

MLM

Stage 2 Supplementary Information

for

Dam Alice School

produced for

Barker Associates LLP



Revision and QA Sheet

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Prepared: Zak Terziyski
Senior Electrical Engineer



Contact Details: T: 020 7422 7800
E: zak.terziyski@mlm.uk.com

Prepared: Afshin Asgari
Senior Building Services Engineer



Contact Details: T: 020 7422 7800
E: Afshin.asgari@mlm.uk.com

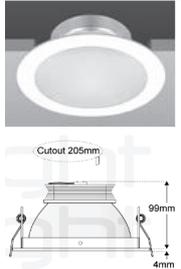
Checked: Grant Harden
Director

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1 Luminaire Schedule

Ref	Location	Description	Lamp Type	Supplier/ Manufacturer	Catalogue Number	Image
A	Office	Recessed LED 600mm x 600mm panel luminaire with slim line steel body and an Opal diffuser.	LED 3500 lumens (27W) 132lm/cw	Whitecroft	Tegan Slim DALI Dimmable Equal approved	
B	Classrooms	Suspended acoustic LED lighting system with concealed 48mm thick acoustic absorbers behind perforated side and central panels in a shallow 30° chamfered steel body. Micropolymer opal diffuser in twin-line configuration for optimum light uniformity and diffusion. 2 segregated wiring channels.	LED 6200 lumens (52W)	Whitecroft	Foil XS Line Add Acoustic up light infill and end caps DALI Dimmable Equal approved	
C	Plant and Store Areas	LED IP65 anti-corrosive luminaire with GRP body with high impact polycarbonate injection moulded opal diffuser.	LED 4600 lumens, 33W 4000K	Whitecroft	ACL Industry Equal approved	

Ref	Location	Description	Lamp Type	Supplier/ Manufacturer	Catalogue Number	Image
D	Offices, Consulting Rooms and Adjacent Lobbies	Solid state Recessed decorative down lights, IP54 rated. Emergency version indicated on MLM drawings with "E".	LED 26W 4000K	Orlight	Ezential231-WH-4000K with non-dimmable driver (supplied as standard) Equal approved	
EXIT	Door Egress	Self-contained non- maintained 3hr duration emergency luminaire c/w appropriate EC pictogram.	LED 4w	Thorlux	Sortie ESE 15252 Or equal approved.	
E1		Self contained non- maintained 3hr Duration Emergency luminaire White Opal finish luminaire IP65.	LED 4w	Thorlux	Mini 8 EFB 15467 or equal approved.	
E	-	Denotes 3hr duration battery pack integral to the luminaire.	-	-	-	
External						
F/E	Around the building perimeter	Wall mounted luminaire.	LED 36W	Holophane	DEW.L034.	

Ref	Location	Description	Lamp Type	Supplier/ Manufacturer	Catalogue Number	Image
G	Car Park	Asymmetric distribution column mounted at 4m luminaires, controlled via local photocell controller.	NICHIA 219 4000K	Holophane	DSX1.L044.AY.	

2 Room Data Sheets

Type	L1	L2	L4	L5
Area	Classrooms/Group Rooms/Teaching Rooms	Science Classroom	Staff Spaces/ Offices	Circulation
Description	Suspended Continuous	Suspended Continuous	Recessed	Downlights
Colour/finish				
Product/Spec	Whitecroft Foil LED (continuous mounting with acoustic pad)	Whitecroft Foil LED (continuous mounting with acoustic pad)	Whitecroft Tegan Slim LED 27W opal	Orlight Esenzal 231
Size (mm)	2200	2200	600 x 600	
Daylighting				
Daylighting requirement	Required	Required	Required	
Daylighting Autonomy: percentage of regularly used are that has an illuminance of 300 lux for half or core hours	50%	50%	50%	
Usable Daylight Index: UDI-a to lie between 100 lux and 2000 lux for percentage of core hours	80%	80%	80%	
Minimum uniformity of daylight (under diffuse sky)	0.3	0.3	0.3	
Maximum number of core hours for which UDI-exceeded, UDI-e	20%	20%	20%	
Lighting System				
Minimum average maintained horizontal/task illuminance - lux	300	300	250	150
Maximum average maintained horizontal illuminance - lux	450	450	350	200
Minimum ceiling luminance	100	100		
Minimum cylindrical illuminance at head height - lux	150	150		
Maximum CIBSE limiting glare index	19	19	19	
Modelling index	0.3 to 0.5	0.3 to 0.5		
Minimum uniformity at task position of artificial lighting	0.6	0.6		
Minimum colour rendering (Ra)	80	80	80	
Maximum lighting energy units W/m ² 100 lux	Suggested figures: Contractor to specify 2.4	2.4	1.34	3.36
Minimum initial efficacy - Luminaire lumens/circuit watt with allowance for control	55	55		
Lighting Energy Numerical Index (LENI) - kWh/m ²	Contractor to specify N/A	N/A		
Controls (d - daylight linking, sw - central manual switching, occ - occupancy, dim - dimming to 10 lux)	d, occ, sw, dim	d, occ, sw, dim	d, occ, sw, dim	occ
Emergency lighting (required to ensure safe escape and evacuation where there is dangerous machinery or public access during evening)	Yes	Yes	Yes	Yes
Notes: Control gear in all spaces to be High Frequency or Electronic with losses of not more than 0.5 Watts in standby mode until 2017 and 0 Watts thereafter	LCM	LCM	LCM	

