Communities and Local Government

Air Conditioning Inspection Report

Site Details

Site Address (where inspection was carried out)	Kall Kwik Printing, 2a West Bar Street, BANBURY, OX16 9RR						
City	BANBURY	Postcode	OX16 9RR	RRN	0160-0459-4089-3901-6002	Related RRN	0693-0414-8960-1000-6903

Report Information

Inspection Date	2011-09-09	Issue Date	2011-09-18	UPRN	638064940000		

Assessor Details

Assessor Name	MICHAEL SPENCER-HUGHES	Assessor ID	QUID201575
Employer/Trading Name	EXACT AIR Ltd		
Employer/Trading Address	39 HORTON DRIVE MIDDLETON CHENEY BANBURY OXON. OX17 2LN		
Accreditation Scheme Name	Quidos		

Communities and Local Government

Air Conditioning Inspection Report

Executive Summary

This report has been prepared in accordance with Part 4 of the Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007, which implements Article 9 of the Energy Performance of Buildings Directive. The inspection has been carried out by an Accredited Air Conditioning Assessor using the Department for Communities and Local Government approved inspection and reporting methodology

THE TRADING PREMISES IS A GROUND FLOOR COMMERCIAL OUTLET, WHICH IS PART OF A THREE STOREY MODERN STYLE BUILDING. THE FRONT DOOR OPENS DIRECTLY ONTO A PUBLIC HIGHWAY, MEMBERS OF THE PUBLIC ENTER THE SHOP DIRECTLY FROM THE STREET. INSULATION VALUES ARE GOOD AND THE FRONT DOOR IS NOT KEPT OPEN.

Key Recommendations:

Sub System Efficiency, Capacity and Cooling Loads

THE TWO AIR-CONDITIONING UNITS INSTALLED IN THE RETAIL SHOP AREA WERE INSTALLED AT DIFFERENT TIMES. THE SHOP RETAIL AREA, TO INCLUDE THE PRINTING AREA, IS LONG AND THIN, APP. 18.5 M BY 6M. THE FRONT SHOP AIR-CONDITIONING UNIT WAS INSTALLED FIRST TO CONDITION THE CUSTOMER WAITING AREA. THE SHOP HAS A LARGE GLASS FRONTAGE AND HAS A HIGH SOLAR HEAT GAIN. USING THE BENEFIT OF A HIGH CEILING, A 14KW COOLING ONLY SYSTEM WAS INSTALLED HERE, AS AT THE TIME A 14KW SYSTEM WAS THE GREATEST DUTY AVAILABLE FROM A SINGLE SYSTEM. THE AIR-CONDITIONING UNIT TO THE REAR OF THE SHOP WAS INSTALLED A LITTLE LATER TO REJECT HEAT FROM THE PRINTING MACHINES, AS THE SINGLE FRONT UNIT WAS NOT CAPABLE OF REMOVING HEAT FROM HERE. THE PRODUCTION AIR CONDITIONING UNIT WAS INSTALLED SOME YEARS AFTER, TO COOL THIS AREA WHEN PRINTING MACHINES IN THIS ROOM ARE USED. THIS AREA IS NOT CONSTANTLY OCCUPIED AND TENDS TO BE USED WHEN THERE IS A LARGE PRINT RUN ORDER. RECENTLY THERE HAS BEEN A PROBLEM IN THIS AREA, AS THIEVES HAVE STOLEN THE ROOFING LEAD, RAIN WATER HAS LEAKED INTO THE REAR ROOM, CAUSING THE CEILING TO COLLAPSE. THERE ARE NOW GRILLES AND CABLES HANGING FROM THE CEILING GRID. WITH THE LACK OF CEILING INTEGRITY, ANY CONDITIONING FROM THIS UNIT IS LOST INTO THE CEILING VOID. PLANS ARE ONGOING WITH THE INSURANCE COMPANY TO HAVE THE ROOF REPAIR AND THE CEILING TILES REPLACED.

Improvement Options

THERE IS AN OLD FRESH AIR & AN EXTRACT SYSTEM INSTALLED IN THE PRODUCTION AREA AND TO THE REAR OF THE RETAILS AREA. THESE AIR SYSTEMS ARE RARELY USED AND IN POOR CONDITION. ALL AIR TRANSFER GRILLES ARE VERY DIRTY. THE AIR DISCHARGE AND AIR SUPPLY VENTS ARE LOCATED ON THE ROOF NEAR THE THREE AIR-CONDITIONING CONDENSERS. THE VENTILATION SYSTEMS PRECEDED THE INSTALLATION OF THE AIR-CONDITIONING UNITS. THEY WERE INSTALLED TO VENTILATE THE REAR AREAS WHERE THE PRINT MACHINES ARE LOCATED. THE PRINTING CHEMICALS USED AT THE TIME WHEN THE VENTILATION WAS INSTALLED, WERE QUITE AGGRESSIVE AND CORROSIVE. IT WOULD BE A USEFUL EXERCISE TO COST TO MAKE THESE VENTILATION SYSTEMS WORK TO MODERN STANDARDS. THIS WOULD INTRODUCE SOME 'FREE COOLING' TO WORKS SPACE WHICH IS MORE ENERGY EFFICIENT THAN THE USE OF AIR-CONDITIONING UNITS TO COOL THE AREAS.

