AIR HANDLING UNIT SCHEDULE

UNIT No	LOCATION / WEIGHT	AREA SERVED	SUPPLY FAN DATA: CFM SUPPLY	CFM OA	ESP	TSP	FAN TYPE	ARRANGEMENT, INLET ROTATION & DISCHARGE	WHEEL TYPE	WHEEL MIN DIA	MAX RPM	DRIVE	MOTOR NOM HP	MOTOR PHASE VLTGE
1-AC-19	EQUIP ROOM 4B103 22,448	3RD FLOOR	28,000 (24,830)	28,000 (24,830)	3.71	7.40	MPF	-	AF	18.25	3321	BELT	4@25	3-480

UNIT No	WATER COILS (COOLING): MAX FACE VEL (FPM)	MAX SP LOSS	ENT AIR °F DB	ENT AIR °F WB	LVG AIR °F DB	LVG AIR °F WB	CIRCULATING FLUID FLUID	GPM	TEMP IN	TEMP OUT	MAX LOSS FT FLUID	TOT MBH	SENS MBH
1-AC-19	517	0.97	93	75.7	50.5	50.3	CW	464	45	55	13.9	2348	1339

UNIT No	WATER COILS (REDUNDANT COOLING): MAX FACE VEL (FPM)	MAX SP LOSS	ENT AIR °F DB	ENT AIR °F WB	LVG AIR °F DB	LVG AIR °F WB	CIRCULATING FLUID FLUID	GPM	TEMP IN	TEMP OUT	MAX LOSS FT FLUID	TOT MBH	SENS MBH
1-AC-19	517	0.97	93	75.7	50.5	50.3	CW	464	45	55	13.9	2348	1339

UNIT No	WATER COILS (HEATING): MAX FACE VEL (FPM)	MAX SP LOSS	TEMP AIR °F ENT	TEMP AIR °F LVG	CIRCULATING FLUID FLUID	GPM	TEMP IN	TEMP OUT	MAX LOSS FT FLUID	TOT MBH
1-AC-19	517	0.15	0	76.1	HW	165	190	160	4.0	2303

UNIT No	SUPPLY AIR FILTERS: VA GRADE	RATED EFF %	MERV	MAX SP DROP INITIAL	MAX SP DROP FINAL	HOUSING TYPE	FILTERS No	FILTERS SIZE
1-AC-19	-	30	8	0.25	0.65	UP STRM	12 7	24x24 12x24
	-	90-95	14	0.51	1.25	UP STRM	12 7	24x24 12x24

AIR HANDLING UNIT SCHEDULE (CONTINUED)

UNIT No	ENERGY RECOVERY MODULE WINTER CFM EA	WINTER CFM OA	WINTER EXHAUST EAT DB	WINTER EXHAUST LAT DB	WINTER OA SUPPLY EAT DB	WINTER OA SUPPLY LAT DB	SUMMER EXHAUST EAT DB/WB	SUMMER OA SUPPLY EAT DB/WB	SUMMER OA SUPPLY LAT DB/WB	UNIT TYPE
1-AC-19	16300	28000	72	-	11	42	75/63	92/75	83/69	TOTAL ENTHALPY

UNIT No	EXHAUST FAN DATA: CFM EXHAUST	ESP	TSP	FAN TYPE	ARRANGEMENT, INLET ROTATION & DISCHARGE	WHEEL TYPE	WHEEL MIN DIA	MAX RPM	DRIVE	MOTOR NOM HP	MOTOR PHASE VLTGE
1-AC-19	17,440 (13,430)	2.25	3.67	MPF	-	AF	24	1740	BELT	2@15	3-480

UNIT No	EXHAUST AIR FILTERS: VA GRADE	RATED EFF %	MERV	MAX SP DROP INITIAL	MAX SP DROP FINAL	HOUSING TYPE	FILTERS No	FILTERS SIZE
1-AC-19	-	30	8	0.13	0.78	UP STRM	8 12	24x24 12x24

UNIT No	STEAM HUMIDIFIER: NUMBER OF MANIFOLDS	VAPOR TRAIL IN	EAT DB	EAT RH	LAT DB	LAT RH	STEAM PSIG ENT ON/OFF VALVE	STEAM PSIG ENT CNTRL VALVE	CONTROL VALVE LBS/HR	TRAP LBS/HR CAPACITY	BASIS OF DESIGN
1-AC-19	-	24	55	27	55	51	30	30	450	900	YORK CUSTOM AHU (1)

NOTE:

1. SUPPLY FAN AND EXHAUST FAN MOTOR FOR 1-AC-19 CONTROLLED BY A VARIABLE FREQUENCY DRIVE.
2. THE CONTRACTOR SHALL TAKE PRE-DEMOLITION AIR FLOW READINGS FOR EACH OF THE AIR SYSTEMS MAIN BRANCH DUCTS SERVING THE AREAS IN EACH PHASE OF CONSTRUCTION, AND RECORD FOR FUTURE REFERENCE. AT THE COMPLETION OF THE WORK IN EACH PHASE, THE CONTRACTOR SHALL PERFORM AIR BALANCING TO PROVIDE THE REQUIRED AIR FLOW TO THE NEW CONSTRUCTION AREA AND MAINTAIN THE PRE-DEMOLITION AIR FLOW TO THE SPACES TO BE RENOVATED IN FUTURE PHASES OF CONSTRUCTION, AS WELL AS PHASES COMPLETED EARLIER. THIS PHASED BALANCING SHALL INCLUDE ALL AIR SYSTEM UNITS SERVING THE AREA OF CONSTRUCTION.
3. SUPPLY AND EXHAUST FAN TOTAL INCLUDES ENTHALPY WHEEL PURGE (1140 CFM).
4. ENTHALPY WHEEL EFFECTIVENESS - 89.5%.
5. ENTHALPY WHEEL MOTOR - 2.4 FLA.
6. UNIT SHALL NOT EXCEED 119" IN HEIGHT.

PLUME EXHAUST FAN SCHEDULE

SYMBOL	LOCATION	SERVES	TYPE	INLET CFM	BYPASS CFM	ENTRAINED CFM	PLUME HEIGHT	RPM	ESP	NOZZLE OV	DRIVE	HP	VFD	ELECT CHAR	BASIS OF DESIGN:
EF-1	9TH ROOF	LAB EA	PLUME	13,510	3,226	15,731	59 FT	1170	4	4184	BELT	20	YES	3/60/480V	STROBIC AIR
EF-2	9TH ROOF	LAB EA	PLUME	13,510	3,226	15,731	59 FT	1170	4	4184	BELT	20	YES	3/60/480V	STROBIC AIR
EF-3	9TH ROOF	LAB EA	PLUME	13,510	3,226	15,731	59 FT	1170	4	4184	BELT	20	YES	3/60/480V	STROBIC AIR

NOTE:

1. ADJUST BELT DRIVEN FANS TO PROVIDE SYSTEM CFM.
2. PROVIDE SECOND SET OF PULLEYS/SHEAVES/BELTS AFTER INITIAL BALANCING.
3. MANUFACTURER SHALL PROVIDE UNIT DISCONNECT.
4. PLUME HEIGHT BASED ON 10 MPH WIND AND A LOCATION OF 18" ABOVE ROOF LINE.
5. EXHAUST FAN SYSTEM IS N+2 REDUNDANCY.

TEMPORARY PACKAGED AIR HANDLING UNIT SCHEDULE

UNIT No	LOCATION	AREA SERVED	CFM SUPPLY	CFM OA	EXT SP	MOTOR NOM HP	MOTOR PHASE VLTGE	WATER COILS (HEATING) ENT AIR °F DB	ENT AIR °F WB	LVG AIR °F DB	LVG AIR °F WB	CIRCULATING FLUID FLUID	GPM	TEMP IN	TEMP OUT	MAX LOSS FT FLUID	MIN MBH
1-TEMPAC-19	4TH FLR ROOF 5900 LBS	3RD FLOOR	26755	26755	4.0	-	3-480	0	-	80	-	HW	130	180	150	9.5	1920

UNIT No	AIR FILTERS: VA GRADE	RATED EFF %	MAX SP DROP INITIAL	MAX SP DROP FINAL	HOUSING TYPE	FILTERS No	FILTERS SIZE
1-TEMPAC-19	-	-	0.12	0.7	SIDE SERVICE	9 3	24x24x2 12x24x2

NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND REMOVAL OF TEMPORARY AIR HANDLER INCLUDING CRANING.
2. TEMPORARY UNIT SHALL HAVE UNIT CONTROLS CAPABLE OF MAINTAINING A CONSTANT SUPPLY AIR TEMPERATURE OF 55 F. BY MODULATING A TEMPORARY TWO WAY CONTROL VALVE FOR THE WATER COIL. DURING THE COOLING SEASON CONNECT THE TEMPORARY WATER PIPING TO THE 6" CHILLED WATER PIPING CONNECTIONS. DURING THE HEATING SEASON CONNECT TEMPORARY WATER PIPING TO THE 4" HEATING HOT WATER PIPING CONNECTIONS. IN THE HEATING SEASON CONFIGURATION THE CONTRACTOR IS RESPONSIBLE FOR COIL AND WATER PIPING FREEZE PROTECTION AND WILL PROVIDE A TEMPORARY HEAT EXCHANGER, PUMP, GLYCOL MIXTURE AND ALL OTHER ITEMS NECESSARY.
3. TEMPORARY PIPING MUST NOT BE CROSS CONNECTED BETWEEN HEATING AND CHILLED WATER SYSTEMS, WHEN CHANGING FROM HEATING TO COOLING ALL GLYCOL MUST BE FLUSHED OUT OF THE COIL AND FLEX HOSE BEFORE CONNECTING TO THE CHILLED WATER PIPING SYSTEM.
4. THE TEMPORARY UNIT WILL BE LOCATED ON THE ROOF ABOVE THE EQUIPMENT. SUPPORTING OF UNIT SHALL NOT DAMAGE THE EXISTING ROOF. ANY SITE CONDITIONS DAMAGED BY THE CONTRACTOR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR TO MATCH EXISTING CONDITIONS AND THE APPROVAL OF THE FACILITIES ENGINEERING GROUP.
5. THE TEMPORARY UNIT SUPPLY FAN SHALL BE CONTROLLED BY A VARIABLE FREQUENCY DRIVE, PROVIDED BY UNIT MANUFACTURER.
6. PROVIDE FLEXIBLE DUCT MATERIAL FOR CONNECTING THE TEMPORARY HVAC UNITS TO THE AIR DISTRIBUTION SYSTEMS. PROVIDE A MOLECULARLY BONDED, HEAT SEALED, SPRING STEEL WIRE REINFORCED FLEXIBLE HOSE MATERIAL DESIGNED TO PERFORM IN A TEMPERATURE RANGE OF -20 TO 200 DEG. F. MATERIAL FABRIC SHALL BE 10 OZ./SQ. YD. (+/- 10 PERCENT) WITH A 9 BY 9 COUNT SCRIM AND A PVC FILE LAMINATED TO BOTH SIDES. FLEXIBLE DUCTS SHALL BE CONNECTED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. PROVIDE FLEXIBLE WATER HOSES FOR CONNECTING THE TEMPORARY HVAC UNITS TO THE HYDRONIC DISTRIBUTION SYSTEMS. PROVIDE A FLEXIBLE HOSE MATERIAL CONSTRUCTED OF OZONE-RESISTANT EPDM RUBBER WITH HIGH TENSILE TEXTILE REINFORCING CORDS DESIGNED TO PERFORM IN A TEMPERATURE RANGE OF -30 TO 185 DEG. F AND A MAXIMUM PRESSURE RATING OF 150 PSI. PROVIDE MANUFACTURER'S STANDARD COUPLINGS FOR CONNECTING TO THE HYDRONIC DISTRIBUTION SYSTEMS. FLEXIBLE HOSES SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8. THE TEMPORARY UNIT SHALL BE EQUIPPED WITH A FACTORY MOUNTED DISCONNECT SWITCH.

EXHAUST FAN SCHEDULE

SYMBOL	LOCATION	SERVES	TYPE	ROOF OPENING/ LOUVER SIZE	SYSTEM CFM	FAN CFM	RPM	STATIC PRESSURE	TIP SPEED	DRIVE	HP	ELECT CHAR	BASIS OF DESIGN:
EF-4	4TH ROOF	3RD FLR	RE	12.5 x 12.5	300	335	1591	0.5	4529	BELT	1/4	1/60/120V	GREENHECK G-085-VG

NOTE:

1. ADJUST BELT DRIVEN FANS TO PROVIDE SYSTEM CFM.
2. PROVIDE SECOND SET OF PULLEYS/SHEAVES/BELTS AFTER INITIAL BALANCING.

AIR COOLED CHILLER SCHEDULE

SYMBOL	GPM	PD FT	EWT °F	LWT °F	COMPRESSORS RLA	COMPRESSORS QTY	CONDENSOR FANS QTY FANS	CONDENSOR FANS FLA (EACH)	TOTAL KW	PHASE VOLTS	MCA	NOM TONS	EER	UNIT WEIGHT	REMARKS
1-ACC-19	464	22.7	54	45	159 105	1 1	4 4	2.8 2.8	210.9	3/60/460	326	171	9.7	13181	YORK YCIV0177PA46

NOTES:

1. VARIABLE SPEED STARTERS REQUIRED SHALL BE FURNISHED BY MANUFACTURER OF EQUIPMENT.
2. CAPACITIES BASED ON 95°F AMBIENT, 45°F LWT, AND EVAPORATOR TEMP DROP OF 10°F.