3 ASHP for Hot Water and Space Heating

Heating

PRODUCT INFORMATION CAHV-P500YA-HPB

World of
Difference

MODEL		CAHV-P500YA-HPB
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++
	η_w	125%
	SCOP	3.19
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+
	η_w	139%
	SCOP	3.54
HEATING ¹ (A-3/W35)	Capacity (kW)	42.6
	Power Input (kW)	15.2
	COP	2.80
OPERATING AMBIENT TEMPERATURE (°C DB)		-20~+40°C
SOUND PRESSURE LEVEL AT 1M (dBA) ^{2,3}		59
LOW NOISE MODE (dBA) ²		Variable
FLOW RATE(l/min)		126
WATER PRESSURE DROP (kPa)		18
DIMENSIONS (mm)	Width	1978
	Depth	759
	Height	1710 (1650 without legs)
WEIGHT (kg)		526
ELECTRICAL SUPPLY		380-415v, 50Hz
PHASE		3
NOMINAL RUNNING CURRENT [MAX] (A)		17.6 [52.9]
FUSE RATING - MCB SIZES (A) ⁴		63

¹ Under normal heating conditions at outdoor temp: -3°CDB / -4°CWB, outlet water temp 35°C, inlet water temp 30°C

² Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 35°C, inlet water temp 30°C, as tested to BS EN14511

³ Sound power level of the CAHV-P500YA-HPB is 70.7dBA. Tested to BS EN12102

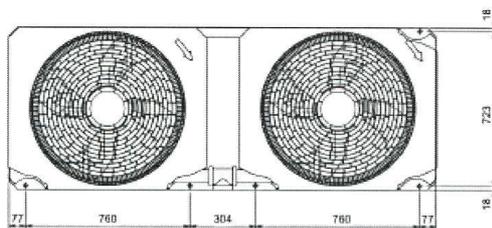
⁴ MCB Sizes BS EN60898-2 & BS EN60947-2

η_w is the seasonal space heating energy efficiency (SSHEE) η_w is the water heating energy efficiency

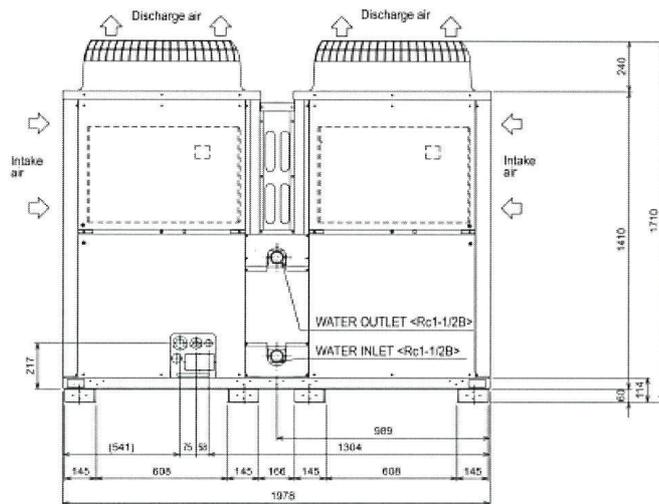
Schematics

Schematics

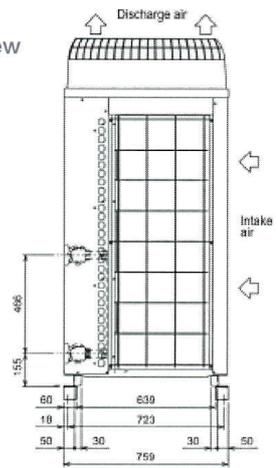
Upper View



Front View



Side View



4 Temperature Schedule

Type		T2	T4	T5
Areas, spaces		Classroom/Group Rooms/Teaching Rooms	Circulations/Corridors	Staff Spaces /Offices
Normal maintained air temperature (1m above floor level at centre of room) to be achieved by the heating system in less than 20 minutes after closing any external doors- °C		21	19	21
Minimum maintained air temperature provided by heating system in heating season (1m above floor level) - °C		19	19	19
Maximum air temperature provided by heating system in heating season during maximum occupancy (1m above floor level) - °C		24	24	24
CIBSE summertime overheating criteria:				
1. Maximum hours of exceedence	For new build 2 out of 3 of the CIBSE summertime overheating criteria must be met			
2. Maximum daily weighted exceedence				
3. Upper limit temperature: maximum T				
Maximum difference between internal air temperature and external air temperature when external temperature > 20°C, when the spaces are occupied for more than 30 minutes - °C		5	5	5
Notes: Air temperatures and velocities and radiant temperature asymmetry are inter-related. The figures here are minimum standards based on ASHRAE Standard 5 and a Percentage People Dissatisfied of 20%	Design temperature should compensate for any rapidity of air movement leading to chilling by evaporation			