Alternative Solutions

OF THE THREE AIR-CONDITIONING INSTALLED AT THE PREMISES, TWO UNITS WORK ON REFRIGERANT R22 AND ONE ON REFRIGERANT R407C. BOTH OF THESE REFRIGERANT GASSES HAVE A SIMILAR POWER INPUT TO OUTPUT RELATIONSHIP, WHICH COMPARED TO MODERN INDUSTRY STANDARD REFRIGERANT R410A, THESE OLDER REFRIGERANT GASSES ARE NOT CONSIDERED ENERGY EFFICIENT. ALL THREE SYSTEMS HAVE 'SINGLE SPEED' COMPRESSORS WHILE R410A UNITS ARE INVERTER DRIVE AND USE LESS POWER. IT IS SUGGESTED THAT THESE EXISTING UNITS ARE REPLACED WHEN PRACTICAL WITH MODERN INVERTER UNITS. THIS WILL HAVE THE EFFECT OF REDUCING THE COMPANY ENERGY BILL AND REDUCING THE COMPANY CARBON FOOT PRINT

Other Recommendations

THE USE OF THE AIR-CONDITIONING IN THIS RETAIL AREA IS NOT CONSIDERED A HIGH PRIORITY. THE UNITS ARE NOT USED EACH AND EVERY DAY, THE USE IS LIMITED TO TIMES WHEN THE TEMPERATURE IN EACH AREA IS CONSIDERED UNCOMFORTABLE. WITH THE USE OF A EFFICIENT VENTILATION SYSTEM, WITH GOOD AIR DISTRIBUTION AND AIR OF GOOD QUALITY, THE USE OF THE AIR-CONDITIONING COULD BE GREATLY REDUCED. AT PRESENT THERE IS NO ONGOING MAINTENANCE ON THESE AIR-CONDITIONING UNITS. TO ENSURE THAT UNITS WORK AS EFFICIENTLY AS POSSIBLE, AN ON-GOING PROACTIVE MAINTENANCE IS IMPORTANT TO THESE UNITS. A REACTIVE

Communities and Local Government

Air Conditioning Inspection Report

Key Recommendations:

MAINTENANCE IS NOT ENERGY EFFICIENT. THERE ARE TWO UNITS INSTALLED THAT REQUIRE A MANDATORY LEAK TEST OF AT LEAST ONCE A YEAR. THIS IS A LEGAL REQUIREMENT UNDER THE F GAS REGULATIONS & OZONE REGS OF 2000.

Sub System Index	
Volume Definitions	VOL001
Sub System ID	VOL001/SYS001
Sub System Description	A COOLING ONLY CEILING CASSETTE, REFRIGERANT R22. INSTALLED TO CONDITION THE SALES COUNTER AREA OF THE SHOP.
Effective Rated Cooling Output of Sub System	14
Sub System Area Served	110
Inspection Date	2011-09-01
Cooling Plant Count	1
AHU Count	0
Terminal Units Count	0
Sub System Controls Count	1

Sub System Index	
Volume Definitions	VOL001
Sub System ID	VOL001/SYS002
Sub System Description	A COOLING ONLY WALL MOUNTED UNIT, REFRIGERANT R22. INSTALLED AT THE REAR OF THE SALES AREA OF THE SHOP.
Effective Rated Cooling Output of Sub System	10
Sub System Area Served	110
Inspection Date	2011-09-01
Cooling Plant Count	1
AHU Count	1
Terminal Units Count	0
Sub System Controls Count	1

Sub System Index	
Volume Definitions	VOL001
Sub System ID	VOL001/SYS003
Sub System Description	A COOLING ONLY CEILING SUSPENDED UNIT. REFRIGERANT R407C
Effective Rated Cooling Output of Sub System	7
Sub System Area Served	54
Inspection Date	2011-09-01
Cooling Plant Count	1
AHU Count	0
Terminal Units Count	0
Sub System Controls Count	1

Note: Request the following information from client and complete the following checklist. The assessor should examine the relevant documentation and systems as far as possible to check that the installed equipment is as described. If the documentation is not available, then an additional part of this procedure is to locate the equipment and assemble a portfolio of relevant documentation which should include all 'Essential' items as a minimum.

Record Checklist Pre Inspection Information

Level	Information Required	Reviewed	Not Available
Essential	Itemised list of installed air conditioning and refrigeration plant including product makes, models and identification numbers.	[x]	[ ]
	Cooling capacities, with locations of the indoor and outdoor components of each plant.	[x]	[ ]
	Description of system control zones, with schematic drawings.	[x]	[ ]
	Description of method of control of temperature.	[x]	[ ]
	Description of method of control of periods of operation.	[x]	[ ]
	Floor plans and schematics of air conditioning systems.	[x]	[ ]
Desirable	Reports from earlier inspections of air conditioning systems, and for the generation of an energy performance certificate.	[ ]	[x]
	Records of maintenance operations carried out on refrigeration systems, including cleaning indoor and outdoor heat exchangers, refrigerant leakage tests, repairs to refrigeration components replenishing with refrigerant.	[x]	[ ]
	Records of maintenance operations carried out on air delivery systems, including filter cleaning and changing, and cleaning of heat exchangers.	[x]	[ ]
	Records of calibration and maintenance operations carried out on control systems and sensors, or BMS systems and sensors.	[ ]	[x]
	Records of sub-metered air conditioning plant use or energy consumption.	[ ]	[x]
	For relevant air supply and extract systems, commissioning results of measured absorbed power at normal air delivery and extract rates, and commissioning results for normal delivered delivery and extract air flow rates (or independently calculated specific fan power for the systems).	[ ]	[x]
Optional	An estimate of the design cooling load for each system (if available). Otherwise, a brief description of the occupation of the cooled spaces, and of power consuming equipment normally used in those spaces.	[x]	[ ]
	Records of any issues or complaints that have been raised concerning the indoor comfort conditions achieved in the treated spaces.	[ ]	[x]
	Where a BMS is used the manager should arrange for a short statement to be provided describing its capabilities, the plant it is connected to control, the set points for the control of temperature, the frequency with which it is maintained, and the date of the last inspection and maintenance.	[ ]	[x]

Record Checklist Pre Inspection Information

Level	Information Required	Reviewed	Not Available
	Where a monitoring station, or remote monitoring facility, is used to continually observe the performance of equipment such as chillers, the manager should arrange for a statement to be provided describing the parameters monitored, and a statement reviewing the operating efficiency of the equipment.	[ ]	[x]

