

CONSULTANT
CERTIFICATE OF AUTHORIZATION #: 017869



Friedman Fisher Associates, P.C.

WARNING:
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS "A" MISDEMEANOR.



CONTRACT:
HVAC
TITLE:
REPLACE BUILDING CHILLERS, BUILDING 144
LOCATION:
COOK CHILL PRODUCTION CENTER
145 OLD ORANBURG ROAD
ORANBURG, NY
CLIENT:
OFFICE OF MENTAL HEALTH

MARK	DATE	DESCRIPTION
	12/6/2023	BID DOCUMENTS
PROJECT NUMBER:	47430 - H	
DESIGNED BY:	CHS	
DRAWN BY:	CHS	
FIELD CHECK:		
APPROVED:		
SHEET TITLE:	SCHEDULES	
DRAWING NUMBER:	M-701	
SHEET	12	OF 18

AIR COOLED CHILLER SCHEDULE

TAG	TOTAL COOLING CAPACITY (T-R)	AMBIENT TEMP (°F)	REFRIGERANT	REFRIGERANT CIRCUIT QTY.	REFRIGERANT CIRCUIT 1 NOMINAL CAPACITY (T-R)	REFRIGERANT CIRCUIT 2 NOMINAL CAPACITY (T-R)	COMPRESSOR			EVAPORATOR					CONDENSER		ELECTRICAL						SOUND DATA (SOUND POWER / SOUND PRESSURE)				MAXIMUM DIMENSIONS	MAXIMUM WEIGHT	DESIGN BASIS		NOTES		
							QTY.	KW	TYPE	FLUID	DESIGN GPM	MINIMUM GPM	FLUID PD (FT-H ₂ O)	EWT (°F)	LWT (°F)	# OF FANS	FAN POWER (KW)	VOLTS	PHASE	MCA	MOP	TOTAL POWER (KW)	EER	IPLV / NPLV	100%	75%			50%	25%		MANUFACTURER	MODEL
ACC-1	135.5	95.0	R-513A	2	75	75	2	148.60	SCREW	30% PROPYLENE GLYCOL	291	171	18.2	45.0	57.0	12	10.95	460	3	295	400	160.30	10.14	16.55 / 16.36	101 / 72	94 / 66	92 / 64	89 / 61	274 x 87 x 94	9,628	TRANE	RTAF-150	1, 2, 3, 4
ACC-2	135.5	95.0	R-513A	2	75	75	2	148.60	SCREW	30% PROPYLENE GLYCOL	291	171	18.2	45.0	57.0	12	10.95	460	3	295	400	160.30	10.14	16.55 / 16.36	101 / 72	94 / 66	92 / 64	89 / 61	274 x 87 x 94	9,628	TRANE	RTAF-150	1, 2, 3, 4

- LISTED CAPACITY IS UNIT PERFORMANCE AT DESIGN CONDITIONS.
- CHILLER TO CONTAIN TWO REFRIGERANT CIRCUITS. EACH CIRCUIT TO PROVIDE 1/2 OF TOTAL COOLING CAPACITY (+/- 10%), RESPECTIVELY.
- INCLUDE MANUFACTURER'S FULL PARTS AND LABOR EXTENDED WARRANTY ON CHILLER.
- PROVIDE WITH INTEGRAL EVAPORATOR HEATER, INTEGRAL CONVENIENCE OUTLET (SEPARATE 120V CIRCUIT FOR EACH BY THE E-CONTRACT), AND FACTORY INSTALLED AND WIRED FLOW SWITCH.

PUMP SCHEDULE

TAG	TYPE	LOCATION	SERVICE	CAPACITY					NPSH _r	IMPELLER DIAMETER (IN.)	MOTOR			DESIGN BASIS		NOTES	
				FLUID	GPM	HEAD (FT)	SUCTION	DISCHARGE			EFF.	RPM	HP	ELECTRICAL	MANUFACTURER		MODEL
P-1	BASE MOUNTED, DOUBLE SUCTION	BASEMENT MECHANICAL ROOM B-14	CHILLED WATER PRIMARY PUMP	30% PROPYLENE GLYCOL	305	110	4"	3"	75%	10 FT	12.0	1750	20.0	480 / 3 / 60	WEINMAN	3L-6	1, 2, 3
P-2	BASE MOUNTED, DOUBLE SUCTION	BASEMENT MECHANICAL ROOM B-14	CHILLED WATER PRIMARY PUMP	30% PROPYLENE GLYCOL	305	110	4"	3"	75%	10 FT	12.0	1750	20.0	480 / 3 / 60	WEINMAN	3L-6	1, 2, 3

- NOTE:
- PROVIDE PUMP WITH PREMIUM EFFICIENCY MOTOR RATED FOR USE WITH A VARIABLE SPEED DRIVE. REFER TO VARIABLE FREQUENCY DRIVE SCHEDULE ON THIS DRAWING.
 - PUMPS P-1 AND P-2 WILL OPERATE IN A LEAD-LAG OPERATION WITH THE ABILITY FOR BOTH PUMPS TO OPERATE SIMULTANEOUSLY.
 - PROVIDE OVERSIZED IMPELLER LISTED IN THE SCHEDULE, BALANCE PUMP SPEED WITH VFD TO ACHIEVE DUTY POINT LISTED.

