Air conditioning inspection report

5 Wormwood Street LONDON EC2M 1RQ

Report number **2430-5015-1070-7402-4025**

Valid until **24 May 2028**

Executive summary

Statute reference to legislation

This report has been prepared in accordance with Part 4 of the 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 primary purpose of the air conditioning inspection is to assess the relative energy efficiency of the installation and to identify where there may be scope for energy savings. For larger installations, it is not cost effective to inspect every component and so in these cases it may be appropriate to inspect a sample number of components of certain types. Also, this survey is non- intrusive and therefore no machines will be stripped down for inspection.

Building

Coral, Basement With Ground Floor Entry, 5 Wormwood Street, London EC2M 1RQ The subject building is a brick built building with a glazed front. The shop floor is basement level with the only conditioned area being the shop floor where there are televisions, tables and gambling machines. Lighting was LED 600x600 ceiling panels. No access the condensers was possible and no information was provided.

Business Hours Monday - 07:00 - 22:00 Tuesday - 07:00 - 22:00 Wednesday - 07:00 - 22:00 Thursday - 07:00 - 22:00 Friday - 07:00 - 22:00 Saturday - 08:30 - 18:30 Sunday - 10:00 - 18:30

Plant operating hours: Systems are turned on and off as the user requires.

System Types

The building is comfort cooled by three MHI Splits. These were all included as sampled systems

Sampling undertaken as dictated by TM44

Packaged Systems – Where an installed system consists of a series of packaged plant components (including Versatemp type units), then a 10% sample of the total number of outdoor units must be inspected, with a minimum of three units being sampled. In addition, an equal number of indoor units must be inspected. Indoor units for packaged systems may include fan coil units and cassettes. As part of were inspected to carry out the assessment against the existing equipment. The state of this sample applies to all the units installed on site.

All Systems were assessed on this survey.

Terminal Units There are two Cassette type evaporators and one ducted type of evaporator

AHU Systems There is no AHU installed.

Control Systems The systems are all controlled via their own local controllers.

Maintenance of the systems No evidence of maintenance was provided

Operation of the systems

This report contains information on the air conditioning system that provides conditioned air to the occupied areas. The report also contains information on the terminal units that were observed during a visual walk around the occupied space, the functionality of the system was assessed by observing the delivery of cooled air from the indoors units and also the heat rejection from the outdoors. Staff did not have any complaints about the temperature emitted from the indoor unit or the areas that they served. The systems were operational at the time of the survey.

Number of people using the building

The number of people using the building plus staff was assessed to be around 24.

Key recommendations

Efficiency

Consider sub-metering the individual items of HVAC plant on site and then record the energy consumption figures to enable areas of excessive consumption to be identified.

Systems have a schedule set via the local controller but it is out of line with building opening hours and so the schedule should be revised to suit business hours

Maintenance

Systems had no power and so investigations are required. This may lead to repairs being required. This should be carried out by the Maintenance contractor.

Consider replacing the ducted evaporator filter to ensure dust is kept out of the unit

Controls

Consider displaying guidance notices for: 1) General system operations. 2) Open/close door policy during heating/cooling. 3) Maximum efficiency of system whilst in operation. 4) Controllers operation and set-up.

It is recommended that seasonal set-points are introduced to maximise system efficiency. To maximise efficiency, the Winter set-points should be 19°C with the units set to 'heating' only mode. Summer set-points should be 24°C with the units set to operate in 'cooling' only mode. Due to the In Spring / Autumn, the systems should be set to operate in 'auto' mode with set-points of 21°C - 22°C (If not done so)

Where possible and controllers have the facility, consider putting a level of restriction on locally accessible controls to prevent the selection of less efficient set points by occupants. Consider restricting local temperature range control to +/-3°C and then adjust the set range within the recommended seasonal set points. (If not done so)

Consideration should be given to setting up 'off' only timers on the system controllers so the systems isolate at various times during the day and do not automatically start without manual activation by occupants within the area. Off timers could be programmed in to deactivate the systems for 4 or 5 times during the day, such as 10:00, 12:00, 14:00, 16:00 and 18:00. Adopting this approach could considerably reduce the operational hours of the systems and should seriously be considered. If system controllers do not offer the facility of 'off' only timers, the option of upgrading controllers could also be considered. (If not done so)

Management

Ensure that the person responsible for operation of the plant on-site is adequately trained in the efficient operation of the AC systems

Consider providing a complaints log, as it gives users a historical view of the operational performance of the equipment and highlights any problems (temperature settings and control timings). It also gives building users a better understanding of how the equipment operates.

