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**Ligtas**

ENABLING SAFE ENVIRONMENTS

# HSE Report

## Legionella Risk Assessment

### Prepared for

**Ryden LLP on behalf of  
Protector No 1 Ltd**

### Visit Date

6<sup>th</sup> May 2021

### Review Date

May 2022

### Site Address

Laurel House  
Laurelhill Business Park  
Stirling  
Stirlingshire  
FK7 9JQ

### Consultant

Dougie Smart



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# Ligtas

ENABLING SAFE ENVIRONMENTS

## Health & Safety

- ✓ Health and Safety Risk Assessments & Audits
- ✓ Health and Safety Inspection Reports
- ✓ Policies and Procedures writing and review
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- ✓ Management Systems analysis and review
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- ✓ IEMA - Institute of Environmental Management and Assessment
- ✓ Non-accredited training

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- ✓ Water Hygiene Audits
- ✓ Schematic Drawings
- ✓ Logbooks and Record Systems
- ✓ Water Sampling and Analysis using UKAS accredited laboratories

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- ✓ CDM consultancy support
- ✓ Effective reporting and client management information

## Fire Safety

- ✓ Fire Risk Assessments
- ✓ Emergency Plans
- ✓ Fire Evacuation, Investigation, Management, Safety Policy
- ✓ Dangerous Substances and Explosive Atmosphere Regulations (DSEAR)

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# 1. Summary

On 26th April 2021 between 09.30 and 13:30, a Legionella Risk Assessment was carried out on the common areas of Laurel House, Stirling, FK7 9JQ.

This assessment was commissioned by Ryden LLP, on behalf of Protector No 1 Ltd, to assist them in fulfilling their duties under relevant legislation.

Keith Emerson was available to accompany the consultant during most of the inspection. Following the assessment a verbal debrief was carried out and issued.

A site inspection and audit of the relevant water hygiene and maintenance records was carried out. Any inaccessible areas during this assessment are detailed within the limitations section of this report.

This risk assessment is intended to be a working document that can be used to guide future action aimed at improving compliance and ongoing water hygiene standards, as well as forming a basis for the written scheme of control. Following this risk assessment measures must be taken to implement effective, preventative and protective control measures to reduce the risks identified, as well as maintaining ongoing 'water hygiene' precautions. This should be reviewed in conjunction with monitoring results on a regular basis.

In order to comply with legislation, this assessment must be reviewed at least annually or where there is a significant change, that may affect the validity of the assessment.

Important Note - (COVID-19 LOCKDOWN): During this period building water usage should be monitored closely to ensure good water turnover is still occurring within the building. Therefore all outlets will be classed as 'infrequently used outlets' and must be included in a flushing regime. It is important to note that all maintenance tasks advised by ACoP L8 and HSG 274 are maintained. NB: If water services were to be decommissioned the systems must be recommissioned prior to occupation.

## Overall assessment conclusions

This risk assessment was carried out on behalf of Ryden LLP for Keith Emerson, being the person designated responsible for the premises known as Laurel House, Laurelhill Business Park, Stirling, as detailed under Section 48 of the Approved Code of Practice and Guidance (L8): Legionnaires disease: The control of legionella bacteria in water systems published by the Health and Safety Commission.

### Domestic Water

#### Contamination - Potential for legionella bacteria to enter the system

It is assumed that the town mains fed water supply enters the building in the ground floor plant room, but this was not directly observed. As legionella bacteria are naturally occurring it is highly likely that small numbers of legionella bacteria will enter the system. However, typically, for legionella bacteria to present a problem they need to be present in high numbers. The likelihood of bacteria entering through the mains supply in such high numbers is LOW.

#### Amplification - Potential for legionella bacteria to grow

It is suspected that the mains water feed enters the building in the ground floor plant room and directly feeds 2 cold water tanks above the 2nd floor (accessed via a fixed ladder) and also a bib tap (reported as residing in the ground floor plant room). It is suspected that the larger of the 2 cold water tanks above the 2nd floor feed all cold water outlets as well as the calorifier found in the ground floor plant room. The hot water comes from a large calorifier in the ground floor plant room. This water heater appears to provide hot water to all hot water outlets within the building. The hot water temperatures were at the recommended temperature range of 50C and 60C at the time of the assessment. Cold and drinking water services turnover was relatively good. All the cold water and drinking water outlets were below the upper limit of 20C. There was some documentation and a maintenance contractor / site representative had been assigned the water monitoring tasks for the building. The likelihood of legionella bacteria multiplying in the domestic water system is MEDIUM with the current control measures in place.

#### Transmission - Potential for aerosol creation

There are no showers on site which are the responsibility of the client. The likelihood of aerosol creation from the domestic water services is LOW. Additionally, it cannot be ignored that water impacting on the surface of a hand basin may produce aerosols, which could be inhaled by any person using the outlet.

#### Exposure - Potential of someone inhaling aerosol droplets

Members of staff who work in the building, contractors who carry out maintenance in the building and visitors, would be at risk from inhaling aerosol produced by the domestic water services. The likelihood of someone inhaling the droplets produced from the domestic water services is MEDIUM.

#### Host susceptibility - Potential for susceptible individuals to be exposed

We have been informed that there are no particularly susceptible people at this site. The likelihood of someone inhaling the droplets who is more likely to become infected produced from the domestic water services is MEDIUM.

#### Conclusion

The overall risk associated with the domestic water services is currently MEDIUM.

Due to the risk rating of the building it is advised the next Legionella Risk Assessment is completed 6/5/2022.

