a monthly basis to ensure this. The quality of the drain water should be tested and recorded annually to ensure the cylinder is free from sediment.	
5.	Hot and cold water system design and construction	**2 LOW**	If any flats become vacant all of the water outlets should be flushed for 2 minutes and recorded once a week until the property becomes occupied.	
5.1	Cold water system design	**1 LOW**	No action required while the temperature of the cold water system remains below 20^{O}C. The tenants should be advised to report any issues with high cold water temperatures.	
5.3	Hot water system design	**1 LOW**	No action required while the temperature of the hot water system remains above 50^{O}C. The tenants should be advised to report any issues with low hot water temperatures.	
12.1	Header Tanks for Heating Systems	**0 LOW**	No action required. However, care must be taken during maintenance to avoid any exposure to water from the system.	
12.2	Miscellaneous Equipment	**0 LOW**	No action required as long as the equipment remains in regular use and is maintained in accordance with the manufacturer's instructions.	

16. OTHER AREAS OF CONCERN

Image	Location and details	Date of completion and signature
	Roof Space - Expansion pipe feeding into Tank 3 from Water Heater 1. Reroute this pipe away from the tank to a tun-dish/drain.	

17. INFORMATION FOR THE TENANTS

The landlord should inform the tenant of the following:

All taps and showers should be in regular use. Any that are not used at least weekly should be flushed for 2 minutes, once a week.

All showers should be regularly cleaned and kept free from scale.

The hot water temperature should be a minimum of $50^{O}C$. The tenant should report any issues with low hot water temperatures immediately.

The cold water should be a maximum of $20^{O}C$. If the tenant is finding that the cold water is warm, it should be reported immediately.

Any faults found with the water system should be reported immediately to the landlord.

18. GLOSSARY

ACOP L-8	The control of Legionella bacteria in water system Approved Code of Practice
HSG 274	The Health and Safety Technical Guidance on the control of Legionella
BS8580:2010	British Standards Water Quality - Risk assessments for Legionella control - Code of practice
LRA	Legionella Risk Assessment
N/A	Not applicable
WH	Water Heater
POU	Point of use water heater
CWH	Combination water heater
IWH	Instant water heater
WHB	Wash Hand Basin
CO	Cold only
MO	Mixed only
HO	Hot only
WRAS	Water Regulations Advisory Scheme
EPDM	Ethylene Propylene Diene Monomer
GRP	Glass Re-enforced Plastic
MSG	Mild steel galvanized
DHWS	Domestic hot water services
DCWS	Domestic cold water services
BCWS	Boosted cold water services
TMV	Thermostatic mixing valve
TT	Thermotap TMV
AAV	Air Admittance Valve