Consider compiling a "Building Log-book" in line with CIBSE TM31 so as building assets can be managed more effectively and efficiently.

Consider introducing a voluntary F-Gas Log Book, for all systems with a refrigerant charge below the mandatory carbon threshold, and ensure this document is kept on-site and up to date.

It should be ensured that the company responsible for maintaining the air conditioning equipment have an up to date F-Gas certificate, as this is a legal requirement.

Subsystems inspected

VOL001/SYS001 Shop Floor

Volume definitions	VOL001
Description	MHI Split System
Effective rated cooling output	34 kW
Area served	Shop Floor
Inspection date	23 May 2023
Cooling plant count	3
AHU count	0
Terminal units count	3
Sub system controls count	2
Inspection date Cooling plant count AHU count Terminal units count Sub system controls count	23 May 2023 3 0 3 2

Pre-inspection records requested

Essential records

These records were reviewed:

• Itemised list of installed air conditioning and refrigeration plant including product makes, models and identification numbers

These records were not available:

- · Cooling capacities, with locations of the indoor and outdoor components of each plant
- · Description of system control zones, with schematic drawings
- · Description of method of control of temperature
- Description of method of control of periods of operation.
- Floor plans and schematics of air conditioning systems.

Desirable records

These records were reviewed:

• 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

These records were not available:

- Reports from earlier inspections of air conditioning systems, and for the generation of an energy performance certificate
- Records of maintenance operations carried out on air delivery systems, including filter cleaning and changing, and cleaning of heat exchangers
- Records of calibration and maintenance operations carried out on control systems and sensors, or BMS systems and sensors
- Records of sub-metered air conditioning plant use or energy consumption
- 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)

Optional records

These records were not available:

- 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
- Records of any issues or complaints that have been raised concerning the indoor comfort conditions achieved in the treated spaces
- 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
- 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

Cooling plants

Cooling plant 1

Unit Identifier	VOL001/SYS001 Shop Floor
Component Identifier	VOL001/SYS001/CP1 Shop Floor

Equipment Inspected

Rated Cooling Capacity (kW)	14
Description (type/details)	Single Split
Location of Cooling Plant	Unknown
Manufacturer	Mitsubishi Heavy Industries
Model/Reference	FDUM140V
Refrigerant Charge (kg)	4
Refrigerant Type	R410A
Serial Number	Unknown
Year Plant Installed	2016
Areas/Systems Served	Shop Floor

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:

No discrepancies.

Approved sections

CS2.1 Is the refrigeration plant operational?

Yes

Refrigeration plant is operational

CS2.2/a Is the area around the refrigeration plant clear of obstructions & debris?

Yes

No access to condensers

CS2.2/b Is the general condition of refrigeration and any associated central plant in good order?

Yes

No access to the condensers

CS2.2/c Is the condenser placed clear from warm air discharge louvres?

Yes

No access to the condensers

CS2.3/a Are compressors operational or can they be brought into operation?

Yes

Compressors are operational and can be brought into operation

CS3.1/a Is the heat rejection plant operational?

Yes

Heat rejection plant is operational

CS3.1/b Are condenser heat exchangers undamaged/ un-corroded and clean?

Yes

No access to the condensers

CS3.2/a Is the area around the heat rejection plant clear of obstructions & debris?

Yes

No access to the condensers

CS3.2/b Is the condenser free of any possibility of air recirculation?

Yes

No access to the condensers

CS4.1 Is the insulation on circulation pipe work well fitted and in good order?

Yes

No access to the condensers

Appropriately Sized Cooling Plant

Installed Cooling Capacity (kW)	14
Occupant Density (m2/person)	6.75
Total Floor Area served by this plant(m2)	54
Total Occupants served by this plant	8
Maximum Instantaneous Heat Gain (W/m2)	140
The Installed Size is Deemed	More than expected

Notes and Recommendations

The current version of the Building Regulations Approved Document Part L 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.

Based on CIBSE guidelines

 $54(m^2) \times 0.140(W/m^2) = 7.56$ kw 14kw - 20% = 11.2kw Making this system more than expected due to having 14kw installed and being outside the +/- 20% guidelines.