Cooling Plant Equipment Inspected	
Unit Identifier	VOL001/SYS001/PS001
Component Identifier	VOL001/SYS001/PS001
Manufacturer	MITSUBISHI ELECTRIC.
Description (type/details)	COOLING ONLY CASSETTE UNIT
Model/Reference	PL6GJSB
Serial Number	70200004
Year Plant Installed	1998
Rated Cooling Capacity (kW)	14
Refrigerant Type	HCFC 22
Refrigerant Charge (kg)	6
Location of Cooling Plant	FLAT ROOF OVER REAR OF SHOP
Areas/Systems Served	SALES AREA, FRONT OF SHOP
Note below any discrepancy between information provided by client and on site information collected, or any information of additional relevance to the cooling plant/system: ALL INFORMATION CREATED AT THE TIME OF ASSESSMENT	

This section applies to the following unit: VOL001/SYS001/PS001

Cooling Plant Equipment Visual Inspection

Item Ref	Inspection Item	Finding	Notes and Recommendations
CS2.1	Is the refrigeration plant operational?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT.
CS2.2/a	Is the area around the refrigeration plant clear of obstructions & debris?	Yes [x] No [ ]	ALL CLEAR AND CORRECT
CS2.2/b	Is the general condition of refrigeration and any associated central plant in good order?	Yes [x] No [ ]	ALL IN GOOD ORDER, GIVEN THE AGE OF THE UNIT
CS2.2/c	Is the condenser placed clear from warm air discharge louvres?	Yes [ ] No [x]	POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED.
CS2.3/a	Are compressors operational or can they be brought into operation?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT
CS3.1/a	Is the heat rejection plant operational?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT
CS3.1/b	Are condenser heat exchangers undamaged/ un-corroded and clean?	Yes [x] No [ ]	CONDENSER COILS WOULD BENEFIT FROM A CHEMICAL CLEAN TO MAKE THEM BRIGHT
CS3.2/a	Is the area around the heat rejection plant clear of obstructions & debris?	Yes [ ] No [x]	POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED. PLANT LIFE ON THE FLAT ROOF, GROWING THROUGH THE CRACKS IN THE PAVING SLABS, CAN BE A PROBLEM, AS IT HAS THE POTENTIAL OF ENTERING THE CONDENSERS AND CAUSING DAMAGE
CS3.2/b	Is the condenser free of any possibility of air recirculation?	Yes [ ] No [x]	

Cooling Plant Equipment Visual Inspection

Item Ref	Inspection Item	Finding	Notes and Recommendations
			POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED.
CS4.1	Is the insulation on circulation pipe work well fitted and in good order?	Yes [x] No [ ]	ALL IN GOOD CONDITION AND INTACT

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding		Notes and Recommendations
CS1.1	**Refrigerant Used**		Refrigerant Type	HCFC 22	REFRIGERANT R22. 5.7KG. THIS IS AND OZONE DEPLETING SUBSTANCE THIS UNIT REQUIRES A MANDATORY REFRIGERANT LEAK TEST OF AT LEAST ONCE A YEAR. LAST TEST WAS 18/08/2011. PASS RESULT
			Montreal/ODS/F-Gas controlled?	Yes [x] No [ ]	
CS1.3	**Regular Maintenance**	Is there evidence of regular maintenance?	Yes [ ]	No [x]	EXACT AIR HAVE CARRIED OUT MAINTENANCE VISITS ON THESE UNITS, BUT ON A REACTIVE BASIS ONLY. EXACT AIR ARE FULLY F GAS COMPLIANT AND REGISTERED WITH REFCOM. 1005383. ONLY SUITABLY TRAINED ENGINEERS WITH UP TO DATE REFRIGERANT HANDLING QUALIFICATION, WORKING FOR FULLY REGISTERED COMPANIES CAN MAINTAIN THESE UNITS
		Is the maintenance undertaken by suitably competent people and in accordance to industry guidelines?	Yes [x]	No [ ]	
CS1.4 CL1.1	**Appropriately Sized Cooling Plant**		**Following Information Required:**		*Building Regulations Approved Document Part L 2nd tier documentation provides guidance suggesting that the plant should not be more than 20% oversized. This should be adopted as means of comparison to stay in line with current standards.* THERE ARE 2No. AIR CONDITIONING UNITS CONDITIONING THE OPEN SHOP AREA, ONE AT THE FRONT ABOVE THE CUSTOMER AREA AND ONE TO THE REAR IN THE STAFFED AREA. THE SHOP IS LONG AND NARROW. COMBINED WITH A HIGH LEVEL OF HEAT GENERATING PRINTING MACHINES, THE QUANTITY OF AIR-CONDITIONING DUTY IS CORRECT
			Total Occupants served by this plant	10	
			Total Floor Area served by this plant	110	
			Occupant Density (m²/person)	11	
			Maximum Instantaneous Heat Gain (W/m²)	160	
			Installed Cooling Capacity (kW)	24	
			The Installed Size is Deemed:		
			More than Expected	[x]	
			Less than Expected	[ ]	
			As Expected	[ ]	
CS1.6	**Metering Comparison**	Is metering installed to enable monitoring of energy consumption of refrigeration plant?	Yes [ ]	No [x]	

