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Survey Reports - Hot and Cold-Water Distribution

CONDITION REPORTS - HOT AND COL	HOT AL	JO C	OLD	OUTLETS	rs.						
Location	TMV	Sentinel Outlet H	Outlet C	Tap Type (as below)	Scale (L/M/H)	Spray (L/M/H)	Te	Femperature (°C HW	C) CW	Frequent Use	Notes:
New Building Classroom 64	YES	z	z	MW HW	L	L	37		21	YES	TMV is behind a panel
New Building Classroom 63	YES	Z	Z	MW HW	L	Γ	ı	1	1	YES	TMV is behind a panel
New Building Children's Toilet 61	YES	N	Ν	3 MW HW	L	L		1	1	YES	
New Building Medical Room	YES	N	Z	MW HW	$_{ m L}$	L	1	,	1	NO	
New Building Cleaner's Room	ON	Y	Y	MW HW	L	L	1	1		YES	
New Building Children's Toilet	YES	Z	Z	3 MW HW	$_{ m L}$	L	1	1	1	YES	
New Building Classroom 57	YES	Ν	Z	MW HW	Γ	L	1			YES	
New Building Classroom 56	YES	Z	N	MW HW	L	L	1		1	YES	,
New Building Disabled Toilet	YES	Z	Z	MW HW	T	IJ		1	1	YES	Thermotap & TMV installed + 2 x strainers
New Building Children's Toilet	YES	z	Z	6 MW HW	L	Т	1	1		YES	
New Building Classroom C50/51	YES	Z	Z	2 MW HW	Γ	Γ	24		23	YES	
New Building Kitchen	ON	Y	Y	2 MW HW	Ţ	Т	ı	23	22	YES	
New Building 1F Disabled Toilet	YES	z	Z	MW HW	J	L	ı	1	ı	YES	Thermotap & TMV installed + 2 x strainers
New Building 1FClassroom 74	YES	z	z	MM HW	T	Т	1	1		YES	Cold water isolated
New Building 1F Classroom 73	YES	Z	Ν	MW HW	L	L	24	1	22	YES	
New Building 1F Cleaners Room	ON	Y	Y	MW HW	Γ	Т	1			YES	
New Building 1F Children's Toilet	YES	Z	Ν	3 MW HW	Γ	L	ı			YES	
Mobile Toilet	YES	Z	Z	MW HW	L	T	40	1	19	YES	
Mobile Class	ON	Z	Z	MW HW	L	L	1			YES	
Old Building Outside classroom 35	ON	Z	Y	MW HW	L	L	1	37	20	YES	
Old Building Childrens Toilet 35	YES	N	Z	5 MW HW	L	L	39	(59)		YES	
Old Building External to Boiler Room	ON	Z	Z	MW	L	L	1	,		NO	Bib Tap head removed
Old Building Classroom 30	YES	N	N	MW HW	Γ	L		37	20	YES	
Old Building Girls Toilet 29	YES	Z	Z	MW HW	L	L	41			YES	
Old Building Staff Room 26	ON	Z	Z	MW HW	L	Γ	1	54	20	YES	
Old Building Boys Toilet 28	YES	Z	Z	3 MW HW	L	J	37	1		YES	
Old Building Staff Toilet 37	YES	Z	Z	MW HW	L	Ţ	37	1	20	YES	
Key: MW - Mains Water Services, BW - Boosted W	Vater Services			Down Services, I	HW – Hot Wa	- Hot Water Services, TN	AV – Thermo		Thermostatic Mixer Valve, WB		Water Boiler, WC - Water Cooler,
VM – Vending Machine, DF – Drinking Fountain											