Refrigeration

Pre Compressor(°C)

Post Compressor(°C)	22
Ambient(°C)	14
The Temperature is Deemed	As expected
Refrigerant Type	R410A
Assess the refrigeration compressor(s) and the method of refrigeration capacity control	This system has an excellent level of capacity control as it is installed with an inverter. Inverters enable cooling load to accurately match internal demand, usually between 25% - 100% of capacity.

Are there any signs of a refrigerant leak?

No

No signs of a refrigerant leak were seen

Montreal/ODS/F-Gas controlled?

No

No FGAS records provided

Notes and Recommendations

Regular Maintenance

Is there evidence of regular maintenance?

No

No evidence of maintenance was available

Is the maintenance undertaken by suitably competent people and in accordance to industry guidelines?

No

No evidence of maintenance was provided

Metering Comparison to appropriate energy benchmarks

Is metering installed to enable monitoring of energy consumption of refrigeration plant?

No

Is the refrigeration plant connected to a BEMS that can provide out of range alarms?

No

There is no BEMS system installed

Are there any records of air conditioning plant usage or sub-metered energy consumption with expected hours of use per year for the plant?

No

No sub-metering installed

Is the energy consumption or hours of use excessive?

No

No evidence of excessive energy consumption. No systems were found to be operating when not required.

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?

No

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?

No

N/A

Humidity Control

Is there separate equipment installed for humidity control?

No

N/A

Cooling plant 2

Unit Identifier	VOL001/SYS001 Shop Floor
Component Identifier	VOL001/SYS001/CP2 Shop Floor

Equipment Inspected

Rated Cooling Capacity (kW)	7
Description (type/details)	Single Split
Location of Cooling Plant	Unknown
Manufacturer	Mitsubishi Heavy Industries
Model/Reference	FDT71V
Refrigerant Charge (kg)	4
Refrigerant Type	R410A
Serial Number	Unknown
Year Plant Installed	2016
Areas/Systems Served	Shop Floor

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:

No discrepancies.

Approved sections

CS2.1 Is the refrigeration plant operational?

Yes

Refrigeration plant is operational

CS2.2/a Is the area around the refrigeration plant clear of obstructions & debris?

Yes

No access to condensers

CS2.2/b Is the general condition of refrigeration and any associated central plant in good order?

Yes

No access to the condensers

CS2.2/c Is the condenser placed clear from warm air discharge louvres?

Yes

No access to the condensers

CS2.3/a Are compressors operational or can they be brought into operation?

Yes

Compressors are operational and can be brought into operation

CS3.1/a Is the heat rejection plant operational?

Yes

Heat rejection plant is operational

CS3.1/b Are condenser heat exchangers undamaged/ un-corroded and clean?

Yes

No access to the condensers

CS3.2/a Is the area around the heat rejection plant clear of obstructions & debris?

Yes

No access to the condensers

CS3.2/b Is the condenser free of any possibility of air recirculation?

Yes

No access to the condensers

CS4.1 Is the insulation on circulation pipe work well fitted and in good order?

Yes

No access to the condensers

Appropriately Sized Cooling Plant

Installed Cooling Capacity (kW)

Occupant Density (m2/person)	6.75
Total Floor Area served by this plant(m2)	54
Total Occupants served by this plant	8
Maximum Instantaneous Heat Gain (W/m2)	140
The Installed Size is Deemed	As expected

Notes and Recommendations

The current version of the Building Regulations Approved Document Part L 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.

Based on CIBSE guidelines

 $54(m^2) \times 0.140(W/m^2) = 7.56kw 7kw + 20\% = 8.4kw$ Making this system as expected due to having 7kw installed and being within the +/- 20% guidelines.

Refrigeration

Pre Compressor(°C)	13
Post Compressor(°C)	22
Ambient(°C)	14
The Temperature is Deemed	As expected
Refrigerant Type	R410A
Assess the refrigeration compressor(s) and the method of refrigeration capacity control	This system has an excellent level of capacity control as it is installed with an inverter. Inverters enable cooling load to accurately match internal demand, usually between 25% - 100% of capacity.

Are there any signs of a refrigerant leak?

No

No signs of a refrigerant leak were seen

Montreal/ODS/F-Gas controlled?

