EXHAUST FAN SCHEDULE

	UNIT NUMBER		EF-1	ILF-1	CEX-1	CEX-2
	SERVICE		SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
FANS	MANUFACTURER		GREENHECK	GREENHECK	GREENHECK	GREENHECK
	MFR MODEL #		SWB-218-50	BSQ-90-3	SP-B110	SP-B110
	C.F.M.		6,500	450	100	100
	STATIC PRESS. (IN WG)		1.5"	1"	0.5"	0.5"
	FAN RPM		2001	1701	950	950
	FAN BHP		4.37	0.23	2.7	2.7
MOTOR & STARTER	MOTOR	TYPE	ODP	ODP	ODP	ODP
		H.P.	5	1/3	80 WATTS	80 WATTS
		R.P.M	–	–	–	–
		VOLTAGE/PHASE	208 – 3ø	115-1ø	115-1ø	115-1ø
				–		
	STARTER	TYPE	V-F-D	RELAY	RELAY	RELAY
		NEMA SIZE	–		–	–
		CONTROL	EMS	EMS	LINE VOLTAGE 1"STAT	LINE VOLTAGE 1"STAT
		AUX. CONTACTS				
			①	②	③	③

① PROVIDE PREMIUM EFFICIENT MOTOR. NEMA 1 DISCONNECT SWITCH, AND MOTORIZED BACKDRAFT DAMPER. PROVIDE FLANGED-INLET AND OUTLET PUNCHED, HEAT SLIGER, STRUCTURAL BASE W/ 1" SPRING ISOLATORS. EXTENDED LUBE LINES, WEATHERHOOD

② PROVIDE VIBRATION ISOLATING HANGERS, DUCTED CONNECTIONS & MOTORIZED BACKDRAFT DAMPER, PROVIDE 1" THICK INSULATION FOR FAN HOUSING. NEMA 1 DISCONNECT SWITCH

③ PROVIDE VIBRATION ISOLATING HANGERS, DUCTED CONNECTIONS & SPRING LOADED BACKDRAFT DAMPERS, SPEED CONTROLLER, CEILING RADIATION DAMPER. 6" TO 4" ROUND REDUCER. DISCONNECT SWITCH

ESF-1 SKH 18

GAS FIRED BOILER SCHEDULE

UNIT NUMBER		HWB-1,2
SERVICE		BUILDING
MFR MAKE AND MODEL		LOCHINVAR
MFR SPEC. TYPE		KNIGHT KBN210
GAS INPUT (MBH)		210
GROSS OUTPUT (MBH)		191
EFFIECIENCY A.F.U.E.		94%
MAX. WORKING PRESSURE (PSI)		50
FLUE CONNECTION		3"ø
WATER SUPPLY TEMPERATURE		140°F
WATER TEMPERATURE RISE		20°F
ELECTRICAL DATA	VOLTAGE	115 V
	STARTER	INTEGRAL ①
	FUSE SIZE	– –
	CONTROL	INTEGRAL ①
	NEMA SIZE	– –
REMARKS		②③④⑤⑥

① COORDINATE WITH CONTROL SYSTEM

② PROVIDE MASS. CODE GAS TRAIN, LOW WATER CUT-OFF, HIGH LIMIT & FLOW SWITCHES

③ SEE SPECS FOR FURTHER REQUIREMENTS

④ PROVIDE VERTICAL CONCENTRIC KIT

⑤ PROVIDE CONDENSATE NEUTRALIZATION KIT FOR EACH BOILER

⑥ PROVIDE PRIMARY PUMPS FOR EACH BOILER

CHILLER SCHEDULE

UNIT NUMBER		CH-1
SERVICE		BLDG. CHILLED WATER
MANUFACTURER		TRANE
MODEL		CGAM030
CHILLER DATA	FLUID	35% PROPYLENE GLYCOL
	FLOW RATE (GPM)	57.6
	TEMP. ENTERING (F)	56
	TEMP. LEAVING (F)	44
	PRESS. DROP (FT. HD.)	13.4
	NOMINAL TONS	30
	REFRIGERANT	R410A
ELECTRICAL DATA	POWER INPUT (kW)	32.9
	EFFICIENCY (EER)	15.5
	VOLTAGE-PH-HZ	208-3-60
	MIN. CIRCUIT AMPACITY	154.6
	MOCP	200
	CONTROL	INTEGRAL/DDC
– PART-WIND START & DISCONNECT SWITCH		
– PRESSURE GAGE PANEL		
– FLOW SWITCH & OIL SAFETY SWITCH		
– SOUND ENCLOSURE & SPRING VIBRATION ISOLATORS		
– ASHRAE 90.1 COMPLIANT		