#### Risk Assessment Findings

The following risks were identified during the assessment:

Priority	Number of Risks (X)	Risk Rating (Y)	Risk Score (X x Y)
High	0	3	0
Medium	12	2	24
Low	1	1	1
Total Risk Score			25

There were no high-risk actions identified at the time of inspection.

## **2. Competent Persons**

Ligtas Water Consultants have been appointed by Ryden LLP to assist them in the carrying out of their duties under health and safety and associated legislation, specifically in carrying out a water risk assessment in accordance with their duties under Approved Code of Practice L8. The Control of Legionella Bacteria in Water Systems.

## **3. Introduction**

### **3.1. Legionnaires' disease**

Legionnaires' disease is a type of pneumonia which may have serious effects on other organs of the body as well as the lungs. Infection is caused by inhaling airborne droplets or particles containing viable legionella which are small enough to pass deep into the lungs and be deposited in the alveoli. There is no evidence that the disease is transmitted by ingestion or from person to person. Although healthy individuals may develop Legionnaires' disease, people thought to be at an enhanced risk of infection include the elderly, smokers, alcoholics and patients with cancer, chronic respiratory or kidney disease.

Initial symptoms of Legionnaires' disease include high fever, chills, headache and muscle pain. A dry cough soon develops, and most patients suffer difficulty in breathing. About a third of patients develop diarrhoea or vomiting and about a third become confused or delirious. Legionnaires' disease may not always be severe and can be treated effectively with several antibiotics.

It is important to keep the incidence of the disease in perspective. In recent years 200 to 300 cases of Legionnaires' disease have been reported each year in England and Wales whereas there are 180,000 estimated cases of pneumonia from all causes. Many cases of Legionnaires' disease are in patients who have recently travelled abroad and frequently cases which originate in this country are sporadic and no source of infection is traced. Clusters of cases have, however, occurred and outbreaks have been associated with offices, hotels, factories, hospitals, etc

## 3.2. Requirements

An assessment of the risks from hazardous micro-organisms, including legionella and chemicals such as biocides and chlorine is required to be carried out and appropriate control measures adopted, particularly in the following plant and systems:

- water systems incorporating a cooling tower;
- water systems incorporating an evaporative condenser;
- hot and cold water systems; and
- other plant and systems containing water which is likely to exceed 20°C and which can release a spray or aerosol during operation or when being maintained or tested e.g. sprinkler systems, humidifiers, air washers, spa baths and pools.

The person in control is required to:

- identify and assess sources of risk
- prepare a scheme for preventing or controlling the risk
- implement and manage precautions
- keep records of the precautions implemented
- appoint a person to be managerially responsible

In determining what measures should be taken the degree of risk of legionellosis must be weighed against the cost and difficulty of applying those measures. On balances, the benefits of adopting a particular method or system (i.e. the reduction in risk) should outweigh the cost involved.

### 3.3. Identification and Assessment of Risk

Susceptible systems must be identified and the risk the present assessed, not only for the routine operation or use of the system but also in relation to maintenance, breakdown, abnormal operation, commissioning or unusual circumstances.

This assessment takes account of:

- the presence of legionella bacteria
- conditions suitable for the multiplication of the organisms, e.g. suitable temperature (20°C to 45°C) and a source of nutrients e.g. sludge, scale, rust, algae and other organic matter. It is uncommon to find proliferation below 20°C and it does not survive above 60°C;
- a means of creating and disseminating breathable droplets e.g. the aerosol generated by a cooling tower or shower; and
- the presence (and numbers) of people who may be exposed, especially in premises where occupants are particularly vulnerable, e.g. healthcare.

In carrying out the assessment a site survey is carried out and includes an asset register of all associated plant, pumps, strainers, etc.

An up to date drawing or schematic diagram of the layout of the plant or system is also included.

The assessment should be reviewed regularly or following any significant changes such as; changes in legislation / ACoP, building usage, following an outbreak of Legionnaires' disease or whenever there is any reason to suspect it is no longer valid.

### 3.4. Managing the Risk

Inadequate management, lack of training and poor communications have all been identified as contributory factors in outbreaks of Legionnaires' disease. It is, therefore, important that those people involved in assessing risk and applying precautions are competent, trained and aware of their responsibilities.

The Duty holder is required to appoint a person to take day to day responsibility for controlling any identified risk from legionella bacteria within each of their occupied premises for which they are responsible for water hygiene.

## 4. Terms and Definitions

### 4.1. Risk Assessment

The Approved Code of Practice L8: The Control of Legionella Bacteria In Water Systems requires that a suitable and sufficient assessment be carried out to identify and assess the risk of exposure to legionella bacteria from work activities and water systems on a premise.

Other applicable Health and Safety legislation includes the Health and Safety at Work etc Act 1974, Management of Health and Safety at Work Regulations 1999 and the Control of Substances Hazardous to Health Regulations 2002 (as amended).

The Assessment:

- Identifies the hazards to which employees and others are exposed.
- Establishes the likelihood of harm from the hazards being realised i.e. the risk.
- Evaluates the EXTENT of the risks (taking into account the existing control measures or precautions).

Risk assessment, therefore, reflects the likelihood that harm will occur and its severity. The purpose of the assessment is to help the employer determine the measures needed to comply with their duties under relevant statutory provisions.

This risk assessment is intended to be a working document that can be used to guide future action aimed at improving Water Hygiene. In order to facilitate this Action Plan is provided, giving an indication of the time-scale within which any work should be carried out.