No

No FGAS records provided

Notes and Recommendations

Regular Maintenance

Is there evidence of regular maintenance?

No

No evidence of maintenance was available

Is the maintenance undertaken by suitably competent people and in accordance to industry guidelines?

No

No evidence of maintenance was provided

Metering Comparison to appropriate energy benchmarks

Is metering installed to enable monitoring of energy consumption of refrigeration plant?

No

Is the refrigeration plant connected to a BEMS that can provide out of range alarms?

No

There is no BEMS system installed

Are there any records of air conditioning plant usage or sub-metered energy consumption with expected hours of use per year for the plant?

No

No sub-metering installed

Is the energy consumption or hours of use excessive?

No

No evidence of excessive energy consumption. No systems were found to be operating when not required.

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?

No

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?

No

N/A

Humidity Control

Is there separate equipment installed for humidity control?

No

N/A

Cooling plant 3

Unit Identifier

VOL001/SYS001 Shop Floor

Component Identifier

VOL001/SYS001/CP3 Shop Floor

Equipment Inspected

Rated Cooling Capacity (kW)	10
Description (type/details)	Single Split
Location of Cooling Plant	Unknown
Manufacturer	Mitsubishi Heavy Industries
Model/Reference	FDT71V
Refrigerant Charge (kg)	4
Refrigerant Type	R410A
Serial Number	Unknown
Year Plant Installed	2016
Areas/Systems Served	Shop Floor

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:

No discrepancies.

Approved sections

CS2.1 Is the refrigeration plant operational?

Yes

Refrigeration plant is operational

CS2.2/a Is the area around the refrigeration plant clear of obstructions & debris?

Yes

No access to condensers

CS2.2/b Is the general condition of refrigeration and any associated central plant in good order?

Yes

No access to the condensers

CS2.2/c Is the condenser placed clear from warm air discharge louvres?

Yes

No access to the condensers

CS2.3/a Are compressors operational or can they be brought into operation?

Yes

Compressors are operational and can be brought into operation

CS3.1/a Is the heat rejection plant operational?

Yes

Heat rejection plant is operational

CS3.1/b Are condenser heat exchangers undamaged/ un-corroded and clean?

Yes

No access to the condensers

CS3.2/a Is the area around the heat rejection plant clear of obstructions & debris?

Yes

No access to the condensers

CS3.2/b Is the condenser free of any possibility of air recirculation?

Yes

No access to the condensers

CS4.1 Is the insulation on circulation pipe work well fitted and in good order?

Yes

No access to the condensers

Appropriately Sized Cooling Plant

Installed Cooling Capacity (kW)	7
Occupant Density (m2/person)	6.75
Total Floor Area served by this plant(m2)	54
Total Occupants served by this plant	8
Maximum Instantaneous Heat Gain (W/m2)	140
The Installed Size is Deemed	As expected

Notes and Recommendations

The current version of the Building Regulations Approved Document Part L 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.

Based on CIBSE guidelines

 $54(m^2) \times 0.140(W/m^2) = 7.56$ kw 7kw + 20% = 8.4kw Making this system as expected due to having 7kw installed and being within the +/- 20% guidelines.

Refrigeration

Pre Compressor(°C)	13
Post Compressor(°C)	22
Ambient(°C)	14
The Temperature is Deemed	As expected
Refrigerant Type	R410A
Assess the refrigeration compressor(s) and the method of refrigeration capacity control	This system has an excellent level of capacity control as it is installed with an inverter. Inverters

Are there any signs of a refrigerant leak?

No

No signs of a refrigerant leak were seen

Montreal/ODS/F-Gas controlled?

No

No FGAS records provided

Notes and Recommendations

Regular Maintenance

Is there evidence of regular maintenance?

No

No evidence of maintenance was available

Is the maintenance undertaken by suitably competent people and in accordance to industry guidelines?

No

No evidence of maintenance was provided

Metering Comparison to appropriate energy benchmarks

Is metering installed to enable monitoring of energy consumption of refrigeration plant?

No

Is the refrigeration plant connected to a BEMS that can provide out of range alarms?

No

There is no BEMS system installed

Are there any records of air conditioning plant usage or sub-metered energy consumption with expected hours of use per year for the plant?

No

No sub-metering installed

Is the energy consumption or hours of use excessive?

No

No evidence of excessive energy consumption. No systems were found to be operating when not required.