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	equent Notes:		YES	YES	YES	YES	YES	YES	3 – Zip Tap / Water Boiler, WC – Water Co
	C) Fre		20 Y	-	2 Y	20 3	20 3	20 3	Valve, WB - Zip
	emperature (°	WH	1	1	74	1	1	20	nostatic Mixer
		Blended	27	1	1	40	40	,	MV – Therr
	Spray	(L/M/H)	IJ	J	J	L	J	J	ter Services, T
LS	Scale	(L/M/H)	L	J	ı	I	T	T	HW - Hot Wa
OUTLE	Tap Type	(as below)	2 MW HW	MW HW	MW HW	MM HM	MM MM	MM HM	Down Services
OLD	el Outlet	O	Z	z	Z	z	z	z	old Water
NO	Senting	H	Z	z	z	Z	z	z	0 - M.J. s
HOT A	TMV	Present	YES	CN	CZ	YES	YES	SZ	Woter Service
CONDITION REPORTS - HOT AND COL	Location		Old Building Classroom 21/22	Old Building Recention Disabled Toilet	Old Duilding Stoff Gents Toilet 8	Old Building Statt Schies Toilet 10	Old Building Meeting Room 7	Old Building 1F Poom 12	The Man Wing Works Samings BW - Bookled

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2.6 Survey Reports – Hot and Cold-Water Distribution

CONDITION REPORTS - DEADLEGS / LOW USE OUTLETS

Deadleg Register						
Pipework: Copper / Galv?	Pipework Size?	Deadleg Length?				
	Pipework: Copper / Galv?	Pipework: Copper / Galv? Pipework Size?				

Low Use Outlet Register		
Location:	Comments:	
External Bib Tap		
Medical Room (assumed)		

Domestic Expansion Vessels						
Location:	Correct Install?	Drain Valve Present:	Bellows Sound?	Comments:		
Old Building 1st Floor Office 6	No	No				
Old Building G/F Ladies 10 WC	No	No				
Old Building G/F 8 Gents 8 WC	No	No				
Old Building G/F Classroom 21	No	No				
Old Building G/F Boys WC 28	No	No				
Old Building G/F Staff Room 26	No	No				
Old Building G/F Girls WC 29	No	No				
Old Building Plant Room 37	No	No				
Old Building G/F Cleaners 32	No	No				
Old Building Portacabin 428 Classroom Cupboard	No	No				

Pressurisation Units / Quick fill							
Location:	Drain Valve Present	Backflow Protection?	Hose Permanent?	Comments:			
New Building Boiler Room	No	Yes	Yes				

2.6 Survey Reports – Hot and Cold-Water Distribution

Comments / Further Observations

Cold water delivery temperatures were found to be 20-23°C throughout, although we were in the summer we do recommend that all outlets are flushed on at least a weekly basis along with any other outlets not used in a period \geq 7 days.

Hot water delivery temperatures were found to vary and a small number of actions are raised. No record of routine blow down or inspection was noted. The calorifier and circulation pump were switched off at the time of the survey and the system was operated mid/late 20°C. The hot water system needs to be purged to maintain a switched off cold temperature in line with the incoming mains.

The water heaters are low capacity, sealed units and are therefore considered maintenance free from a water treatment point of view except for temperature control.

As stated above a flushing regime is required.

No significant scale deposits or corrosion were noted.

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2.7 Survey Reports - Showers / Pot Washes / Spray Outlets

Max HW Temp
Nearest HW / CW Satisfactory
hi(I Inəsər¶
Seale Present
Frequent Use
Removable Hose
Removable Head
WRC Materials
Нева пойзэппоЭ
HW Supply
CW Supply
Зромет Туре
Number
noinsool

No showers are installed

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2.7 Survey Reports – Showers / Spray Outlets

Comments / Further Observations

No showers are installed.

2.8 Survey Reports – Cooling Towers & Other Systems

No other systems were identified during the course of the survey.

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2.9 Risk Evaluation Report – Domestic Water Systems & Other Systems

1. Cont	amination	
Evaluatio	on of the risk at source, including assessment of the quality, temperature ar	nd the integrity of the
supply w	ater.	
Risk	Assessment Details	Site Risk Score
Score		
1	Good and wholesome supply to site, e.g. mains supply	
2	Possible exposure to contamination, e.g. borehole supply	1
3	Contaminated, e.g grey water or reclaimed water supply	
Commer	nts: Water to the site was confirmed as mains with no other source of supp	ly to the site.