TEMPORARY COOLING COIL SCHEDULE (WATER)

SYMBOL	LOCATION	SERVES	CFM	NOMINAL SIZE LXH	FACE VELOCITY	CHILLED WATER COOLING COIL EAT °F DB	EAT °F WB	LAT °F DB	LAT °F WB	SP IN	SENS MBH	FLUID	GPM	EWT °F	LWT °F	WPD	ROWS	TOTAL MBH	REMARKS
TEMPCC-19	ROOF	3RD FLOOR	26755	80x98	401	95	75	47.6	47.6	0.57	1180	CW	387	45	55	16.4	8	1942	-

PUMP SCHEDULE

PUMP No	TYPE FLR MTD/IN-LINE	SYSTEM	OPERATION DUTY/STAND-BY	FLUID TYPE	GPM	FEET HD	EFF %	BHP	MOTOR HP	RPM	ELECTRICAL CHAR	EMERGENCY POWER	VARIABLE FREQ DRIVE	OPERATING CONDITIONS		IMPELLER SIZE	REMARKS
P-1	FLR MTD	CW	DUTY	CW	0	58	-	-	10	1750	3/60/460V	YES	YES	GPM	490	7.875"	BELL & GOSSETT 1510 4BC
					250	58	62	5.9						FT HD	52.5		
					600	46	82	8.5						EFF	80.84		
P-2	FLR MTD	CW	STAND-BY	CW	0	58	-	-	10	1750	3/60/460V	YES	YES	GPM	490	7.875"	BELL & GOSSETT 1510 4BC
					250	58	62	5.9						FT HD	52.5		
					600	46	82	8.5						EFF	80.84		

LINEAR RADIANT CEILING PANEL SCHEDULE

SYMBOL	PANEL WIDTH IN	No TUBES	TUBE SIZE ID	MEAN WATER TEMP °F	WTD °F	BTU/ LF	GPM/ LF	REMARKS
LRADP-1	24"	4	0.5"	170	20	380	0.04	AIRTITE AR-X

NOTES:

1. MINIMUM FLOW RATE PER PIPING CIRCUIT SHALL BE 0.50 GPM.
2. MAXIMUM PRESSURE DROP PER PIPING CIRCUIT SHALL NOT EXCEED 6.0 FT.
3. HEATING CAPACITIES ARE BASED ON 70°F AIR TEMPERATUR E AND AN AVERAGE UNHEATED SURFACE TEMPERATURE OF 70°F NATURAL CONVEC TION.
4. ALL PANELS SHALL BE INSTALLED WALL TO WALL UNLESS INDICATED OTHERWISE.
5. ACTIVE PANEL LENGTH SHALL BE FROM WALL TO WALL LESS SIX (6) INCHES OF INACTIVE PANEL ON EACH END.

EQUIPMENT SOUND POWER LEVEL SCHEDULE

UNIT	COMPONENT	SOUND POWER LEVEL BY OCTAVE BAND 62.5	125	250	500	1000	2000	4000	8000
1-AC-19 SUPPLY FAN	DISCHARGE Lw	90	89	95	102	97	95	92	86
	CASING Lw	84	80	82	83	84	69	61	52
1-AC-19 EXHAUST FAN	DISCHARGE Lw	85	86	89	89	85	81	78	75
	CASING Lw	78	76	75	69	71	54	47	41
EF-1, 2, 3	DISCHARGE Lw	76	83	78	73	72	69	71	62
1-ACC-19	DISCHARGE Lw	96	96	97	99	94	88	83	79

DUCT CONSTRUCTION SCHEDULE

SYSTEM	USE	EXTENT OF DUCTWORK	SMACNA CLASS PRESS.	SMACNA CLASS SEAL	NOTE
1-AC-19	SA	FROM AHU TO TERMINAL BOX	+8"	A	-
	SA	FROM TERMINAL BOX TO DIFFUSER	+3"	B	-
	OA	ALL	-3"	B	-
	EA	FROM GRILLES TO 1-AC-19	-3"	B	-
	EA	FROM 1-AC-19 TO DISCHARGE OUTLET	+3"	B	-
EF-1, 2, 3	EA	FROM EAV TO EF-1, 2, 3	-4"	A	1
BSC HOODS	EA	FROM HOOD TO EAV	-2"	A	-
FUME HOODS HOODS	EA	FROM HOOD/GRILLE TO EAV	-2"	A	1
EF-4	EA	FROM GRILLES TO EF-4	-2"	C	-

NOTES:

1. DUCTWORK FROM FUME HOODS SHALL BE ALL WELDED STAINLESS STEEL.

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