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?

No

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?

No

N/A

Humidity Control

Is there separate equipment installed for humidity control?

No

N/A

Terminal units

Terminal unit 1

Unit	VOL001/SYS001 Shop Floor
Component	VOL001/SYS001/TU1 Shop Floor
Description of unit	Ducted Evaporator
Cooling plant serving terminal unit	VOL001/SYS001/CP1 Shop Floor
Manufacturer	Mitsubishi Heavy Industries
Year installed	2016
Area served	Shop Floor
Discrepancies noted	No discrepancies

CS4.1 Insulation

Is the pipework adequately insulated?

Yes

Pipework is adequately insulated

Is the ductwork adequately insulated?

Yes Ductwork was adequately insulated

CS4.2 Unit condition

Are the terminal units in good working order?

No

System in working order but due to a hole in the filter there is a build up of dust within the evaporator

The assessor made the following notes and recommendations:

• Consider replacing the ducted evaporator filter to ensure dust is kept out of the unit

CS5.1, CS5.2 Grilles and air flow

Do air delivery openings provide good distribution?

Yes

Air delivery openings provide good distribution

Is there evidence of tampering with diffusers?

No

There is no evidence of tampering with diffusers

Are chilled and hot water being supplied to terminals simultaneously?

No

Water is not supplied to this unit

Are there are any records of occupant complaints regarding air distribution?

No

No complaints log available

The assessor made the following notes and recommendations:

• Have a complaints log to record staff members Air conditioning complaints or comments

CS5.3, CS5.4, CS5.5 Diffuser positions

Is there potential for air to short-circuit from supply to extract?

No

No potential for air to short circuit

Is the position of partitioning or furniture adversely affecting performance?

No No partitioning or furniture is affecting performance

Is the control and operation adequate?

Yes

Control from the local controller is adequate

Terminal unit 2

Unit	VOL001/SYS001 Shop Floor
Component	VOL001/SYS001/TU2 Shop Floor
Description of unit	Cassette Evaporator
Cooling plant serving terminal unit	VOL001/SYS001/CP1 Shop Floor
Manufacturer	Mitsubishi Heavy Industries
Year installed	2016
Area served	Shop Floor
Discrepancies noted	No discrepancies

CS4.1 Insulation

Is the pipework adequately insulated?

Pipework is adequately insulated

Is the ductwork adequately insulated?

No No ductwork associated with this type of unit

CS4.2 Unit condition

Are the terminal units in good working order?

Yes

Evaporator is in good working order

CS5.1, CS5.2 Grilles and air flow

Do air delivery openings provide good distribution?

Yes

Air delivery openings provide good distribution

Is there evidence of tampering with diffusers?

No There is no evidence of tampering with diffusers

Are chilled and hot water being supplied to terminals simultaneously?

No Water is not supplied to this unit

Are there are any records of occupant complaints regarding air distribution?

No No complaints log available

CS5.3, CS5.4, CS5.5 Diffuser positions

Is there potential for air to short-circuit from supply to extract?

No No potential for air to short circuit

Is the position of partitioning or furniture adversely affecting performance?

No

No partitioning or furniture is affecting performance

Is the control and operation adequate?

Yes

Terminal unit 3

Unit	VOL001/SYS001 Shop Floor
Component	VOL001/SYS001/TU3 Shop Floor
Description of unit	Cassette Evaporator
Cooling plant serving terminal unit	VOL001/SYS001/CP3 Shop Floor
Manufacturer	Mitsubishi Heavy Industries
Year installed	2016
Area served	Shop Floor
Discrepancies noted	No discrepancies

CS4.1 Insulation

Is the pipework adequately insulated?

Yes

Pipework is adequately insulated

Is the ductwork adequately insulated?

No

No ductwork associated with this type of unit

CS4.2 Unit condition

Are the terminal units in good working order?

Yes

Evaporator is in good working order

CS5.1, CS5.2 Grilles and air flow

Do air delivery openings provide good distribution?

Yes

Air delivery openings provide good distribution

Is there evidence of tampering with diffusers?

No

There is no evidence of tampering with diffusers

Are chilled and hot water being supplied to terminals simultaneously?

No

Water is not supplied to this unit

Are there are any records of occupant complaints regarding air distribution?