### 4.2. Definitions

<b>Hazard</b>	The potential of something to cause harm
<b>Risk</b>	The probability of that harm actually occurring (the exposure)
<b>Risk Assessment</b>	Risk = Hazard x Exposure - the systematic identification of the hazards associated with your work and premises and the evaluation of the risks associated with those hazards.
<b>Risk Management</b>	The reduction of risks by ensuring, among other things, that effective preventative and protective measures are in place.

### 4.3. Period for Reassessment

The Approved Code of Practice L8: The Control of Legionella Bacteria In Water Systems requires that the assessment to be reviewed regularly or if:-

- there are any changes to the water system or its use;
- there are any changes to the use of the building in which the water system is installed;
- there is availability of new information about risks or control measures;
- the results of checks indicating that control measures are no longer effective;
- there is a case of Legionnaires' disease/legionellosis associated with the system

A checklist is provided within the appendices to assist with carrying out a review of this assessment, in the event of any significant changes.

### 4.4. Water Hygiene Arrangements

The statutory duty holder must make and give effect to such arrangements as are appropriate, having regard to the size, nature of activities for the effective planning, organisation, control, monitoring and review of preventative and protective measures.

#### Planning

Adopting a systematic approach that identifies priorities and sets objectives. This assessment facilitates this process and wherever possible risks should be eliminated by the careful design and selection of facilities, equipment and processes or minimised by the use of physical control measures.

#### Organisation

Putting in place the necessary structure with the aim of ensuring that there is a progressive improvement in water hygiene standards.

#### Control

Ensuring that the decisions for promoting water hygiene are being implemented as planned.

#### Monitoring and review

Like quality, progressive improvement in Water Hygiene can only be achieved through the constant development of policies, approaches to implementation and techniques of risk control.

#### Preventative and protective measures

Measures, which have been identified by the Responsible Person in consequence of a risk assessment as the general precautions he needs to take to comply with the requirements of the ACOP and other Regulations.

## 5. Premise Details

### 5.1. On-site Contacts

Mr Keith Emerson - Facilities Manager

### 5.2. Location of Premise

Laurel House  
Laurelhill Business Park  
Stirling  
Stirlingshire  
FK7 9JQ

### 5.3. Owner

Protector No 1 Ltd

### 5.4. Responsible Person(s)

Role	Organisation	Contact Number	Responsibilities	Competence level
Owner/Landlord	Protector No 1 Ltd		Owner / Landlord Duties	Awareness of legal duties, monitoring legal compliance and own Legionella requirements
Managing Agent	Ryden LLP	0131 473 3209 (Keith Emerson)	Managing Agent / Property Management Duties	Awareness of legal duties, monitoring legal compliance and owner/landlord Legionella requirements
Main Contractor	S2 Partnership Ltd	01954 267788	Management of Plant and Equipment and controlling Legionella risks	Expert - Managing and monitoring the delivery of operational services

### 5.5. Description of Undertakings

The building comprises of office accommodation in multiple occupation.

The client is the landlord and is responsible for the common areas of the premises and common items of plant and equipment.

Ryden LLP are contracted to manage the building on behalf of the landlord.

### 5.6. Employed Staff on Site

There are no employees of the client based on site.

Ron Martin (Security Guard - Corps Security) is based on site and assists in managing the property on a day to day basis. He was not available during the inspection.

The Facilities Manager (Ryden LLP) responsible for the site visits on a regular basis.

Contractors employed by the client attend site on a regular basis to carry out servicing and maintenance of plant and equipment, general cleaning and window cleaning.

## **5.7. Enforcement**

There are no reported visits from the Local Authority Environmental Health Officer.

No matters are reported to be outstanding.

## **5.8. Persons at Risk**

There are no staff of the client based in the building.

There are no children or young persons employed at the premises that are the responsibility of the client.

Persons at risk within the building include, visiting employees of the client, visiting contractors, tenants, security guard and those visiting the tenants.

Important Note - (COVID-19 LOCKDOWN): During the pandemic its likely that the number of people with weakened immune systems will increase. People with weakened immune systems are typically more at risk of Legionellosis (illness caused by Legionella bacteria, including Legionnaires Disease). Legionellosis is transmitted by inhalation of airborne water droplets containing high number of Legionella bacteria.

## **5.9. Site Description**

Please refer to the summary section of the report.

## 6. Limitations of Report

This assessment addresses the requirements of the Approved Code of Practice L8 and associated legislation, as well as identifying measures required to comply.

The assessment covers:

- All areas, which to any degree are under the control of the client.
- Tenanted areas are not normally included with the scope of this report, unless requested by the client, and then only, where the landlord has a degree of control over these areas.

Whilst our Water Consultants make every reasonable effort to access all areas of the premises for which the client is responsible, there may be some areas that are inaccessible or are difficult to access due to the fabric of the building and to do so would cause unnecessary damage.

The following survey specific areas were not accessed during the survey because they were either locked, not reasonably accessible for reasons of health and safety, outside of the scope of the works requested or where excessive damage would need to be done to access the areas. Any areas not accessed during the survey due to these considerations are outlined below:

- Due to pipework being within risers or concealed it was not possible to identify the presence of non obvious dead legs.
- Due to the age of the building and possible changes over its life cycle it maybe possible that hidden dead legs exist. No isolation, inspecting or testing was carried out as part of this legionella risk assessment.
- Tenanted & vacant office suites - No access or locked.
- Bib tap (detailed in the onsite schematic) - Not observed.
- First floor cleaners sink (detailed in the onsite schematic) - Not observed (assumed in locked cupboard).

The electrical and mechanical worthiness of all plant and equipment is outside the scope of this report although the servicing and maintenance of such items may be commented upon.