SKH-2

FAN COIL SCHEDULE

	UNIT NUMBER		FC-1	FC-3 (ALTERNATE)
	SERVICE		SEE PLANS	SEE PLANS
FANS	MANUFACTURER		TRANE	FIRST COMPANY
	MODEL NUMBER		BCHC072	8MB
	C.F.M.		1,600	800
	E.S.P. (in. w.g.)		.5"	.75"
	VOLTS – PH – Hz		208V-3ø-60Hz	208V-3ø-60Hz
	HP		1/2	1/2
	MIN. O.A. CFM		340	75
HEATING COIL	AIR DATA	TEMP. ENTERING	56.19	63.44
		TEMP. LEAVING	99.67	108
		HEATING CAP. (MBH)	75.35	39.2
	WATER DATA	TEMP. ENTERING	140	140
		WATER FLOW RATE (GPM)	7.91	4.07
		PRESSURE DROP (FT)	1.32	5.38
COOLING COIL		ROWS	2 ROW HIGH CAPACITY	2 ROW HIGH CAPACITY
	AIR DATA	TEMP. ENTERING	77.21/64.85	76.13/63.59
		TEMP. LEAVING	55.9/55.2	56.1/55.1
		COOLING CAP. (MBH)	46.4	20.15
		ROWS	6	6
	WATER DATA	WATER FLOW RATE (GPM)	15	4
		PRESSURE DROP (FT)	5.68	5.46
		MATERIAL TUBES/FINS	ALUMINUM/COPPER	ALUMINUM/COPPER

NOTES:

1. PROVIDE NEMA 1 DISCONNECT SWITCH
2. PROVIDE FOUR (4) SPARE SETS OF FILTERS, IN ADDITION TO THOSE SUPPLIED IN THE UNIT
3. PROVIDE SPRING VIBRATION ISOLATING HANGERS
4. HOT WATER COIL SIZED FOR 140°F ENTERING AND 120°F LEAVING WATER TEMPERATURES & 35% PROPYLENE GLYCOL,
5. CHILLED WATER COIL SIZED FOR 44°F ENTERING AND 56°F LEAVING WATER TEMPERATURES & 35% PROPYLENE GLYCOL,
6. PROVIDE CONTROL INTERFACE

AIR HANDLER SCHEDULE

	UNIT NUMBER		AHU-1	
	SERVICE		SEE PLANS	
	MFR MAKE & MODEL		TRANE M SERIES	
	MFR SPEC. TYPE		MCCB014	
SUPPLY FAN	C.F.M.		7,000	
	TOTAL STATIC PRESS./E.S.P.		4.18"/2"	
	FAN RPM		2105	
	FAN BHP		7.783	
	FAN TYPE		AIRFOIL	
MOTOR & STARTER	MOTOR	TYPE	ODP PREMIUM EFF.	
		H.P.	10	
		R.P.M	–	
		VOLTAGE/PHASE/FREQ.	208/3/60	
	STARTER	TYPE	V-F-D	
		NEMA SIZE	AS REQUIRED	
		CONTROL	– –	
		AUX. CONTACTS	– –	
	MIN. OUTDOOR AIR (CFM)		800	
COIL DATA	AIR DATA	SERVICE	COOL	HEAT
		FACE VEL. (FPM)	492	724
		TEMP. ENTERING (DB/WB)	76.5/64.1	60.9
		TEMP. LEAVING (DB/WB)	52/51.86	100
		TOTAL MBH	250	296
	CHILLED WATER COIL DATA	ROWS	8	
		FINS/FT	107	
		COIL TYPE	UW COIL	
		FLUID FLOW RATE (GPM)	46	
		FLUID PRESSURE DROP	16.79 FT WG	
	HOT WATER COIL DATA	ROWS	4	
		FINS/FT	106	
		COIL TYPE	W COIL	
		FLUID FLOW RATE (GPM)	32	
		FLUID PRESSURE DROP	1.74 FT WG	
		MATERIAL TUBES/FINS	COPPER/ALUMINUM	
NOTES			①②③④⑤⑥⑦	