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding		Notes and Recommendations
	to appropriate energy benchmarks		Recorded meter reading	0	
		Is the refrigeration plant connected to a BEMS that can provide out of range alarms?	Yes [ ]	No [x]	NONE
		Are there any records of air conditioning plant usage or sub-metered energy consumption with expected hours of use per year for the plant?	Yes [ ]	No [x]	N/A
		Is the energy consumption or hours of use excessive?	Yes [ ]	No [x]	NOT KNOWN NONE
CS2.2/d	**Refrigeration Leaks**	Are there any signs of a refrigerant leak?	Yes [ ]	No [x]	ALL CLEAR AND CORRECT. RECENT LEAK TEST, 18/08/2011 SHOWED AS PASS RESULT ENSURE ROUTINE REFRIGERANT LEAK TEST. UNITS WORKING WITH INSUFFICIENT RERIGERANT ARE NOT ENERGY EFFICIENT
CL1.3	**Refrigeration**		**Refrigeration Temperature:**		GIVEN THE AGE AND LIMITED USABLE LIFE OF THIS UNIT, IT IS NOT COST EFFECTIVE TO REPAIR ANY CAPACITY CONTROL. IT IS ALSO POSSIBLE THAT THEY ARE NOW NOLONGER AVAILABLE. IT IS SUGGESTED THAT THIS UNIT IS REPLACED WITH A MODERN INVERTER DRIVE UNIT.
			Pre Compressor	2	
			Post Compressor	71	
			Ambient	25	
			The Temperature is Deemed:		
			More than Expected Less than Expected As Expected	[x] [ ] [ ]	
		Assess the refrigeration compressor(s) and the method of refrigeration capacity control	HEAVY FROST LINE BACK TO COMPRESSOR AND DISCHARGE TEMPERATURE IS HIGH, SUGGESTS THAT		

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding	Notes and Recommendations
			THE CAPACITY CONTROL OR CAPILLIARY IS DEFECTIVE. NOISEY COMPRESSOR	
CS3.5	**Water Cooled Chillers (Cooling Towers & Evaporative Condensers)**	Is the water flow through cooling towers or evaporative coolers even and efficient, and there is no loss of water?	Yes [ ] No [x]	N/A
		Is there a management regime in place to ensure that water is regularly checked and treated to ensure that there is no Legionella risk?	Yes [ ] No [x]	N/A N/A
	Humidity Control	Is there separate equipment installed for humidity control?	Yes [ ] No [x]	N/A N/A

Cooling Plant Equipment Inspected	
Unit Identifier	VOL001/SYS002/PS002
Component Identifier	VOL001/SYS002/PS002
Manufacturer	HITACHI
Description (type/details)	A COOLING ONLY WALL MOUNTED UNIT
Model/Reference	RPK4AQ5
Serial Number	U4KN8268
Year Plant Installed	1998
Rated Cooling Capacity (kW)	10
Refrigerant Type	HCFC 22
Refrigerant Charge (kg)	5
Location of Cooling Plant	FLAT ROOF OVER REAR OF SHOP
Areas/Systems Served	SALES AREA, STAFFED AREA, REAR OF SHOP
Note below any discrepancy between information provided by client and on site information collected, or any information of additional relevance to the cooling plant/system: ALL INFORMATION CREATED AT THE TIME OF ASSESSMENT	

This section applies to the following unit: VOL001/SYS002/PS002

Cooling Plant Equipment Visual Inspection

Item Ref	Inspection Item	Finding	Notes and Recommendations
CS2.1	Is the refrigeration plant operational?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT
CS2.2/a	Is the area around the refrigeration plant clear of obstructions & debris?	Yes [x] No [ ]	ALL CLEAR AND CORRECT
CS2.2/b	Is the general condition of refrigeration and any associated central plant in good order?	Yes [x] No [ ]	ALL IN GOOD SOUND CONDITION
CS2.2/c	Is the condenser placed clear from warm air discharge louvres?	Yes [ ] No [x]	POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED.
CS2.3/a	Are compressors operational or can they be brought into operation?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT
CS3.1/a	Is the heat rejection plant operational?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT
CS3.1/b	Are condenser heat exchangers undamaged/ un-corroded and clean?	Yes [x] No [ ]	CONDENSER COILS WOULD BENEFIT FROM A CHEMICAL CLEAN TO MAKE THEM BRIGHT
CS3.2/a	Is the area around the heat rejection plant clear of obstructions & debris?	Yes [ ] No [x]	POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED. PLANT LIFE ON THE FLAT ROOF, GROWING THROUGH THE CRACKS IN THE PAVING SLABS, CAN BE A PROBLEM, AS IT HAS THE POTENTIAL OF ENTERING THE CONDENSERS AND CAUSING DAMAGE
CS3.2/b	Is the condenser free of any possibility of air recirculation?	Yes [ ] No [x]	

Cooling Plant Equipment Visual Inspection

Item Ref	Inspection Item	Finding	Notes and Recommendations
			POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED.
CS4.1	Is the insulation on circulation pipe work well fitted and in good order?	Yes [x] No [ ]	ALL IN GOOD CONDITION AND INTACT

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding		Notes and Recommendations
CS1.1	**Refrigerant Used**		Refrigerant Type	HCFC 22	REFRIGERANT R22. 4.9KG. THIS IS AND OZONE DEPLETING SUBSTANCE THIS UNIT REQUIRES A MANDATORY REFRIGERANT LEAK TEST OF AT LEAST ONCE A YEAR. LAST TEST WAS 18/08/2011. PASS RESULT
			Montreal/ODS/F-Gas controlled?	Yes [x] No [ ]	
CS1.3	**Regular Maintenance**	Is there evidence of regular maintenance?	Yes [ ]	No [x]	EXACT AIR HAVE CARRIED OUT MAINTENANCE VISITS ON THESE UNITS, BUT ON A REACTIVE BASIS ONLY. EXACT AIR ARE FULLY F GAS COMPLIANT AND REGISTERED WITH REFCOM. 1005383. ONLY SUITABLY TRAINED ENGINEERS WITH UP TO DATE REFRIGERANT HANDLING QUALIFICATION, WORKING FOR FULLY REGISTERED COMPANIES CAN MAINTAIN THESE UNITS
		Is the maintenance undertaken by suitably competent people and in accordance to industry guidelines?	Yes [x]	No [ ]	
CS1.4 CL1.1	**Appropriately Sized Cooling Plant**		**Following Information Required:**		*Building Regulations Approved Document Part L 2nd tier documentation provides guidance suggesting that the plant should not be more than 20% oversized. This should be adopted as means of comparison to stay in line with current standards.* THERE ARE 2No. AIR CONDITIONING UNITS CONDITIONING THE OPEN SHOP AREA, ONE AT THE FRONT ABOVE THE CUSTOMER AREA AND ONE TO THE REAR IN THE STAFFED AREA. THE SHOP IS LONG AND NARROW. COMBINED WITH A HIGH LEVEL OF HEAT GENERATING PRINTING MACHINES, THE QUANTITY OF AIR-CONDITIONING DUTY IS CORRECT
			Total Occupants served by this plant	10	
			Total Floor Area served by this plant	110	
			Occupant Density (m²/person)	11	
			Maximum Instantaneous Heat Gain (W/m²)	160	
			Installed Cooling Capacity (kW)	24	
			The Installed Size is Deemed:		
			More than Expected	[ ]	
			Less than Expected	[ ]	
			As Expected	[x]	
CS1.6	**Metering Comparison**	Is metering installed to enable monitoring of energy consumption of refrigeration plant?	Yes [ ]	No [x]	