In undertaking the survey no systems were isolated, unless stated otherwise, and accordingly the identification of drinking water and non drinking water supplies may not have been possible. In such cases the need for further investigation will be stated.

This Legionella Risk Assessment is based on a combination of observations made by the Consultant at the time of the survey as well as information provided by representatives of the client. All such information is accepted in good faith as being factual, accurate and a valid representation of the client's views.

Any changes to the occupancy, water systems, use or other circumstances of the premises will require that a review of the assessment is carried out.

## 7. Resume of the brief

A Legionella Risk Assessment is to be performed on the above premises in order to identify any failure to comply with relevant statutory provisions and to identify any poor practices.

The '**Existing control measures / remarks**' section of the report provides a general description of the standard of 'water hygiene' and the current control measures implemented on site. Specific water hygiene issues are detailed under the relevant subject headings within this section of the report.

Having considered the potential risks and the probability of an outbreak occurring, taking account of existing means of control, this report identifies actions required to be taken to reduce such risks to a minimum.

The report identifies any failures to comply with legislative requirements and gives brief, but specific, advice on the action to be taken. All statutory provisions relevant to the site and their undertaking are considered. Codes of Practice, Guidance Notes, British Standards and best practice are also considered and recommendations made. In each case the legislation breached is stated, and the action denoted as **(L)** legal requirement or **(R)** Recommendation.

The requirements within the action plan are then further prioritised as follows: Low **(L)**, Medium **(M)** or High **(H)**, having considered the potential risks, the probability of an incident occurring and the existing means of control.

In each case the requirements are prioritised as follows:

<b>H</b>	A serious breach of legislation and / or affecting the adequacy of risk control features as determined by the risk assessment. Risk or issues which may result in an outbreak and legal action against the responsible persons. (Immediate attention required)
<b>M</b>	A lesser breach of legislation or inadequate control measures as identified by the risk assessment. (Recommended timescale for completion within 3 months)
<b>L</b>	Poor practices and issues that, whilst not presenting an immediate risk to health, may affect overall risk of an outbreak. Also includes provisions of practices and features that are favourable, but over and above adequate standards as defined by governing legislation and / or risk assessment. (Recommended timescale for completion within 6 months)

The above are given as a guide to assist implementation and allocation of resources, although it is recommended that work is carried out as soon as reasonably practicable.

The action plan is a working document, giving an indication of the time period expected for compliance, a section for allocating responsibility for compliance and a section to be signed on completion.

## 8. Risk Assessment and Action Plan

### 8.1. Management (Water)

#### Existing Controls and Observations

Important Note - (COVID-19 LOCKDOWN): During this period building water usage should be monitored closely to ensure good water turnover is still occurring within the building. Therefore all outlets will be classed as 'infrequently used outlets and must be included in a flushing regime. It is important to note that all maintenance tasks advised by ACoP L8 and HSG 274 must be maintained. NB: If water services were to be decommissioned the systems must be recommissioned prior to occupation and a new legionella risk assessment carried out.

Suitable cleaning and disinfection method statements, risk assessments, reports and certificates are kept in the water services log book. The procedures, disinfectant concentrations and contact times comply with the specifications in BS8558.

This legionella risk assessment was undertaken on 06/05/2021 by Ligtas. This assessment must be reviewed at regular intervals or following significant changes, and should be reviewed annually.

The individuals and organisations currently appointed to manage the risk of exposure to legionella are identified. Responsibilities are clearly defined and lines of communication properly established.

Planned maintenance tasks on the water services are mostly recorded, signed and dated by the person who undertook the work.

A log is kept of contractors, consultants and other persons attending site to work on or inspect the water systems.

Records relating to most of the management and maintenance of water services are retained for at least two years after they become invalid.

Most of the records of tests, inspections and monitoring are retained for at least 5 years.

Records of most required tests, inspections and monitoring are kept on the premises in a water services log book and are up-to-date.

Remedial actions in the event of breakdown or transgression of control parameters are recorded, signed and dated by the person who undertook the work.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
Written scheme of control / Written scheme for controlling the risk from exposure	<p>A suitable written scheme for controlling the risk from exposure to legionella was not available for inspection during this assessment.</p> <p>A written scheme for controlling the risk from exposure to legionella should be drawn up and implemented. The written scheme for control should include:</p> <ol style="list-style-type: none"> <li>1) An up-to-date schematic, including parts that are temporarily out of use</li> <li>2) A description of the correct and safe operation of the system</li> <li>3) The precautions to be taken (e.g - a ppm schedule)</li> <li>4) Checks to be carried out and their frequency</li> <li>5) Remedial action to be taken in the event that the scheme is shown not to be effective</li> </ol> <p style="text-align: center;"><i>Control Of Substances Hazardous to Health Regulations 2002 (as amended)</i>  <i>HSE L8 Control of Legionella Bacteria in Water Systems</i></p>	L	Medium	-		

## 8.2. Training (Water)

### Existing Controls and Observations

A site representative is not employed on site on a full time basis, but periodically visits this site.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
Appointed person training / Appointed responsible person training	Provide training for the appointed responsible person and deputy in legionella awareness and control.  <i>Control Of Substances Hazardous to Health Regulations 2002 (as amended)</i> <i>HSE L8 Control of Legionella Bacteria in Water Systems</i>	L	Medium	-		
Competence of Contractors	Ensure that training records and accreditation certificates are available to confirm the competence of external contractors. This documentation should be obtained and held in the water services log book.  There was an LCA certificate on site, but had an expiry date of 31/8/2018.  <i>Control Of Substances Hazardous to Health Regulations 2002 (as amended)</i> <i>HSE L8 Control of Legionella Bacteria in Water Systems</i>	L	Low	-		
Site representative training	Provide training to ensure that representatives of the client, who are appointed to implement control measures, are sufficiently informed, trained and instructed to carry out these tasks competently and safely.  <i>Control Of Substances Hazardous to Health Regulations 2002 (as amended)</i> <i>HSE L8 Control of Legionella Bacteria in Water Systems</i>	L	Medium	-		

### 8.3. Cold Water Services

#### Existing Controls and Observations

The cold water storage tank is inspected at least annually. This was last carried out on 18/03/2021.