① PROVIDE FOUR (4) SPARE SETS OF FILTERS, IN ADDITION TO THOSE SUPPLIED IN THE UNIT

② PROVIDE PREMIUM EFFICIENCY O.D.P. MOTORS

③ PROVIDE INTERNAL SPRING VIBRATION ISOLATION, PERFORATED DOUBLE WALL CONSTRUCTION & IAQ DRAIN PAN.

④ HOT WATER COIL SIZED FOR 140°F ENTERING AND 120°F LEAVING WATER TEMPERATURES & 35% PROPYLENE GLYCOL,

⑤ CHILLED WATER COIL SIZED FOR 44°F ENTERING AND 56°F LEAVING WATER TEMPERATURES & 35% PROPYLENE GLYCOL,

⑥ PROVIDE NEMA 1 DISCONNECT SWITCH.

⑦ PROVIDE CONTROL INTERFACE

VAV TERMINAL WITH AND WITHOUT HOT WATER COIL SCHEDULE

UNIT NUMBER		VAV-1	VAV-2	VAV-3	VAV-4	VAV-5	VAV-6	VAV-7	VAV-8	VAV-9	VAV-10	VAV-11	VAV-12	VAV-13	VAV-14	VAV-15
MANUFACTURER		TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL		VCCF08	VCCF08	VCCF08	VCCF06	VCWF06	VCCF06	VCCF08	VCCF06	VCCF06	VCCF06	VCCF05	VCCF08	VCCF10	VCWF08	VCCF05
SERVICE		SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
UNIT SIZE		8	8	8	6	6	6	8	6	6	6	5	8	10	8	5
MAX. CFM		700	455	685	355	370	335	640	345	350	400	250	545	775	500	250
MIN. CFM (COOLING)		210	140	205	105	111	100	195	100	100	120	75	165	235	150	75
MIN. CFM (HEATING)		–	–	–	–	165	–	–	–	–	–	–	–	–	225	–
COIL DATA	ROWS	–	–	–	–	2	–	–	–	–	–	–	–	–	2	–
	GPM	–	–	–	–	0.61	–	–	–	–	–	–	–	–	0.73	–
	FT-HEAD	–	–	–	–	0.33	–	–	–	–	–	–	–	–	0.07	–
	EAT/LAT	–	–	–	–	55/87	–	–	–	–	–	–	–	–	55/84	–
	MBH	–	–	–	–	5.66	–	–	–	–	–	–	–	–	6.81	–

1. DDC CONTROLS FURNISHED AND MOUNTED BY CONTROLS CONTRACTOR
2. VAV BOX'S SHALL BE 120V-1ø AS SCHEDULED, AND STEP DOWN CONTROL TRANSFORMER COORDINATE ATC CONTRACTOR FOR CONTROL VOLTAGE.
3. PROVIDE STANDARD LINING.
4. PROVIDE DUCT TRANSITIONS TO AND FROM BOX'S
5. HOT WATER COILS ARE BASED ON 140°F EWT
6. PROVIDE DISCONNECT SWITCH

PUMP SCHEDULE

UNIT NUMBER		P-1 & P-2	P-3 & P-4
SERVICE		HOT WATER SYSTEM PUMPS	CHILLED WATER SYSTEM PUMPS
MFR MAKE & MODEL		B&G SERIES 90	B&G SERIES 1510
MFR SPEC. TYPE		IN-LINE	END SUCTION
FLUID DATA	FLUID	35% GLYCOL	35% GLYCOL
	TEMPERATURE (F)	140°	44°
	FLOW RATE (GPM)	77	61
	T.D.H. (FT)	50'	65'
	MAX. PRESS. (PSI)	50	50
PUMP DATA	TYPE	IN-LINE	END SUCTION
	SPEED (RPM)	1760	1760
	BRAKE H.P.	–	–
	MOTOR (H.P.)	3 H.P.	5 H.P.
	VOLTAGE-PH-Hz	208 / 3 / 60	208 / 3 / 60
STARTER DATA	TYPE	V-F-D	H-O-A
	NEMA SIZE	AS REQUIRED	AS REQUIRED
	CONTROL	AS REQUIRED	AS REQUIRED
	AUX. CONTACTS	AS REQUIRED	AS REQUIRED