5 Ventilation Schedule

Type		V1	V2	V3
Areas, spaces		Staff Spaces/Offices	Classrooms/group rooms/Teaching Rooms	Circulation/Corridors
Operational target for maximum average daily concentration of carbon dioxide/parts per million (ppm)	For natural ventilation	1500	1500	1500
Maximum carbon dioxide concentration not to be exceeded for more than 20 minutes each day	For natural ventilation	2000	2000	2000
Minimum rate of ventilation when occupied in litres per second per person (l/s/p)	For natural ventilation	N/A	N/A	N/A
Maximum winter time cold air inlet velocity during occupation - m/s at 1m above floor (e.g.seated head level)		0.3	0.3	0.3
Minimum capability rate of ventilation in air changes per hour (ACH) or litres per second per person (l/s/p)		8l/s/p	10l/s/p	N/A
Notes: (Including Intermittent extract rate as Building Requirements AD F Table 6.1a) Air temperatures and velocities and radiant temperatures asymmetry are inter-related. Minimum standards based on ASHRAE Standards 55 and a Percentage People Dissatisfied of 20% are recommended.	Design temperature should compensate for any rapidity of air movement leading to chilling by evaporation			

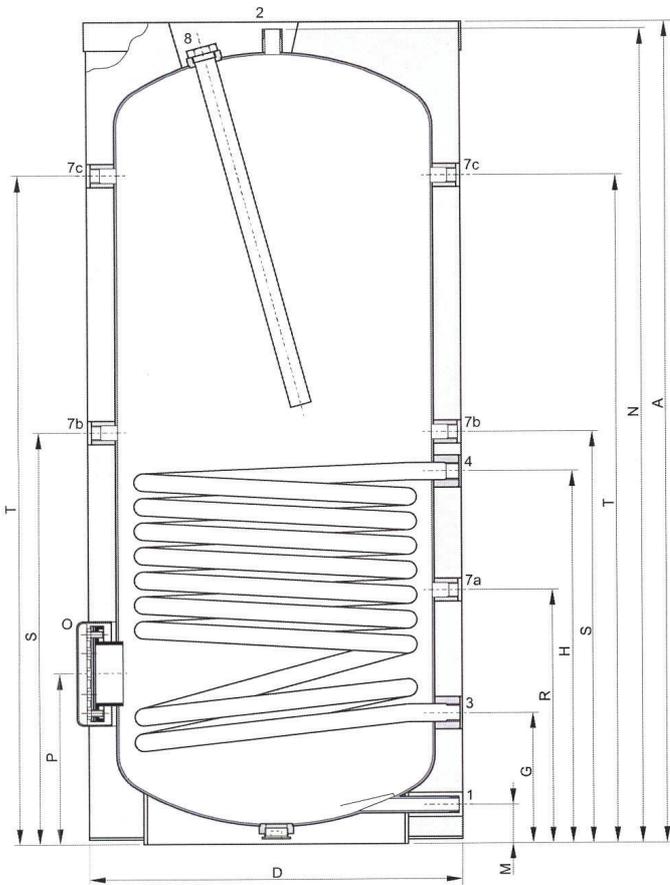
6 Equipment Schedule

Equipment	Proposed Manufacturer	Model Electrics	Qty	Capacity	How Delivered	Weights	Dimensions (mm)
Hot Water							
Indirect Calorifier	AOSmith	IT-400	2No.	385 Each	One Section	142kg total	W720 x H1705
ASHP	Mitsubishi	CAHV-P500YA-HPB	1No.	42.6	One Section	526kg total	W1978 x D759 X H1710
Space Heating							
ASHP	Mitsubishi	CAHV-P500YA-HPB	2No.	42.6kW Each	One Section	526kg total	W1978 x D759 x H1710

Note: This equipment schedule does not include pumps and ancillary equipment associated with the operation of the mechanical services. Additional information can be provided as part of detail design.

7 Calorifier

IT 400-1000



	IT 400	IT 500	IT 600	IT 750	IT 1000
A	1705	2040	1835	2030	2000
D without insulation	600	600	750	750	900
D with insulation	720	720	910	910	1060
G	255	255	305	305	345
H	1010	1205	1145	1205	1305
M	70	70	85	85	95
N	1650	1990	1795	1990	1960
O	115	115	180	180	180
P	330	330	415	415	445
R	500	500	650	650	700
S	1095	1290	1235	1295	1395
T	1360	1700	1475	1670	1600
1 Cold water	R2	R2	R2½	R2½	R2½
2 Hot water	R2	R2	R2½	R2½	R2½
3 Outlet coil	Rp1	Rp1	Rp1	Rp1¼	Rp1¼
4 Inlet coil	Rp1	Rp1	Rp1	Rp1¼	Rp1¼
7 Connection	Rp¾	Rp¾	Rp¾	Rp¾	Rp¾
8 Anode Connection	Rp1¼	Rp1¼	Rp1¼	Rp1¼	Rp1¼

Dimensions in mm.