2. Amp	lification	
including	ation of the cultivation conditions: assessment of the likelihood that <i>Legio</i> an assessment of conditions such as the temperature, water change rate, a vement and how conducive the conditions are to microbial growth.	reas of static or slow
Risk	Assessment Details	Site Risk Score
Score		
1	Suitable stored water, little indication of conditions to result system contamination or stagnation, well controlled system temperatures, no history of confirmed Legionella presence to system.	
2	Overcapacity or stagnation apparent, evidence indicate conditions likely to result system contamination or stagnation, issues identified to system temperature control, previously confirmed Legionella presence.	2
5	Significant over-capacity or stagnation apparent, evidence confirms conditions will result system contamination to high risk systems, significant history of confirmed issues with Legionella presence.	

3. Tra	nsmission (1997)	
An asses	sment of whether droplets or aerosols are likely to form and spread.	
Risk	Assessment Details	Site Risk Score
Score		
1	Low generation limited to taps generating low aerosol release	
2	Medium generation where spray taps and few showers present	1
3	Significant generation where many showers are present	
5	Very heavy aerosol present, e.g. cooling towers present	
Comme	nts: No showers are installed	

Comments: small number of faults noted – flushing regime required.

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4. Expo		
Determin	ation of the risk that droplets or aerosols will be inhaled (or contaminated	water aspirated)
Risk	Assessment Details	Site Risk Score
Score		
1	Few people exposed for brief periods to low risk systems	
2	Significant persons exposed for extended period to higher risk systems	2
5	Large numbers exposed for prolonged periods, external aerosol system	
Commen	ts: 300 children, 30-40 staff + visitors.	

5. Host	Susceptibility	
An evalu	ation of the nature of the exposed population, taking account of their vulne	erability when
	to legionellae.	
Risk	Assessment Details	Site Risk Score
Score		
1	Predominantly younger average risk occupants exposed	
2	Predominantly elderly higher risk occupants exposed	2
5	Immuno-suppressed very high-risk occupants exposed.	
Commer	its: Majority of occupants are children, staff and visitors are working age a	adults.

6. Docu	umentation, Management and Controls	
existing	ation of the observed documentation, management and control systems in control systems, demonstration of site documentation in the control of the ing / competence of persons completing.	place appraising site water systems
Risk	Assessment Details	Site Risk Score
Score		
1	Current systems and controls well documented and compliant	
2	Current systems and controls show some omissions	5
5	Current systems and controls show significant omissions	科学· 在第一条设置
Commer	nts:	

	Overall Risk Assessment	
as establi	ation of all elements of the aforementioned criteria to allow overall asses shed from the completion of the enclosed risk assessment survey detailed nce available within the detailed scope and limitations of the assessme	d. Risk is based upon
survey.		G'. D'-1-C
Risk	Assessment Details	Site Risk Score
Score		
< 7	Very low site assessed risk	
7 - 8	Low site assessed risk	
9 - 15	Moderate site assessed risk	13
16 - 19	High site assessed risk	
> 19	Very high site assessed risk	
Commen	ts: The overall risk of site is considered to be	

3. Non-compliance / Remedial Register

- ACoP L8 / HSG 274 Legionella Related Identified Non-Compliances / Recommendations Non-compliances identified from the completion and assessment of the site and controls survey
 - detailed specific to Legionella control and risk, the enclosed may be used to track and confirm schedules for completion and completion verification.
- Non-Legionella Related Identified Non-Compliances / Recommendations Non-compliances identified from the completion and assessment of the site and controls survey detailed specific to non-legionella related issues, items outside the scope of the assessment as detailed or other pertinent industry best practises, the enclosed may be used to track and confirm schedules for completion and completion verification.
- Non-Compliance Overview and Guidance Site survey and compliance findings to domestic water storage cisterns identified during the survey to site.