The cold water storage tank appears to be designed and constructed in accordance with the requirements of The Water Supply (Water Fittings) Regulations 1999.

Observations and monitoring indicate that the volume of water in the main cold water storage tank is appropriate for the current level of building occupancy.

Please Note: If occupancy levels were to reduce significantly in the building it may be necessary to reduce water storage capacity.

Temperature monitoring demonstrates that there is no significant thermal gain within cold water services and that they are maintained below 20 degrees Celsius.

Records are available that show the temperature of the stored water is less than two degrees Celsius higher than the mains water temperature.

Records are available showing the temperature of the water in the cold-water storage tank is being monitored quarterly.

Records are available to show that cold water temperature monitoring at sentinel outlets is undertaken monthly, and that representative outlets are checked over the course of a year.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
Access / Tank - Safe Access	<p>Access to the main GRP cold water storage tank is currently unsafe due to very limited access to hatch (there is only a very small gap between the hatch and ceiling, and no access ladders are fitted on the tank itself. Consequently it was not inspected during the course of this risk assessment. This also suggests that the tank can not be effectively maintained. Ensure that the cold water storage tank can be safely and readily accessed for maintenance and inspection purposes.</p> <p><i>The Water Supply (Water Fittings) (Scotland) Byelaws 2014                      Workplace (Health, Safety and Welfare) Regulations 1992</i></p>	L	Medium	-		

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
						
Tank Condition / Replace/decommission	<p>It is understood that the small black PVC cold water tank is redundant and, therefore, decommission the tank and remove with all associated pipework.</p> <p>Should it come to light that the small tank is used, then the lid should be repaired / replaced and suitably insulated.</p> <p><i>The Water Supply (Water Fittings) (Scotland) Byelaws 2014</i></p>	L	Medium	-		
Tank Condition / Tank internal condition	<p>The internal condition of the cold water storage tank is not satisfactory due to the lid being damaged resulting in ingress of dirt / dust etc. It is recommended that you clean and disinfect the cold water storage tank and associated down water services in accordance with BS 8558:2011. On completion, recommission the tank and keep a record of the work.</p> <p>As previously mentioned, if this tank is not in use, it should be drained and decommissioned.</p> <p><i>HSE L8 Control of Legionella Bacteria in Water Systems</i></p>	L	Medium	-		
Water sampling / Microbiological monitoring	<p>It is recommended that samples are routinely taken from sentinel outlets for legionella analysis. Sampling should be carried out in accordance with BS 7592:2008.</p> <p><i>HSE L8 Control of Legionella Bacteria in Water Systems</i></p>	R	-	6m		

## 8.4. Domestic Hot Water Service

### Existing Controls and Observations

Thermostatic mixer valves are located within 1 metre of the served outlets.

Records are available to show that temperatures of hot water supplies to thermostatic mixer valves are monitored monthly.

Temperature monitoring indicates that all hot water outlets reached over 50 degrees Celsius within 1 minute of running the taps.

Records are available to show that hot water temperature monitoring at sentinel outlets is undertaken monthly, and that representative outlets are checked over the course of a year.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
Calorifier blow-down / Calorifier inspection/blow-down	<p>There are no records available to indicate that the calorifier is opened and inspected/ blown down regularly.</p> <p>As the calorifier is not fitted with an inspection port, the drain should be opened at least annually to purge any debris from the base. This should be recorded, along with the physical condition of the water. The actual frequency of calorifier purging should be determined by the prevailing condition of the water.</p> <p><i>HSE L8 Control of Legionella Bacteria in Water Systems</i></p>	L	Medium	1y		
Circulating pumps / Duty/ standby circulation pumps	<p>Ensure the hot water circulation pumps are alternated between duty and standby on a weekly basis to prevent stagnation of water within pipework. Where this is done manually records should be kept.</p> <p><i>Control Of Substances Hazardous to Health Regulations 2002 (as amended)</i> <i>HSE L8 Control of Legionella Bacteria in Water Systems</i></p>	L	Medium	-		
Sampling / Calorifier condition	<p>In order to check and note the condition of the hot water calorifiers, arrange for visual samples to be taken from the drain water on an annual basis. Clean and disinfect if considered necessary.</p> <p>Record findings in the Water Hygiene Log Book.</p> <p><i>HSE L8 Control of Legionella Bacteria in Water Systems</i></p>	L	Medium	1y		

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
						
Sampling / Microbiological Sampling	Carry out microbiological water sampling of the hot water system on the site.  <i>HSE L8 Control of Legionella Bacteria in Water Systems</i>	R	-	-		
Thermostatic mixer valves / Servicing of TMV's	Ensure Type 3 thermostatic mixer valves serviced and failsafe tested annually or according to manufacturer's instructions.  <i>Workplace (Health, Safety and Welfare) Regulations 1992</i>	L	Medium	-		
Visual inspections / Calorifier inspection	Ensure the calorifier has an annual internal visual inspection by a competent person and that a record of the inspection is made. Clean and disinfect if considered necessary.  <i>HSE L8 Control of Legionella Bacteria in Water Systems</i>	L	Medium	1y		
Water temperature / Excessive temperatures - mixer	Hot water at the outlets in the following disabled access toilets exceeded the recommended maximum of 43 degrees Celsius as specified in BS 8300:2009:  - Ground floor disabled WC TMV was 47oC.	L	Medium	-		