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding		Notes and Recommendations
	to appropriate energy benchmarks		Recorded meter reading	0	
		Is the refrigeration plant connected to a BEMS that can provide out of range alarms?	Yes [ ]	No [x]	NONE
		Are there any records of air conditioning plant usage or sub-metered energy consumption with expected hours of use per year for the plant?	Yes [ ]	No [x]	N/A
		Is the energy consumption or hours of use excessive?	Yes [ ]	No [x]	NOT KNOWN NONE
CS2.2/d	**Refrigeration Leaks**	Are there any signs of a refrigerant leak?	Yes [ ]	No [x]	ALL CLEAR AND CORRECT. RECENT LEAK TEST, 18/08/2011 SHOWED PASS RESULT ENSURE ROUTINE REFRIGERANT LEAK TEST. UNITS WORKING WITH INSUFFICIENT RERIGERANT ARE NOT ENERGY EFFICIENT
CL1.3	**Refrigeration**		**Refrigeration Temperature:**		GIVEN THE AGE AND LIMITED USABLE LIFE OF THIS UNIT, IT IS NOT COST EFFECTIVE TO REPLACE THE COMPRESSOR. THE R22 AIR-CONDITIONING UNITS ARE NOT DEEMED TO BE ENERGY EFFICIENT. ON REPLACEMENT INSTALL AN INVERTER DRIVE R410A SYSTEM
			Pre Compressor	5	
			Post Compressor	77	
			Ambient	25	
			The Temperature is Deemed:		
			More than Expected Less than Expected As Expected	[x] [ ] [ ]	
		Assess the refrigeration compressor(s) and the method of refrigeration capacity control	ALL WORKING WELL. HOWEVER COMPRESSOR IS NOISY. STANDARD CAPACITY CONTROL		

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding		Notes and Recommendations
CS3.5	**Water Cooled Chillers (Cooling Towers & Evaporative Condensers)**	Is the water flow through cooling towers or evaporative coolers even and efficient, and there is no loss of water?	Yes [ ]	No [x]	N/A
		Is there a management regime in place to ensure that water is regularly checked and treated to ensure that there is no Legionella risk?	Yes [ ]	No [x]	N/A N/A
	Humidity Control	Is there separate equipment installed for humidity control?	Yes [ ]	No [x]	N/A N/A

Cooling Plant Equipment Inspected	
Unit Identifier	VOL001/SYS003/PS003
Component Identifier	VOL001/SYS003/PS003
Manufacturer	PANASONIC
Description (type/details)	COOLING ONLY CEILING SUSPENDED UNIT
Model/Reference	CUV24BBPS
Serial Number	0596700040
Year Plant Installed	2005
Rated Cooling Capacity (kW)	7
Refrigerant Type	R407C
Refrigerant Charge (kg)	3
Location of Cooling Plant	FLAT ROOF OVER REAR OF SHOP
Areas/Systems Served	PRODUCTION AREA. ROOM AT THE REAR OF THE SHOP
Note below any discrepancy between information provided by client and on site information collected, or any information of additional relevance to the cooling plant/system: ALL INFORMATION CREATED AT THE TIME OF ASSESSMENT	

This section applies to the following unit: VOL001/SYS003/PS003

Cooling Plant Equipment Visual Inspection

Item Ref	Inspection Item	Finding	Notes and Recommendations
CS2.1	Is the refrigeration plant operational?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT
CS2.2/a	Is the area around the refrigeration plant clear of obstructions & debris?	Yes [ ] No [x]	THE CEILING TILES HAVE COLLAPSED AROUND THE INDOOR SECTION, THERE ARE REDUNDANT GRILLES AND FLEX HANGING FROM THE CEILING. THESE DO NOT AFFECT THE OPERATION OF THE UNIT DIRECTLY, BUT CAN OBSTRUCT THE DISCHARGE AIR FLOW.
CS2.2/b	Is the general condition of refrigeration and any associated central plant in good order?	Yes [x] No [ ]	ALL IN GOOD SOUND CONDITION
CS2.2/c	Is the condenser placed clear from warm air discharge louvres?	Yes [ ] No [x]	POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED.
CS2.3/a	Are compressors operational or can they be brought into operation?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT
CS3.1/a	Is the heat rejection plant operational?	Yes [x] No [ ]	WITNESSED WORKING AT THE TIME OF ASSESSMENT
CS3.1/b	Are condenser heat exchangers undamaged/ un-corroded and clean?	Yes [x] No [ ]	CONDENSER COILS WOULD BENEFIT FROM A CHEMICAL CLEAN TO MAKE THEM BRIGHT
CS3.2/a	Is the area around the heat rejection plant clear of obstructions & debris?	Yes [ ] No [x]	POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED. PLANT LIFE ON THE FLAT ROOF, GROWING THROUGH THE CRACKS IN THE PAVING SLABS, CAN BE A PROBLEM, AS IT HAS THE POTENTIAL OF ENTERING THE CONDENSERS AND CAUSING DAMAGE