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3.1 Non-compliance / Remedial Register - ACoP L8 / HSG 274 - Legionella Related Identified Non-Compliances

Risk	Non-compliance /	Recommended Control	oletion	Signed Resp.
Rating	Risk Identified	Measure	Date	Person
	Appointments need to be reviewed	Conform the appointments of responsible and deputy responsible persons in the logbook.		
	No formal training	Ensure that the responsible person, deputy responsible person and anyone else involved in the implementation of the written scheme are subject to Legionella training.		
4	No amnual plan appears to have been laid out	A 4		
	Temperatures taken post-TMV	Ensure that hot water temperatures are taken from the hot water pipework pre-TMV (where TMVs are installed).	-	
	Calorifier too cool	Increase the calorifier's thermostatic controls to ensure the required temperature of $\geq 60^{\circ}$ C (flow) and $> 50^{\circ}$ C (return).		
	Water heater too cool	Increase the water heaters thermostatic controls to ensure a delivery temperature of $>50^{\circ}$ C.	0	
	Water heater too cool	Increase the water heaters thermostatic controls to ensure a delivery temperature of $>50^{\circ}$ C.	0	

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					_	Т		
pliances	Signed Resp.	Person						
d Non-Com	Completion	Date						
3.2 Non-compliance / Remedial Register - ACOP L8 / HSG 274 - Legionella Related Identified Non-Compliances	Recommended Control	Measure	Remove the TMV from these taps and allow the thermotap to blend the water	Ensure that these strainers are treated the same as TMV strainers and are part of the service routine	(see above).	Either replace the tap head or remove with the pipework cut back to the 't'.	Bring the cold water supply back into normal working use or remove it with the pipework cut back to the 't'.	Ensure that any outlets not used for a period ≥7 days are flushed on at least a weekly basis and that this is enhanced to include all outlets during school holidavs.
dial Register - ACoP L8 / HSG	Non-compliance /	Risk Identified	Thermotap and TMV installed	In line strainers installed pre-thermotap		Tap head is removed	Cold water is isolated	Flushing regime required
/ Reme	Risk	Rating	3	7		3	m	4
3.2 Non-compliance	Location / System		Disabled Toilets	Disabled Toilets		External to boiler room	Classroom 74	Throughout
	3#			1		1	1	

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#	Location / System	Risk	Non-compliance /	Recommended Control	Completion	Signed Resp.
		Rating	Rating Risk Identified	Measure	Date	Person
	Staff Gents Toilet 8	5	Hot water at 74°C	Reduce the thermostatic controls of the water heater to reduce the scald risk $(50-60^{\circ}C)$		
	Site Domestic Water Systems	1	Under current guidance all calorifiers and water cisterns should be identified with capacity, services served and designation/asset number.	Label and identify capacity, outlets served and designation/asset number to all tanks and calorifiers.		
	LTHW Quick Fill	m	The quick filling loop was noted to be still connected to the incoming mains supply making it susceptible to backflow contamination.	Disconnect the filling loop & only connect to the mains supply when necessary to prevent the follow risk of occurring.		
	Domestic Water Outlets	1	Outlets are not designated as suitability for potable use and should be clearly labelled as appropriate.	Identify and label all outlets as either suitable or unsuitable for potable use.		
	Domestic Water Outlets	1	Outlets are not identified to confirm risk of scalding to hot water outlets and should be labelled accordingly	Identify by labelling the risk of scalding to unblended hot water outlets.		
	Flexible Hoses	1	A number of flexible hoses were identified to site which are documented to potentially provide surfaces which may promote bacterial growth.	Whilst not essential for removal and replacement, it is good practise to consider the replacement with hard copper when they reach end of life.		

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3.4 Non-compliance / Remedial Register – Overview / Guidance

Remedial Completion Schedule and Confirmation of Completion

The following should be agreed by site and completed to confirm appraisal and commitment to the completion of identified recommendations from the survey completed. These recommendations fall within guidance to ensure that risks identified are reduced to ALARP (as low as reasonably practical) and is the responsibility of the Duty Holder to ensure resources are made available to allow their completion within specified time scales.

Proposed deadlines for the completion of the works should be agreed based upon the suggested guidance below and following their confirmed completion either in-house or by a competent sub-contractor the completion should be confirmed below and signed off by the site Responsible Person.