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
	<p>Limit the temperature of hot water at the outlets in all disabled access toilet facilities to a maximum of 43 degrees Celsius.</p> <p><i>BS 8300 Design of buildings and their approaches to meet the needs of disabled people</i></p> <p><i>HSE L8 Control of Legionella Bacteria in Water Systems</i></p>					

## 8.5. Cooling Towers

### Existing Controls and Observations

There are no cooling towers installed within the building.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
No action is required at present.						

## 8.6. Cleaning

### Existing Controls and Observations

There are currently no shower heads on this site.

At the time of the assessment it was noted that the taps in the common toilets were clean and free of scale.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
No action is required at present.						

## 8.7. Infrequently Used Outlets

### Existing Controls and Observations

It was reported that there was one infrequently used outlet on site (namely the bib tap in the ground floor plant room).

The water turnover in the building appears to be generally adequate for the current occupancy.

The water outlets on the vacant floors are flushed through on a weekly basis by the M&E contractor and records are kept.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
No action is required at present.						

## 8.8. Other Risk Systems

### Existing Controls and Observations

There were no 'other' risk systems identified within the building such as sprinklers or other spray systems.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
No action is required at present.						

## 8.9. General

### Existing Controls and Observations

The standard of water hygiene within the building appears to be reasonable however there are a number of actions that require attention (these are listed earlier in this action plan).

The residual risk of all the action points in the action plan will reduce from the priority rating given per action down to a Low risk action if managed correctly.

There are no obvious blind ends/dead legs present within the building.

The building was recently constructed and all pipework appears to be fully labelled indicating its area of supply.

Item Description	Action Required	L/R	Priority Rating	Freq	Photograph	Progress / Completion Notes
No action is required at present.						

## Appendix 1. System Components

### Cold Water Tank

<b>Number</b>	1
Location	Plant room above 2nd floor
Tanks serves	Suspected all cold water outlets and calorifier (except for the bib tap in the plant room)
Tanks linked	Unknown
<b>Cleaning regime</b>	
Tank cleaned	8/3/21
Tank disinfected	8/3/21
Access	Poor
<b>Tank details</b>	
Type and materials of tank	GRP
Internal tank lining and material	Unknown (no access)
Dimensions (m)	2 x 1.6 x 1
Volume	3000 litres
Is the tank split	Unknown
Does the tank have a securelid	Yes
Size of the tanks access hatch (m)	0.8 x 0.8 (Approximate)
Vent pipe size/enclosed/screening	Yes
Main overflow - size and materials	32mm PVC pipe
Warning pipe - size and materials	32mm PVC
Rodent screens/filters fitted	Yes
Good cross flow of water	Unknown
Drain valve size	Unknown
Supply - size/material/valve	Copper 22mm
Outlet pipe work insulation and type	Copper 22mm
Tank - insulation and type	Foil wrapped glass insulation
Tank and pipe work labelled - coded	Yes
Temperature °C	At outlets
Water clarity	Clear at outlets
Sludge accumulation	No access
Extent of corrosion	No access
Biological slime	No access
Access to tank	Poor
Distance to drain	Unknown
Lighting	Relatively good

## Cold Water Tank

<b>Number</b>	<b>2</b>
Location	Plant room above 2nd floor
Tanks serves	Unknown
Tanks linked	No
<b>Cleaning regime</b>	
Tank cleaned	Unknown
Tank disinfected	No records or evidence
Access	Good
<b>Tank details</b>	
Type and materials of tank	Black plastic molding
Internal tank lining and material	Black plastic
Dimensions (m)	1.15 x 0.55 x 0.55
Volume	340 litres approx.
Is the tank split	No
Does the tank have a secure lid	No, lid was damaged and not fitting properly.
Size of the tanks access hatch (m)	1.15 x 0.55
Vent pipe size/enclosed/screening	Unknown
Main overflow - size and materials	Unknown
Warning pipe - size and materials	Unknown
Rodent screens/filters fitted	No
Good cross flow of water	Unknown
Drain valve size	Unknown
Supply - size/material/valve	copper 15mm pipe
Outlet pipe work insulation and type	Copper 22mm
Tank - insulation and type	Bagged thermal insulation (missing on lid)
Tank and pipe work labelled - coded	No
Temperature °C	Tank = 15.0oC & Incomer = 9.6oC
Water clarity	Moderately clear, but some deposits
Sludge accumulation	Some
Extent of corrosion	None
Biological slime	Some
Access to tank	Good
Distance to drain	Unknown
Lighting	Relatively good