No

No complaints log available

CS5.3, CS5.4, CS5.5 Diffuser positions

Is there potential for air to short-circuit from supply to extract?

No

No potential for air to short circuit

Is the position of partitioning or furniture adversely affecting performance?

No

No partitioning or furniture is affecting performance

Is the control and operation adequate?

Yes

Control from the local controller is adequate

System controls

Control for VOL001/SYS001 Shop Floor

CS8.1 Is the zoning appropriate in relation to anticipated cooling demand?

Yes

Zoning is appropriate to anticipated cooling demand

CS8.2 Note the current indicated weekday and time of day on controllers or BMS against the actual time.

Controller - 03:15 Actual - 15:09

CS8.3/a Note the set on and off periods (for weekday and weekend if this facility is available with the timer).

No schedule or off timers have been set

The assessor made the following notes and recommendations:

• Have off timers set to ensure no excessive run time

CS 8.3/b Is there a shortfall in timer capabilities?

No

Controller has adequate timer capabilities

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

Sensor type and locating is appropriate

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.

Cool 21 Consider consulting the manufacturer as control devices may be available to improve temperature management. Please refer to Carbon Trust CTG 005 Good Practice Guide

CS8.6 Note whether a 'dead band' is, or can be, set between heating and cooling.

Manufacturer set dead band Ensure controls strategy has a 'Dead Band' of at least 3 degrees Celsius between the need for cooling and the need for heating. Consider allowing temperatures in non-critical areas to fluctuate more widely than is traditionally expected but in a controlled manor.

CS8.7 Do the sub system controls integrate effectively with the overall system control strategy?

Yes

CS8.8 Assess the means of modulating or controlling air flow rate through the air supply and exhaust ducts.

Controlled via local controller settings Utilise system functions, auto mode / auto fan speed for optimised control

PS3.6 Are guidance notices visible or controls available to inhibit use of cooling equipment whilst windows are open or cooling/heating is on?

No

There were no visible guidance notices at the time of inspection.

The assessor made the following notes and recommendations:

• Consider displaying guidance notices for: 1) General system operations. 2) Open/close door policy during heating/cooling. 3) Maximum efficiency of system whilst in operation. 4) Controllers operation and set-up.

Control for VOL001/SYS001 Shop Floor

CS8.1 Is the zoning appropriate in relation to anticipated cooling demand?

Yes

Zoning is appropriate to anticipated cooling demand

CS8.2 Note the current indicated weekday and time of day on controllers or BMS against the actual time.

Controller - 16:42 Actual - 15:09

CS8.3/a Note the set on and off periods (for weekday and weekend if this facility is available with the timer).

No schedule or off timers have been set

CS 8.3/b Is there a shortfall in timer capabilities?

No

Controller has adequate timer capabilities

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

Sensor type and locating is appropriate

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.

Cool 21 Consider consulting the manufacturer as control devices may be available to improve temperature management. Please refer to Carbon Trust CTG 005 Good Practice Guide

CS8.6 Note whether a 'dead band' is, or can be, set between heating and cooling.

Manufacturer set dead band Ensure controls strategy has a 'Dead Band' of at least 3 degrees Celsius between the need for cooling and the need for heating. Consider allowing temperatures in non-critical areas to fluctuate more widely than is traditionally expected but in a controlled manor.

CS8.7 Do the sub system controls integrate effectively with the overall system control strategy?

Yes

CS8.8 Assess the means of modulating or controlling air flow rate through the air supply and exhaust ducts.

Controlled via local controller settings Utilise system functions, auto mode / auto fan speed for optimised control

PS3.6 Are guidance notices visible or controls available to inhibit use of cooling equipment whilst windows are open or cooling/heating is on?

No

There were no visible guidance notices at the time of inspection.

Assessor's details

Assessor's name	Benjamin Miller
Email	info@greenzonesurveys.com
Assessor ID	STER003058
Employer/Trading name	Green Zone Surveys (UK) Ltd
Employer/Trading address	Second Floor, Cobalt Business Exchange, Cobalt Park Way, Newcastle Upon Tyne, NE28 9NZ
Accreditation scheme	Sterling Accreditation Ltd
Accreditation scheme telephone	0161 727 4303
Accreditation scheme email	info@sterlingaccreditation.com

Inspection certificate

See the air conditioning inspection certificate for this property. (/energy-certificate/0442-1467-3002-0125-0706)