① PROVIDE PREMIUM EFF MOTORS, AND DISCONNECT SWITCH

DIFFUSER, REGISTER & GRILLE SCHEDULE

KEY	SD-1	SD-2	SD-3	SD-4	SR-1	SR-2	RG-1	RG-2	RG-3	EG-1	EG-2
MANUFACTURER	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE
MODEL	SMDA	SMDA	SMDA	SMDA	520	520	70	70	70	70	70
NECK SIZE	9"x9"x6"ø	12"x12"-6"ø	12"x12"-8"ø	12"x12"-10"ø	6"x6"	12"x6"	12"x12"	22"x22"	14"x14"	12"x12"	12"x12"
MODULE SIZE	–	24"x24"	24"x24"	24"x24"	–	–	–	24"x24"	–	–	24"x24"
BORDER	TYPE 1	TYPE 3P	TYPE 3P	TYPE 3P	TYPE 1	TYPE 1	TYPE 1	TYPE 3P	TYPE 1	TYPE 1	TYPE 3P
FINISH	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4
THROW PATTERN	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	–	–	–	–	–
DAMPER	NONE	NONE	NONE	NONE	OBD	OBD	NONE	NONE	NONE	NONE	NONE
NOTES	②③	③	③	③	③	③	①②③	①③	③	②③	③

① PROVIDE LINED PLENUM BOX FULL SIZE OF REGISTER CONNECTION FOR PLENUM RETURN.

② PROVIDE HEAVY GAUGE SHEETMETAL ANGLES TO SUPPORT REGISTER/GRILLE FROM T-BAR AND NOT TILE.

③ COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN FOR FINAL LOCATION & BORDER TYPE (STANDARD LAY-IN (NARROW TEE) AND SURFACE)

④ SUBMIT COLOR CHART TO ARCHITECT FOR COLOR SELECTION.

⑤ PROVIDE CONCEALED MOUNTING SYSTEM (COOR. W/ CEILING TYPE) SPLINES SPLINES FOR CONTINUOUS APPEARANCE, END CAPS, COORD. LENGHT WITH CEILING TYPE CONTRACTOR TO PROVIDE CUSTOM INSULATED PLENUM BOX. REFER TO ARCH DRAWINGS FOR EXACT LENGTHS

⑥ GRILLES SHALL BE PROVIDE TO ACHIEVE A CONTINUOUS APPEARANCE USING CONCEALED MUILLIONS & SPLINES. MULTIPLE GRILLES TO ACHIEVE SIZE NOTED IS NOT ACCEPTABLE

RG-4 + RG-5 SKH-2 + SKH-3

See SKH-17 for linear schedule (see H3)

UNIT/CABINET HEATER SCHEDULE

SYMBOL	GPM	EWT	LWT	CFM	DERATED BTUH	ELECTRICAL H.P.	PHASE	VOLTS	MFG. MODEL NO.	REMARKS
UH-1	3	140	120	630	12,000	1/15	1	115	RITTLING MODEL #RH-33	①②③
CUH-1	3.5	140	120	350	21,000	1/30	1	115	RITTLING MODEL #RFRW-03 (2-ROW HIGH CAPACITY)	①②③
CUH-2	5	140	120	520	30,000	1/25	1	115	RITTLING MODEL #RFRW-04 (2-ROW HIGH CAPACITY)	①②③

① PROVIDE UNIT MOUNTED DISCONNECT SWITCH.

② ENAMEL FINISH- COLOR BY ARCH.

③ CAPACITY BASED ON 140°F EWT AND 60°F EAT & 35% PROP. GLYCOL.

EQUIPMENT NOTES:

ECH-1 QMARK MODEL #AWH-4204 ELECTRIC CABINET HEATER; 2000 WATTS @ 208 VOLT, 1 PHASE; RECESSED STYLE; INTEGRAL ADJUSTABLE TAMPERPROOF THERMOSTAT AND FAN SWITCH; COLOR SELECTION BY ARCHITECT.