### Hot Water Heater

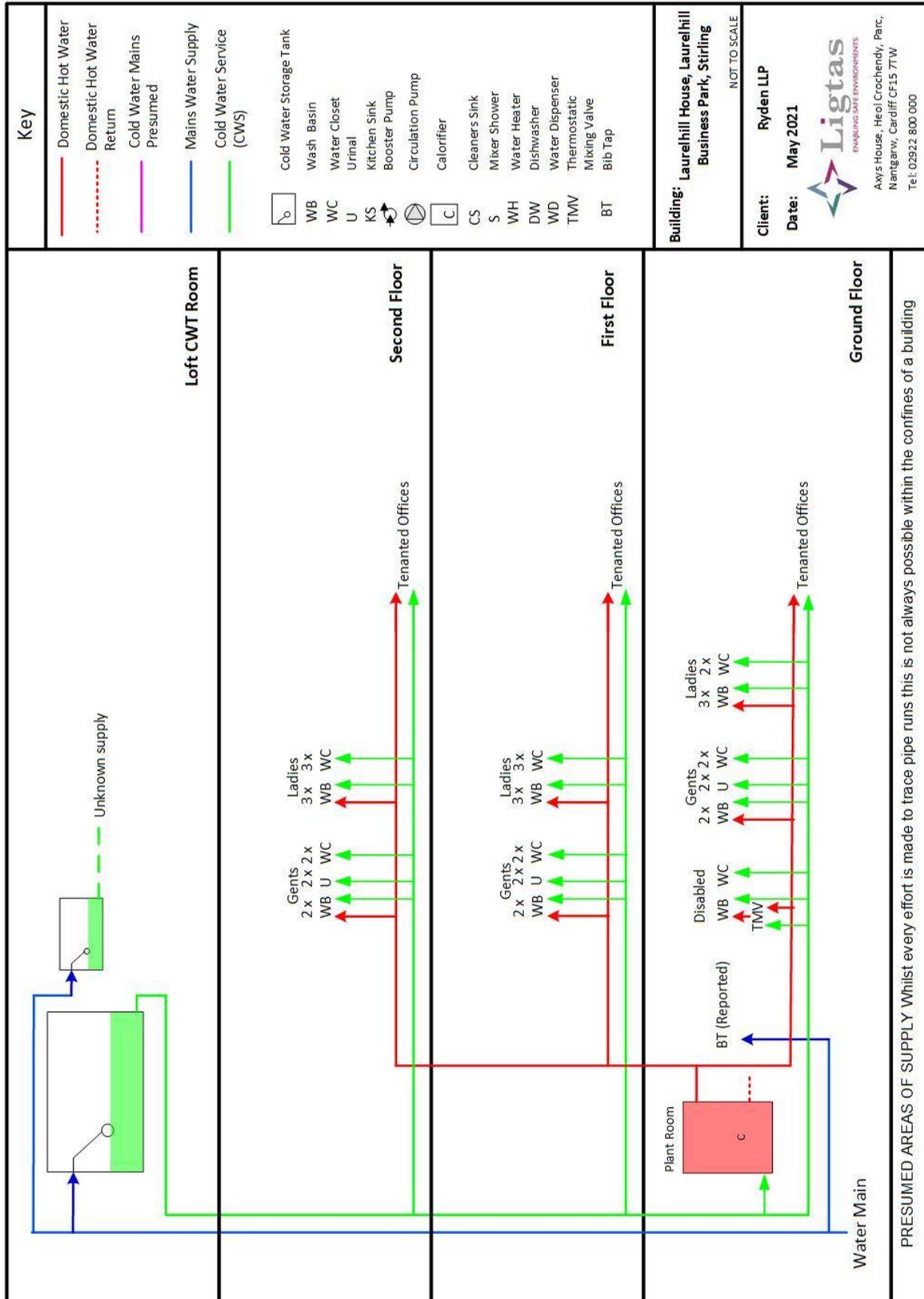
<b>Number</b>	<b>1</b>
Location	Ground floor plant room (accessed from outside)
Serves	All hot water outlets in building
Number of outlets	Around 25 outlets
Type	Calorifier
Make	Unknown
Power source	Gas
<b>Cleaning regime</b>	
Tank cleaned	Unknown
Tank disinfected	Unknown
Access	Relatively good
<b>Tank details</b>	
Type and materials of tank	Copper tank with external hard insulation
Internal tank lining and material	Unknown (no access)
Dimensions (m)	1.8 x 0.8 cylinder
Volume	800 litres approx.
Horizontal/Vertical	Vertical
Drain valve	Yes
Accessibility	Relatively good
Thermostat setting	Approx. out = 60, return 50
Temperature gauge	Yes
Temperature measured - °C	At outlets
Insulation type	Factory insulation
Insulation condition	Good
Water clarity	Clear at outlets
Sludge accumulation	No access
Extent of corrosion	No access
Biological slime	No access
Distance from power supply	Adjacent
Distance to drain	Adjacent
Lighting	Good

## **Cooling Tower**

There are no cooling towers on site.

# Appendix 2. Schematic Plan of System

## Domestic Water System



## Appendix 3. Outlet and Water Temperature Monitoring

Location	WHB	WC	Urinal	Shower	Sinks	Others	Hot °C	Cold °C	Mixed °C
Ground floor Gents	2	2	2	-	-	-	57.1	11.9	
Ground floor Ladies	3	2	-	-	-	-	57	11.7	
Ground floor disabled	1	1	-	-	-	-	-	-	47
	TMV fitted below wash hand basin. Hot water too hot from TMV, should be between 39oC and 43oC.								
First floor Gents	2	2	2	-	-	-	57.4	11.8	
First floor Ladies	3	3	-	-	-	-	57.6	11.8	
Second floor Gents	2	2	2	-	-	-	57.3	11.7	
Second floor Ladies	3	3	-	-	-	-	57.1	11.8	
Ground floor bib tap	-	-	-	-	-	Bib tap	-	-	
	Found in onsite schematic, but unobserved.								