Recommendations for proposed acceptable timescales for the completion of the detailed remedials are based upon risk rating detailed covered below as guidance, should further clarification or assistance in the completion of the remedial works be required please do not hesitate to contact Aquavent Limited.

Where it is felt proposed remedials are not practicable or possible for whatever reason, further information should be recorded formally to confirm rational for this.

Completion of all remedial works should be completed to comply with Water Regulations 1999, ACoP L8 / HSG 274 and other guidelines. Where guidance is further required, further support should be sought.

Risk Designation	Risk Description	Recommended Completion Schedule
5	Critical risk defect, critical completion of recommended control measures, essential for reduction of identified risk.	Immediately
4	High risk defect, control measure completion will result a significant reduction in identified risk	0-3 months
3	Medium risk defect, control measure completion will result reduction in risk however no urgent action required.	3 - 6 months
2	Low risk defect, control measure completion will result reduction in risk, however no urgent action required.	6 – 12 months
1	Very low, non-mandatory recommendations as advisory from assessment, generally best working practise.	If required

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4. Photographic Evidence



1. New Build Calorifier

2. New Build Boiler Room Quick Fill



3. Example of in-line strainers



4. Tap head removed

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5. Domestic Water Drawings / Schematics

Extract from HSG 274 Part 2 Table 2.1: Checklist for Hot and Cold-Water Systems

Service	Action to take	Frequency
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
	Where there is no inspection hatch, purge any debris in the base of the calorifier to a suitable drain Collect the initial flush from the base of hot water heaters to inspect clarity, quantity of debris, and temperature	Annually, but may be increased as indicated by the risk assessment or result of inspection findings
	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).	Monthly
Hot water services	For non-circulating systems: take temperatures at sentinel points (nearest outlet, furthest outlet and long branches to outlets) to confirm they are at a minimum of 50 °C within one minute (55 °C in healthcare premises)	Monthly
	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
	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)
	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
POU water heaters (no greater than 15 litres)	Check water temperatures to confirm the heater operates at 50–60 °C (55 °C in healthcare premises) or check the installation has a high turnover	Monthly-six monthly, or as indicated by the risk assessment

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Combination water heaters	Inspect the integral cold water header tanks as part of the cold water storage tank inspection regime, clean and disinfect as necessary. If evidence shows that the unit regularly overflows hot water into the integral cold water header tank, instigate a temperature monitoring regime to determine the frequency and take precautionary measures as determined by the findings of this monitoring regime	Annually
	Check water temperatures at an outlet to confirm the heater operates at 50–60 °C	Monthly
Cold water tanks	Inspect cold water storage tanks and carry out remedial work where necessary	Annually
	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
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
	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
	Check thermal insulation to ensure it is intact and consider weatherproofing where components are exposed to the outdoor environment	Annually
Showers and spray taps	Dismantle, clean and descale removable parts, heads, inserts and hoses where fitted	Quarterly or as indicated by the rate of fouling or other risk factors, eg areas with high risk patients
POU filters	Record the service start date and lifespan or end date and replace filters as recommended by the manufacturer (0.2 µm membrane POU filters should be used primarily as a temporary control measure while a permanent safe engineering solution is developed, although long-term use of such filters may be needed in some healthcare situations)	According to manufacturer's guidelines
Base exchange softeners	Visually check the salt levels and top up salt, if required. Undertake a hardness check to confirm operation of the softener	Weekly, but depends on the size of the vessel and the rate of salt consumption
	Service and disinfect	Annually, or according to manufacturer's guidelines

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6. Recommended Maintenance / Control Regime

Multiple use filters	Backwash and regenerate as specified by the manufacturer	According to manufacturer's guidelines
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) should be included on the flushing regime. Push 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.	Weekly, or as indicated by the risk assessment
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
Expansion vessels	Where practical, flush through and purge to drain. Bladders should be changed according to the manufacturer's guidelines or as indicated by the risk assessment	Monthly-six monthly, as indicated by the risk assessment