Cooling Plant Equipment Visual Inspection

Item Ref	Inspection Item	Finding	Notes and Recommendations
CS3.2/b	Is the condenser free of any possibility of air recirculation?	Yes [ ] No [x]	POTENTIAL OF HOT AIR FROM NEARBY EXTRACT FAN DISCHARGE AND OTHER CONDENSERS. THERE IS A HIGH PARAPET WALL SURROUNDING THE THREE CONDENSERS IN THIS AREA, THIS WITH AN EXTRACT SYSTEM FROM THE SHOP SALES AREA. EXTRACT & SUPPLY FANS ARE RARELY USED.
CS4.1	Is the insulation on circulation pipe work well fitted and in good order?	Yes [x] No [ ]	ALL IN GOOD CONDITION AND INTACT

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding		Notes and Recommendations
CS1.1	**Refrigerant Used**		Refrigerant Type	R407C	REFRIGERANT R407C. 2.8KG. THIS IS A GLOBAL WARMING SUBSTANCE VISUAL INSPECTIONS TO CHECK FOR REFRIGERANT LEAK TEST OR POTENTIAL LEAKS MUST BE CARRIED OUT WHEN SYSTEM IS MAINTAINED
			Montreal/ODS/F-Gas controlled?	Yes [x] No [ ]	
CS1.3	**Regular Maintenance**	Is there evidence of regular maintenance?	Yes [ ]	No [x]	EXACT AIR HAVE CARRIED OUT MAINTENANCE VISITS ON THESE UNITS, BUT ON A REACTIVE BASIS ONLY. EXACT AIR ARE FULLY F GAS COMPLIANT AND REGISTERED WITH REFCOM. 1005383. ONLY SUITABLY TRAINED ENGINEERS WITH UP TO DATE REFRIGERANT HANDLING QUALIFICATION, WORKING FOR FULLY REGISTERED COMPANIES CAN MAINTAIN THESE UNITS
		Is the maintenance undertaken by suitably competent people and in accordance to industry guidelines?	Yes [x]	No [ ]	
CS1.4 CL1.1	**Appropriately Sized Cooling Plant**		**Following Information Required:**		*Building Regulations Approved Document Part L 2nd tier documentation provides guidance suggesting that the plant should not be more than 20% oversized. This should be adopted as means of comparison to stay in line with current standards.* THE AIR-CONDITIONING UNIT IS USED ONLY WHEN THERE IS A LARGE ORDER RUN ON. HEAT FROM PRODUCTION MACHINES CAN BECOME EXCESSIVE
			Total Occupants served by this plant	1	
			Total Floor Area served by this plant	54	
			Occupant Density (m²/person)	54	
			Maximum Instantaneous Heat Gain (W/m²)	160	
			Installed Cooling Capacity (kW)	7	
			The Installed Size is Deemed:		
			More than Expected	[ ]	
			Less than Expected	[ ]	
			As Expected	[x]	
CS1.6	**Metering Comparison**	Is metering installed to enable monitoring of energy consumption of refrigeration plant?	Yes [ ]	No [x]	

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding		Notes and Recommendations
	to appropriate energy benchmarks		Recorded meter reading	0	
		Is the refrigeration plant connected to a BEMS that can provide out of range alarms?	Yes [ ]	No [x]	NONE
		Are there any records of air conditioning plant usage or sub-metered energy consumption with expected hours of use per year for the plant?	Yes [ ]	No [x]	N/A
		Is the energy consumption or hours of use excessive?	Yes [ ]	No [x]	NOT KNOWN NONE
CS2.2/d	**Refrigeration Leaks**	Are there any signs of a refrigerant leak?	Yes [ ]	No [x]	ALL CLEAR AND CORRECT. ENSURE ROUTINE REFRIGERANT LEAK TEST. UNITS WORKING WITH INSUFFICIENT RERIGERANT ARE NOT ENERGY EFFICIENT
CL1.3	**Refrigeration**		**Refrigeration Temperature:**		ON REPLACEMENT, CONSIDER AN INVERTER DRIVE UNIT WORKING ON R410A
			Pre Compressor	5	
			Post Compressor	38	
			Ambient	24	
			The Temperature is Deemed:		
			More than Expected Less than Expected As Expected	[ ] [ ] [x]	
		Assess the refrigeration compressor(s) and the method of refrigeration capacity control	UNIT WORKING WELL, DRAWING CORRECT CURRENT AMPS		
CS3.5	**Water Cooled Chillers (Cooling Towers**	Is the water flow through cooling towers or evaporative coolers even and efficient, and there is no loss of water?	Yes [ ]	No [x]	N/A

Cooling Plant Detailed Inspection Notes

Item Ref	Item	Inspection Item	Finding		Notes and Recommendations
	& Evaporative Condensers)	Is there a management regime in place to ensure that water is regularly checked and treated to ensure that there is no Legionella risk?	Yes [ ]	No [x]	N/A N/A
	Humidity Control	Is there separate equipment installed for humidity control?	Yes [ ]	No [x]	N/A N/A

Air Handling Systems:

Note: For safety reasons, it will be necessary for air handling fans in air distribution systems to be turned off in order to gain access inside air handlers or ductwork to examine components such as fans, drives, filters, heat exchangers and control dampers. The building manager should arrange safe access for the inspector.

Air Handling Systems Equipment Inspection	
Unit Identifier	VOL001/SYS002/CSAHU001
Component Identifier	VOL001/SYS002/CSAHU001
Systems Served from Cooling Plant	NO DX COIL PRESENT
Manufacturer	UNKNOWN
Year Systems Installed	1990
Location of Plant	N/A
Areas / Systems Served	REAR RETAIL AREA AND PRODUCTION AREA
Note below any discrepancy between information provided by client and on site information collected, or any information of additional relevance to the AHU/system: ALL INFORMATION CREATED AT THE TIME OF ASSESSMENT.	