## Appendix 4. Sampling Results

Location	Determination	Result	Units	Action required
No sample taken				

## Appendix 5. Audit Review

To be reviewed following any significant changes to confirm the report is still adequate and valid.

<b>Date of Audit</b>		<b>Conducted By</b>	
<b>Date of last Audit</b>		<b>Company</b>	

<b>Description</b>	<b>Any Action Required</b>	
	<b>Satisfactory</b>	<b>See Separate Page</b>
<b>MANAGEMENT DETAILS</b>		
<b>Review Log Book</b>		
Review of remedial action		
Review of ongoing monitoring		
<b>WATER SERVICE DETAILS</b>		
Any changes to the use of the building in which the water system is installed		
Any changes to mains supply since last audit		
Any changes to cold water services or it's uses since last audit		
Any changes to showers since last audit		
Any changes to miscellaneous systems since last audit		
Any changes to evaporative cooling system since last audit		
The availability of new information about risks or control measures		

Date of next audit	
Signature of Auditor	

## Appendix 6. Recommended Monitoring

Section	Service	Action to take	Frequency
Domestic Water Services	Calorifiers	Inspect calorifier internally by removing the inspection hatch or using a boroscope and clean by draining the vessel. The frequency of inspection and cleaning should be subject to the findings and increased or decreased based on conditions recorded	Annually, or as indicated by the rate of fouling
Domestic Water Services	Calorifiers	Check calorifier flow temperatures (thermostat settings should modulate as close to 60 °C as practicable without going below 60 °C) Check calorifier return temperatures (not below 50 °C, in healthcare premises not below 55 °C)	Monthly
Domestic Water Services	Hot water services	For circulating systems: take temperatures at return legs of principal loops (sentinel points) to confirm they are at a minimum of 50 °C (55 °C in healthcare premises). Temperature measurements may be taken on the surface of metallic pipework	Monthly
Domestic Water Services	Hot water services	For circulating systems: take temperatures at return legs of subordinate loops, temperature measurements can be taken on the surface of pipes, but where this is not practicable, the temperature of water from the last outlet on each loop may be measured and this should be greater than 50 °C within one minute of running (55 °C in healthcare premises). If the temperature rise is slow, it should be confirmed that the outlet is on a long leg and not that the flow and return has failed in that local area	Quarterly (ideally on a rolling monthly rota)
Domestic Water Services	Hot water services	All HWS systems: take temperatures at a representative selection of other points (intermediate outlets of single pipe systems and tertiary loops in circulating systems) to confirm they are at a minimum of 50 °C (55 °C in healthcare premises) to create a temperature profile of the whole system over a defined time period	Representative selection of other sentinel outlets considered on a rotational basis to ensure the whole system is reaching satisfactory temperatures for legionella control
Domestic Water Services	Cold water tanks	Inspect cold water storage tanks and carry out remedial work where necessary	Annually
Domestic Water Services	Cold water tanks	Check the tank water temperature remote from the ball valve and the incoming mains temperature. Record the maximum temperatures of the stored and supply water recorded by fixed maximum/minimum thermometers where fitted	Annually (Summer) or as indicated by the temperature profiling
Domestic Water Services	Cold water services	Take temperatures at a representative selection of other points to confirm they are below 20 °C to create a temperature profile of the whole system over a defined time period. Peak temperatures or any temperatures that are slow to fall should be an indicator of a localised problem	Representative selection of other sentinel outlets considered on a rotational basis to ensure the whole system is reaching satisfactory temperatures for legionella control
Domestic Water Services	Cold water services	Check thermal insulation to ensure it is intact and consider weatherproofing where components are exposed to the outdoor environment	Annually
Domestic Water Services	Cold water services	Check temperatures at sentinel taps (typically those nearest to and furthest from the cold tank, but may also include other key locations on long branches to zones or floor levels). These outlets should be below 20 °C within two minutes of running the cold tap. To identify any local heat gain, which might not be apparent after one minute, observe the thermometer reading during flushing	Monthly
Domestic Water Services	Infrequently used outlets	Consideration should be given to removing infrequently used showers, taps and any associated equipment that uses water. If removed, any redundant supply pipework should be cut back as far as possible to a common supply (eg to the recirculating pipework or the pipework supplying a more frequently used upstream fitting) but preferably by removing the feeding 'T' Infrequently used equipment within a water system (ie not used for a period equal to or greater than seven days)	Weekly, or as indicated by the risk assessment taking account of any manufacturer's recommendations

Section	Service	Action to take	Frequency
		should be included on the flushing regime Flush the outlets until the temperature at the outlet stabilises and is comparable to supply water and purge to drain Regularly use the outlets to minimise the risk from microbial growth in the peripheral parts of the water system, sustain and log this procedure once started For high risk populations, eg healthcare and care homes, more frequent flushing may be required as indicated by the risk assessment	
Domestic Water Services	TMVs	Risk assess whether the TMV fitting is required, and if not, remove Where needed, inspect, clean, descale and disinfect any strainers or filters associated with TMVs To maintain protection against scald risk, TMVs require regular routine maintenance carried out by competent persons in accordance with the manufacturer's instructions. There is further information in paragraphs 2.152- 2.168	Annually or on a frequency defined by the risk assessment, taking account of any manufacturer's recommendations



# Certificate of Assessors Competence

***Dougie Smart***

*Is competent in the following areas:*

***Domestic Hot and Cold Water Legionella Risk Assessments,  
Water Sampling and,  
Written Schemes***

**Assessors Signature:**



**Technical Lead Signature:**



*If you require further information regarding the training and competence of the assessor please contact Ligtas Consultancy and Training Services Ltd*