

SCHEDULE OF PACKAGED DEDICATED OUTDOOR HEAT PUMP VENTILATION AIR UNITS (WITH HEAT RECOVERY)																																								
MARK	SERVICE	LOCATION	MODEL No.	AIRFLOW CONDITIONS					SUPPLY FAN			EXHAUST FAN			HEAT EXCHANGER				DX COOLING COIL DATA					HEATING COIL DATA				FILTERS	ELECTRICAL DATA				DIMENSIONS (BASE)			WEIGHT LBS	EER	REMARKS		
				O.A. CFM	E.A. CFM	R.A. CFM	SAESP IN. WC	RAESP IN. WC	TYPE	CFM	HP	TYPE	CFM	HP	SUMMER L.A.T. DB °F WB °F	WINTER L.A.T. DB °F WB °F	E.A.T. °F DB °F WB °F	L.A.T. °F DB °F WB °F	SENSIBLE MBH	TOTAL MBH	MARK	INTAKE RETURN	V/PH	MCA	MOCF	L	W	H												
① ② ③ ④	NEW ADDITION	ROOF	ERP-E-03-EP-C-HR-SS-AST25	3200	3200	3200	1.25	1.00	CENTR.	3200	7.0	CENTR.	3200	5.0	81	71.5	52.7	41.5	82.9	68.3	58.4	57.8	99.0	162.0	① ②	REFER TO SCHEDULE OF DUCT MOUNTED HOT WATER COILS				MERV 13	480/3/60	69.0	80.0	284	78	84	2200	13.5	REFER TO ②③④⑤⑥⑦⑧⑨⑩	
NOTES																																								
① AS MANUFACTURED BY "ANNEXAIR.". (KLIMA, NEW YORK LLC 212 678-5100)																																								
② WINTER L.A.T. IS BASED ON FROST CONTROL BY VFD.																																								
③ DESIGN AIR CONDITION: SUMMER O.A. (95°F/75°F) R.A. (75°F/63°F); WINTER O.A. (0°F/0°F) R.A. (70°F/53°F).																																								
④ INSTALL PER MANUFACTURER'S RECOMMENDATIONS.																																								
⑤ PROVIDE ROOFTOP UNIT WITH STAGED COOLING, ENAMELED FINISH (COLOR TO BE DETERMINED BY ARCHITECT), MOTORIZED CONTROL DAMPERS, DAMPER END SWITCHES, 100% ENTHALPY ECONOMIZER CONTROLS, FROST PROTECTION, HOT GAS BY-PASS, ENERGY RECOVERY HEAT EXCHANGER, DIRTY FILTER CONTACTS, BLOWER SHAVE AND BELT FOR SELECTED STATIC USE, DISCONNECT SWITCH, VFD'S, PHASE MONITOR, 4" THICK MERV 13 PLEATED FILTERS (AS NOTED), STAINLESS STEEL DRAIN PAN, HINGED ACCESS PANELS, BAGNET COMPARABLE AUTOMATED CONTROLS (AS NOTED), POWERED 120 VOLT GFI SERVICE RECEPTACLE. PROVIDE FIELD INSTALLED FULL ECONOMIZER/POWER EXHAUST, INTAKE AND EXHAUST HOODS AND DUAL ENTHALPY HUMIDITY SENSORS. THIS UNIT IS A 100 PERCENT OUTDOOR AIR/EXHAUST VENTILATION UNIT.																																								
⑥ DESIGN AIR CONDITIONS: SUMMER O.A. (95°F/75°F) RA (75°F/63°F) WINTER O.A. (0°F/0°F) RA (70°F/53°F)																																								
⑦ PROVIDE UNIT WITH VARIABLE FREQUENCY DRIVES.																																								
⑧ UNIT EQUIPPED WITH DX COOLING AND CONDENSING UNIT SECTION.																																								
⑨ REFER TO SCHEDULE OF DUCT MOUNTED HEATING COILS FOR COIL DATA.																																								
⑩ COORDINATE HVAC EQUIPMENT FAN SHUT DOWN BY FIRE ALARM PANEL WITH ELECTRICAL CONTRACTOR.																																								

SCHEDULE OF VRF OUTDOOR HEAT PUMP/RECOVERY UNITS														
MARK	SERVICE	LOCATION	MODEL N ^O ①	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	COMPRESS. DATA		COND. DATA		ELECTRICAL DATA		PHYSICAL DATA DIMENSION/WEIGHT (L XW XH")/(LBS)	REMARKS	
						TYPE	QTY		QTY	MCA	MOP			ELECTRICAL SERVICE
① ②	NEW ADDITION	ROOF	ARUM288DTE5	288	324	SCROLL	3		4	16.4/35.7	25/50	480/3/60	98x30x67/1200	REFER TO ③④⑤⑥⑦

NOTES

① AS MANUFACTURED BY "L.G."

② INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

③ BASED ON A.R.I. CERTIFIED COIL SELECTIONS; REFRIGERANT R-410A, EER 12.4/SEER 25.9/HSPF10.5.

④ DESIGN AIR CONDITIONS: SUMMER: OA (94°F/75°F) RA (77°F/65°F); WINTER: OA (5°F/3°F) RA (70°F/55°F). HW: 180°F/160°F

⑤ MOUNT ON RAILS. THREE PIPE SYSTEM. PROVIDE VIBRATION ISOLATORS, EQUIPMENT SUPPORTS, DISCONNECT SWITCH, CONVENIENCE OUTLET, LOW AMBIENT CONTROLS AND PHASE PROTECTION. DC INVERTER COMPRESSOR SPEED CONTROL BASED ON SYSTEM LOAD.

⑥ SYSTEM SHALL BE ABLE TO BE CONTROLLED BY BAGNET EITHER DIRECTLY OR THROUGH AN EXTERNAL GATEWAY.

SCHEDULE OF DUCT MOUNTED HOT WATER COILS																
GENERAL DATA			SIZE					AIR SIDE					WATER SIDE		REMARKS	
MARK	SERVICE	LOCATION	WIDTH (IN.)	HEIGHT (INCHES)	FACE AREA (FT²)	ROWS	FINS PER INCH	CFM	MBH	PRESS DROP (INCH WC)	VELOCITY (FPM)	E.A.T. (°F)	L.A.T. (°F)	FLOW RATE (GPM)		PRESS DROP Δ HEAD (FT)
① ②	NEW ADDITION	CEILING	—	—	6.4	2 MINIMUM	VARIABLE	3200	290	0.2" MAX	500	6	90	29.0	5 FT. MAX	REFER TO ③④⑤
NOTES	① ENTERING WATER TEMPERATURE 180°F, 20° ΔT.															
	② PROVIDE INSPECTION AND CLEANING DUCT ACCESS DOOR ON UPSTREAM SIDE OF COIL.															
	③ THE HOT WATER COIL IS SIZED TO HANDLE OUTDOOR AIR QUANTITIES AT 100 PERCENT OF OCCUPANCY WITHOUT HAVING TO RESORT TO CLOSING OUTDOOR AIR INTAKE DAMPERS ON A "DESIGN HEATING DAY" TO PREVENT FREEZE-UP.															

SCHEDULE OF VRF INDOOR UNITS											
MARK	MODEL No. ①	CFM HIGH	ELECTRICAL DATA			TOTAL COOL/HEAT MBH	DIMENSION/WEIGHT				REMARKS
			MCA	MOCF	ELECTRIC SERVICE		W (IN.)	D (IN.)	H (IN.)	LBS	
④H	ARNU073TRD4	265	0.20	15	208/1/60	7.5/8.5	25	25	10	35	REFER TO ②③④⑤⑥
④H	ARNU123TRD4	307	↓			12.3/13.6	25	25	10	40	
④H	ARNU183TRD4	565	0.56			19.1/21.5	33	33	12	68	
④H	ARNU243TNA4	742	↓			24.2/27.3	33	33	12	68	
④H	ARNU283TMA4	812	1.30			28.0/31.5	33	33	12	72	
④H	ARNU363TMA4	918	↓			30.0/32.0	33	33	12	72	
④S	PRHRO23A	N/A	0.17			N/A	31	26	9	37	REFER TO ②⑤
④S	PRHRO23A		0.17				31	26	9	37	
④S	PRHRO33A		0.17				31	26	9	40	
④S	PRHRO43A	↓	0.17	↓	↓	↓	31	26	9	40	↓

NOTES

① AS MANUFACTURED BY "L.G."

② INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

③ BASED ON A.R.I. CERTIFIED COIL SELECTIONS; REFRIGERANT R-410A.

④ PROVIDE FACTORY MOUNTED INTEGRAL CONDENSATE PUMP, CONDENSATE DRAIN PIPING, PIPING ENCLOSURE KIT, CHECK VALVE, ANTI SWEAT SLEEVE AND AUTO SHUTDOWN OVERFLOW SWITCH.

⑤ PROVIDE MOUNTING HARDWARE, VIBRATION ISOLATORS, DISCONNECT AND HARDWIRED REMOTE WALL MOUNTED CONTROLLER/THERMOSTAT. WHERE MULTIPLE CEILING CASSETTE UNITS TIE INTO A SINGLE ZONE CONTROLLER/THERMOSTAT, PROVIDE WIRED REMOTE GROUP CONTROL CABLE ASSEMBLY P2CWRCT AS REQUIRED.

⑥ SYSTEM SHALL BE ABLE TO BE CONTROLLED BY BAGNET EITHER DIRECTLY OR THROUGH AN EXTERNAL GATEWAY.

SCHEDULE OF REGISTERS AND DIFFUSERS								
MARK	TYPE	SERVICE	MODEL No. ①	DIRECTION DISCHARGE	DAMPER TYPE	FINISH	TYPE	REMARKS
Ⓐ	CEILING DIFFUSER	SUPPLY	SCD	4-WAY	OPPOSED BLADE	PER ARCH.	SURFACE	REFER TO ② ③ ④
Ⓑ	CEILING REGISTER	EXHAUST	635	—	OPPOSED BLADE	PER ARCH.	SURFACE	REFER TO ② ③ ⑤
Ⓒ	CEILING GRILLE	EXHAUST	635	—	OPPOSED BLADE	PER ARCH.	LAY-IN	REFER TO ② ③ ⑤
ⓧ	EXISTING REGISTER/GRILLE							

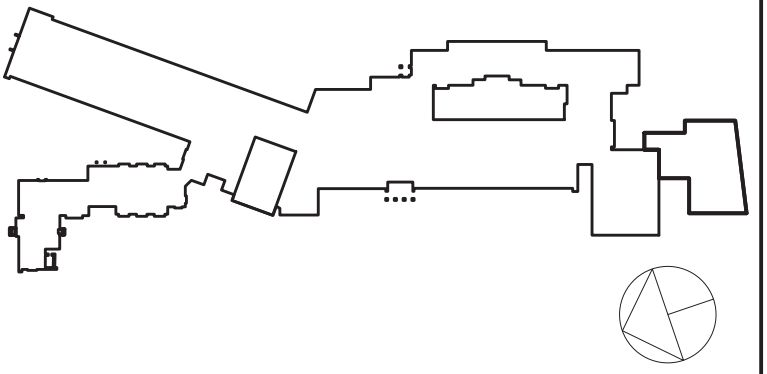
NOTES		① AS MANUFACTURED BY "PRICE".	② SUPPLY NECK SIZE PER CFM RANGE (NOT TO EXCEED 500 fpm)	③ RETURN NECK SIZE PER CFM RANGE (NOT TO EXCEED 675 fpm)
① ② ③ ④	① ② ③ ④	① ② ③ ④	50 TO 99 100 TO 299 300 TO 499 500 TO 799 800 TO 1199 1200 TO 1499 1500 TO 1999 2000 TO 2499	50 TO 99 100 TO 299 300 TO 499 500 TO 799 800 TO 1199 1200 TO 1499 1500 TO 1999 2000 TO 2499

SCHEDULE OF EXHAUST FANS										
MARK	SERVICE	LOCATION	TYPE	MODEL No. ①	CFM	TOT. S.P. IN H ₂ O	HP AMPS	ELECTRIC SERVICE	REMARKS	
① ②	STORAGE 77	ROOF	CENTRIFUGAL	G-095-VGEX-QD	100	0.125	1/6 —	120/1/60	REFER TO ③④⑤	
NOTES ① AS MANUFACTURED BY "GREENHECK". ② INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ③ FURNISH FACTORY SPEED CONTROL. ④ FURNISH FACTORY BACKDRAFT DAMPER AND DISCONNECT SWITCH.										