This section applies to the following unit:VOL001/SYS002/CSAHU001

Air Handling Systems Equipment Inspection Notes

Item Ref	Item	Inspection Item	Finding	Notes and Recommendations
CS1.5	**Specific Fan Power**	Estimate the specific fan power (SFP) of air movement systems		*Building Regulations Approved Document Part F and Part L 2nd tier documentation provide guidance on limiting values. This should be adopted as means of comparison to stay inline with current standards.*
		Are air flow rates and system pressures available from commissioning data?	Yes [ ] No [x] SFP Calculation: 0	NOT APLIACBLE N/A
CS6.1 CS6.2	**Filters**	Are air intake and filter conditions acceptable?	Yes [ ] No [x]	SYSTEM IS VERY OLD AND IN POOR CONDITION
		Have filters been changed according to current industry guidance	Yes [ ] No [x]	NO RECORDS OF ANY FILTER CHANGES
CS6.3		Is the filter differential pressure gauge, where fitted, working?	Yes [ ] No [x]	NONE FITTED NONE APPLICABLE
CS6.5	**Condition of Heat Exchangers**	Are heat exchangers in good condition?	Yes [ ] No [x]	NONE FITTED NONE
CS6.6	**Refrigeration Leaks *(if DXCoil Installed)***	Are there any signs of a refrigerant leak?	Yes [ ] No [x]	N/A. NO COOLING PLANT CONNECTED NONE
CS6.7/a	**Fan Rotation**	Does the fan rotate in the correct direction?	Yes [ ] No [x]	FAN ROTATES CORRECTLY
		Is the speed control or modulation operational?	Yes [ ] No [x]	SINGLE SPEED, ON OR OFF SINGLE SPEED, ON OR OFF

Air Handling Systems Equipment Inspection Notes

Item Ref	Item	Inspection Item	Finding	Notes and Recommendations
CS6.7/b	**Fan & Control**	Note the fan type, and method of air speed control. Check the setting and operation of any fresh air/recirculation dampers.	FAN TYPE IS REVERSED BLADE, CAGE TYPE. NO AIR SPEED CONTROL NO DAMPERS	NONE
CS6.8	**Heat Recovery**	Identify whether the systems have any energy conservation facilities, e.g. heat recovery, free cooling sequence, and check for evidence that such facilities are/have been functioning.	FREE AIR COOLING IS POSSIBLE WITH A DEGREE OF MODIFICATION. NO HEAT RECOVERY POSSIBLE	NONE
CS6.9	**Air Leakage**	Observe the air handling plant and visible air containment including ductwork, floor or ceiling plenums and builders' work shafts for signs of excessive leakage and energy loss.	DUCTING IN GOOD CONDITION. SOME AIR DISCHARGE GRILLES ARE QUITE DIRTY.	IF THE VENTILATION SYSTEM IS TO BE USED, AN OVERHAUL AND CLEAN IS REQUIRED
CS7.1 CS7.2	**Outdoor Air Inlets**	(a) Locate the inlets for outdoor air. (b) Note any significant obstructions or blockages to inlet grilles, screens and pre-filters. (c) Note where inlets may be affected by proximity to local sources of heat, or to air exhausts.	AIR INLET GRILLE ON FLAT ROOF WITH CONDENSER UNITS. EXTRACT OUTLET VENTS TO THE SAME AREA.	THERE IS A HIGH POSSIBILITY OF THE HEAT EXTRACTED FROM THE BUILDING, BEING VENTED TO THE AREA WHERE THE CONDENSERS ARE SITED. THERE IS ALSO THE HIGH POSSIBILITY OF THE AIR INTAKE DRAWING IN WARM AIR FROM THE CONDENSERS AND TO RECYCLE THE WARM STALE EXTRACTED AIR. CONSIDERATION SHOULD BE GIVEN TO MODIFICATION OF THE AIR VENTS TO PREVENT WARM STALE AIR RECYCLING. THE AIR-CONDITIONING PIPEWORK USES THE VENTILATION DUCTING TO EXIT THE BUILDING, THIS CORRUPTS THE INTEGRITY OF THE DUCTING AND WILL CAUSE AIR LEAKS. THE VENTILATION OUTLETS ARE COVERED BY A WEATHER BOARD, THIS WITH THE HIGH PARA[ET WALL AROUND THE FLAT ROOF, STOPS THE AIR FLOW AND CAN CAUSE THE AIR TO BE DRAWN BACK INTO THE BUILDING AND ALSO THROUGH THE CONDENSERS, WHICH THEN CAN ALSO BE DRAWN BACK INTO THE BUILDING

Terminal Units:

System Controls:

System Controls			
Item Ref	**Inspection Item**	**Finding**	**Notes and Recommendations**
n/a	Sub System Identifier (if applicable)	VOL001/SYS001	
CS8.1	Is the zoning appropriate in relation to anticipated cooling demand?	Yes [x] No [ ]	ALL CORRECT AND SUITABLE FOR THE HEAT GENERATED IN THE AREA ON REPLACEMENT, INSTALL A NEW INVERTER DRIVE UNIT THAT CAN REGULATE THE COOLING OUTPUT MORE EFFICIENTLY
CS8.2	Note the current indicated weekday and time of day on controllers or BMS against the actual time.		TIMER SETTING CORRECT, BASIC DAY CONTROL.
CS8.3/a	Note the set on and off periods (for weekday and weekend if this facility is available with the timer).		TIMER SETTING CORRECT, BASIC DAY CONTROL.
CS8.3/b	Is there a shortfall in timer capabilities?	Yes [x] No [ ]	TIMER SETTING CORRECT, BASIC DAY CONTROL. NONE PRACTICAL. NO IMPROVEMENT POSSIBLE WITH THE CURRENT UNIT.
CS8.4	Identify and assess zone heating and cooling temperature control sensors. Are the sensor types and locations appropriate in relation to heating and cooling emitters, heat flows or likely temperature distributions in the zone or space?	Yes [x] No [ ]	ALL CORRECT AND SUITABLE ALL CORRECT AND SUITABLE
CS8.5	Note the set temperature in each zone for heating and cooling in relation to the activities and occupancy of zones and spaces in relation to the manager's intent.		ALL CORRECT AND SUITABLE
CS8.6	Note whether a 'dead band' is, or can be, set between heating and cooling.		ALL CORRECT AND SUITABLE, BASIC COOILNG ONLY UNIT. NO HEAT OUTPUT.
CS8.7	Do the sub system controls integrate effectively with the overall system control strategy?	Yes [ ] No [x]	STAND ALONE SYSTEM WITH NO INTERLINK, NO IMPROVEMENT SUGGESTED