ECH-2 QMARK MODEL #AWH-4404 ELECTRIC CABINET HEATER; 4000 WATTS @ 208 VOLT, 1 PHASE; RECESSED STYLE; INTEGRAL ADJUSTABLE TAMPERPROOF THERMOSTAT AND FAN SWITCH; COLOR SELECTION BY ARCHITECT.

CP-1 LITTLE GIANT MODEL #VCM-20ULS AUTOMATIC CONDENSATE PUMP 30 GPM @ 9' HEAD, 1/50 HP, 115 V – 1ø; PROVIDE SAFETY SWITCH AND CHECK VALVE.

BB-1 (8') RITTLING MODEL #FS3, 2 TIER 14" HIGH COVER 3/4C-3-1/4x3-1/4x48 ELEMENT W/ ENCLOSURE CONT. WALL TO WALL OR AS SHOWN ON DRAWINGS; OUTPUT = 680 BTUH PER FT; PROVIDE HINGED END CAPS AND ALL TRIM NECESSARY FOR COMPLETE INSTALLATION; 140°F EWT, 10° WATER TEMP. DROP, 70°F EAT. PROVIDE HINGED VALVE COVERS AT BALANCING VALVES & CONTROL VALVES. STANDARD COLOR SELECTION BY OWNER. SUBMIT COLOR CHART.

FC-2 DATA AIRE INC. 2 TON UNIT MODEL #DTAU-0232; PROVIDE 30% EFF. 4" FILTER (4 EXTRA SETS), ADJUSTABLE (MOTOR) SLIDE BASE, BELT DRIVE MOTOR W/ VARIABLE PITCH DRIVE, COMPRESSOR ANTI-SHORT CYCLE TIMER, CRANKCASE HEATER, DATA ALARM PROCESSOR III, ELECTRIC REHEAT, EXPANSION VALVE W/ EXTERNAL EQUALIZER, FILTER DRYER, HERMETIC SCROLL COMPRESSOR, HIGH PRESSURE SAFETY SWITCH, LOW PRESSURE SAFETY SWITCH, SIGHT GLASS, STAINLESS STEEL DRAIN PAN, STEAM GENERATOR HUMIDIFIER, REMOTE MOUNT TEMP/HUM SENSORS, LONWORKS COMM CARD, THRU-DOOR DISCONNECT SWITCH, REAR RETURN AIR W/ DUCT FLANGE. 208 VOLT-3ø-60 HZ, MCA=31.9, MOCP=35.

CU-1 DATA AIRE INC. REMOTE CONDENSER MODEL #DARC-0332; PROVIDE THRU-DOOR DISCONNECT SWITCH PROVIDE 42 MONTH EXTENDED COMPRESSOR WARRANTY. 208 VOLT-3ø-60 HZ, MCA=5.3, MOCP=15.

EDH-1 (ALTERNATE) INDEECO MODEL# QUA-16x10; 7.5 KW @ 208 VOLT – 3ø: PROPORTIONAL HEATING INCLUDE CONTROL OPTION K. CONTROL OPTION K SHALL INCLUDE THE FOLLOWING; DISC TYPE AUTOMATIC AND MANUAL RESET THERMAL CUTOUTS, DIFFERENTIAL PRESSURE AIRFLOW SWITCH, DE-ENERGIZING MAGNETIC CONTACTORS, FUSES, CONTROL CIRCUIT TRANSFORMER W/ 24 VOLT SECONDARY, BUILT-IN SNAP ACTING DISCONNECT SWITCH WITH DOOR INTERLOCK. ALSO PROVIDE WALL MOUNTED LOW VOLTAGE PROPORTIONAL CONTROL THERMOSTAT IN LOCKING COVER.

ATCO As Build 3/31/2011

SEAMAN ENGINEERING CORPORATION
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508-832-3535 fx 508-832-3393

KANG ASSOCIATES, INC
339 BOSTON POST ROAD
SUDBURY, MA

WESTFORD TOWN HALL ADDITION & RENOVATIONS
55 MAIN STREET, WESTFORD, MA

DATE: 09/02/09

SCALE: NO SCALE

HVAC SCHEDULES

H7