SCHEDULE OF CABINET HEATERS										
MARK	TYPE UNIT	MODEL NO. ①	CAPACITY DATA				MOTOR WATTS	MOTOR RPM	ELECTRIC SERVICE	REMARKS
			BTU/HR	CFM	GPM	PD.FT.				
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	CEILING MTD.	RC 1170 03	20.6	335	2.0	0.25	1/15	1050	120/1/60	REFER TO ②③④⑤⑥
NOTES	① AS MANUFACTURED BY "STERLING".									
	② INSTALL PER MANUFACTURER'S RECOMMENDATIONS.									
	③ CAPACITIES BASED ON LOW SPEED FAN SETTING, AND 160° F A.W.T.									
	④ PROVIDE 2 ROW COIL, THROWAWAY FILTERS, INTEGRAL SPEED CONTROL, DISCONNECT SWITCH, REMOTE WALL SENSOR CONNECTED TO BMS, GASKET AND PERMA LAP FRAME. COORDINATE FINISH AND COLOR WITH ARCHITECT.									
	⑤ UNIT DIMENSIONS 36"x25"x9.5", WEIGHT 150 LBS.									
	⑥ PROVIDE WITH HOT WATER RETURN AQUASTAT. AQUASTAT SHALL NOT ALLOW FAN TO OPERATE AT WATER TEMPERATURE BELOW 110 DEGREES F.									

SCHEDULE OF MINIMUM VENTILATION ROOM FLOW RATES											
		A	B	C	D	E	F	G	H	I	
ROOM NAME/NUMBER	OCCUPANCY CATEGORY	ROOM AREA (SQ.FT.)	PEOPLE DENSITY (#P/1000 SQ.FT.) / # OF FIXTURES	PEOPLE OUTDOOR AIR FLOW RATE (CFM/PERSON)	AREA OUTDOOR AIR FLOW RATE IN BREATHING ZONE (CFM/SQ.FT.)	EXHAUST AIR FLOW RATE (CFM/SQ.FT.)	NUMBER OF PEOPLE (A+B)+1000=BP	OUTDOOR AIR FLOW RATE WITHOUT ZONE EFFECTIVENESS FACTOR (F×C)×(A+D)=CFM	ZONE AIR DISTRIBUTION EFFECTIVENESS FACTOR	MINIMUM ROOM VENTILATION AIR FLOW RATE G+H=CFM	MINIMUM EXHAUST AIR FLOW RATE A×E=CFM
Vestibule 70	CORRIDORS	200	0	0	0.06	0	0	12	0.8	15	0
Active Commons 71	CLASSROOM (AGES 9+)	690	35	10	0.12	0	25	333	0.8	416	0
5th Grade Learning Studio 73	CLASSROOM (AGES 9+)	790	35	10	0.12	0	28	375	0.8	469	0
5th Grade Learning Studio 75	CLASSROOM (AGES 9+)	780	35	10	0.12	0	28	374	0.8	467	0
5th Grade Learning Studio 78	CLASSROOM (AGES 9+)	740	35	10	0.12	0	26	349	0.8	436	0
5th Grade Learning studio 80	CLASSROOM (AGES 9+)	780	35	10	0.12	0	28	374	0.8	467	0
Workshop Commons 76	CLASSROOM (AGES 9+)	840	35	10	0.12	0	30	401	0.8	501	0
Conference 72	CONFERENCE/MEETING	150	50	5	0.06	0	8	49	0.8	61	0
SGR 74	CLASSROOM (AGES 9+)	110	35	10	0.12	0	4	53	0.8	67	0
SGR 79	CLASSROOM (AGES 9+)	90	35	10	0.12	0	4	51	0.8	64	0
Storage 77	STORAGE ROOMS	150	0	0	0.12	0	0	18	0.8	23	18

Revision Schedule		
No.	Description	Date
A	SED Submission	10/23/2020
B	ISSUED FOR BID	08/10/2021



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SED#: 6618-0001-0003-025

PROJECT

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Midland Elementary School

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SCHEDULES

SEAL & SIGNATURE DATE: 12/12/19
PROJECT No: 9200
DRAWING BY: Author
CHK BY: BGA/BGA
DWG No: H3-301