System Controls

Item Ref	Inspection Item	Finding	Notes and Recommendations
CS8.8	Assess the means of modulating or controlling air flow rate through the air supply and exhaust ducts.		N/A
PS3.6	Are guidance notices visible or controls available to inhibit use of cooling equipment whilst windows are open or cooling/heating is on?	Yes [ ] No [x]	THERE ARE NO WINDOWS, ONLY A MAIN DOOR USED BY CUSTOMERS. NONE PRACTICAL

System Controls

Item Ref	Inspection Item	Finding	Notes and Recommendations
n/a	Sub System Identifier (if applicable)	VOL001/SYS002	
CS8.1	Is the zoning appropriate in relation to anticipated cooling demand?	Yes [x] No [ ]	ALL CORRECT AND SUITABLE FOR THE HEAT GENERATED IN THE AREA ON REPLACEMENT, INSTALL A NEW INVERTER DRIVE UNIT THAT CAN REGULATE THE COOLING OUTPUT MORE EFFICIENTLY
CS8.2	Note the current indicated weekday and time of day on controllers or BMS against the actual time.		TIMER SETTING CORRECT, BASIC DAY CONTROL.
CS8.3/a	Note the set on and off periods (for weekday and weekend if this facility is available with the timer).		TIMER SETTING CORRECT, BASIC DAY CONTROL.
CS8.3/b	Is there a shortfall in timer capabilities?	Yes [x] No [ ]	TIMER SETTING CORRECT, BASIC DAY CONTROL. NONE PRACTICAL. NO IMPROVEMENT POSSIBLE WITH THE CURRENT UNIT.
CS8.4	Identify and assess zone heating and cooling temperature control sensors. Are the sensor types and locations appropriate in relation to heating and cooling emitters, heat flows or likely temperature distributions in the zone or space?	Yes [x] No [ ]	ALL CORRECT AND SUITABLE ALL CORRECT AND SUITABLE
CS8.5	Note the set temperature in each zone for heating and cooling in relation to the activities and occupancy of zones and spaces in relation to the manager's intent.		ALL CORRECT AND SUITABLE
CS8.6	Note whether a 'dead band' is, or can be, set between heating and cooling.		ALL CORRECT AND SUITABLE, BASIC COOILNG ONLY UNIT. NO HEAT OUTPUT.
CS8.7	Do the sub system controls integrate effectively with the overall system control strategy?	Yes [ ] No [x]	STAND ALONE SYSTEM WITH NO INTERLINK, NO IMPROVEMENT SUGGESTED

System Controls

Item Ref	Inspection Item	Finding	Notes and Recommendations
CS8.8	Assess the means of modulating or controlling air flow rate through the air supply and exhaust ducts.		N/A
PS3.6	Are guidance notices visible or controls available to inhibit use of cooling equipment whilst windows are open or cooling/heating is on?	Yes [ ] No [x]	THERE ARE NO WINDOWS, ONLY A MAIN DOOR USED BY CUSTOMERS. NONE PRACTICAL

System Controls

Item Ref	Inspection Item	Finding	Notes and Recommendations
n/a	Sub System Identifier (if applicable)	VOL001/SYS003	
CS8.1	Is the zoning appropriate in relation to anticipated cooling demand?	Yes [x] No [ ]	ALL CORRECT AND SUITABLE FOR THE HEAT GENERATED IN THE AREA ON REPLACEMENT, INSTALL A NEW INVERTER DRIVE UNIT THAT CAN REGULATE THE COOLING OUTPUT MORE EFFICIENTLY
CS8.2	Note the current indicated weekday and time of day on controllers or BMS against the actual time.		TIMER SETTING CORRECT, BASIC DAY CONTROL.
CS8.3/a	Note the set on and off periods (for weekday and weekend if this facility is available with the timer).		TIMER SETTING CORRECT, BASIC DAY CONTROL.
CS8.3/b	Is there a shortfall in timer capabilities?	Yes [x] No [ ]	TIMER SETTING CORRECT, BASIC DAY CONTROL. NONE PRACTICAL. NO IMPROVEMENT POSSIBLE WITH THE CURRENT UNIT.
CS8.4	Identify and assess zone heating and cooling temperature control sensors. Are the sensor types and locations appropriate in relation to heating and cooling emitters, heat flows or likely temperature distributions in the zone or space?	Yes [x] No [ ]	ALL CORRECT AND SUITABLE ALL CORRECT AND SUITABLE
CS8.5	Note the set temperature in each zone for heating and cooling in relation to the activities and occupancy of zones and spaces in relation to the manager's intent.		ALL CORRECT AND SUITABLE
CS8.6	Note whether a 'dead band' is, or can be, set between heating and cooling.		ALL CORRECT AND SUITABLE, BASIC COOILNG ONLY UNIT. NO HEAT OUTPUT.
CS8.7	Do the sub system controls integrate effectively with the overall system control strategy?	Yes [ ] No [x]	STAND ALONE SYSTEM WITH NO INTERLINK, NO IMPROVEMENT SUGGESTED

System Controls

Item Ref	Inspection Item	Finding	Notes and Recommendations
CS8.8	Assess the means of modulating or controlling air flow rate through the air supply and exhaust ducts.		N/A
PS3.6	Are guidance notices visible or controls available to inhibit use of cooling equipment whilst windows are open or cooling/heating is on?	Yes [ ] No [x]	THERE ARE NO WINDOWS, ONLY A MAIN DOOR USED BY CUSTOMERS. NONE PRACTICAL