HYDRONIC SPECIALTIES SCHEDULE

TAG	DESCRIPTION	SERVICE	DESIGN BASIS		NOTES
			MANUF.	MODEL	
CF-1	CHEMICAL POT FEEDER / FILTER	CHILLED WATER SYSTEM 30% PROPYLENE GLYCOL	WESSELS	4NBF14-1	1
RV-1	PRESSURE RELIEF VALVE	CHILLED WATER SYSTEM 30% PROPYLENE GLYCOL	B&G	1170	2
TDV	TRIPLE DUTY VALVE	CHILLED WATER SYSTEM 30% PROPYLENE GLYCOL	B&G	3DS-4S	3

- NOTES:
- PROVIDE WITH THE FOLLOWING ACCESSORIES
 - 1" SIGHT FLOW INDICATOR - MODEL #3086
 - 5 MICRON FILTER BAG BOX, QUANTITY 25 - MODEL #BFPEP4X3
 - SINGLE INSERTION MAGNET - MODEL #WMA1-1
 - COIL HOOK UP KIT - MODEL #VALVE KIT - 1
 - 50 PSI RELIEF SETTING, 1" INLET, 1" OUTLET
 - 4" FLANGED CONNECTIONS, 3.41 FT HD MAX. PRESSURE DROP AT DESIGN FLOW.

EXPANSION TANK SCHEDULE

TAG	SERVICE	TYPE	FLUID	TOTAL VOLUME	ACCEPTANCE VOLUME (GAL)	FILL PRESSURE (PSI)	MAXIMUM OPERATING PRESSURE (PSI)	DESIGN BASIS MANUF.	DESIGN BASIS MODEL	NOTES
ET-1	CHILLED WATER SYSTEM	BLADDER	30% PROPYLENE GLYCOL	23	23	20	125	B&G	B-85	1

- NOTES:
- PROVIDE REPLACEABLE BLADDER, TANK PRESSURE GAUGE, BLADDER INTEGRITY MONITOR, CHARGING VALVE, AND BOTTOM DRAIN.

VARIABLE FREQUENCY DRIVE SCHEDULE

TAG	EQUIPMENT SERVED	DRIVE TYPE	MOTOR		DRIVE ACCESSORIES			DESIGN BASIS		NOTES	
			HP	ELECTRIC	BY-PASS	INPUT CIRCUIT BREAKER (AMPS)	L REACTOR	COMM INTERFACE	MANUF.		MODEL
P-1	CHILLED WATER PUMP P-1	VFD	20	480-3-60	YES	YES, (40A)	L1	C1	ABB	ACH580-VCR-027A-4-F267	1, 2, 3
P-2	CHILLED WATER PUMP P-2	VFD	20	480-3-60	YES	YES, (40A)	L1	C1	ABB	ACH580-VCR-027A-4-F267	1, 2, 3

- ACCESSORY NOTES:
- PROVIDE COMMUNICATIONS CARD FOR INTERFACE WITH EXISTING HONEYWELL BUILDING AUTOMATION SYSTEM, SEAMLESSLY INTEGRATE VFD OPERATION INTO THE EXISTING HONEYWELL SYSTEM.
 - PROVIDE STANDARD SIZE DC CHOKE.
- DRIVE NOTES:
- PROVIDE WITH NEMA 1 ENCLOSURE. INPUT CIRCUIT BREAKER FOR CIRCUIT PROTECTION & DISCONNECT USE - ACCESSIBLE ON FRONT OF CABINET DOOR, WITH TRIP RATING AS SCHEDULED.
 - LABEL DRIVES WITH EQUIPMENT TAGS, SOURCE POWER PANEL #, CIRCUIT # AND VFD VOLTAGE
 - FURNISH VFD TO THE E-CONTRACT. E-CONTRACT SHALL INSTALL VFD.
- STANDARD FEATURES:
- INVERTER SHALL USE IGBTs ONLY, WITH PWM CIRCUIT.
 - VSD SHALL INCLUDE (2) 0-10 VDC INPUTS, (2) 0-10 VDC OUTPUTS, FAULT CONTACTS, AND 1 SPACE SET OF PROGRAMMABLE RELAY CONTACTS.

FLOW METER SCHEDULE

TAG	SERVICE	TYPE	FLUID	PIPE CONNECTION	MAXIMUM OPERATING PRESSURE (PSI)	VOLTAGE	DESIGN BASIS MANUF.	DESIGN BASIS MODEL	NOTES
FM-1	CHILLED WATER SYSTEM	ELECTROMAGNETIC	30% PROPYLENE GLYCOL	8" FLANGED	125	120/160	BADGER METER	MODMAG M5000	1

- PROVIDE WITH: 304 STAINLESS STEEL CONNECTION AND HOUSING, PTFE LINER, HASTELLOY C-22 MEASURING ELECTRODES, 304 STAINLESS STEEL GROUNDING RING, REMOTE MOUNTED DISPLAY WITH ALUMINUM IP67 ENCLOSURE AND MOUNTING BRACKET, REMOTE MOUNTED DISPLAY CABLE - COORDINATE LENGTH WITH FIELD MOUNTING LOCATIONS, 120V POWER CONNECTION WITH INTEGRAL BATTERY BACKUP, STAINLESS STEEL IP67 JUNCTION BOX ENCLOSURE, MODBUS RS-485 COMMUNICATION WITH THE BUILDING AUTOMATION SYSTEM (COORDINATE GATEWAY CONTROLLER TO INTEGRATE INTO THE EXISTING BUILDING AUTOMATION SYSTEM).

GLYCOL FEED SYSTEM SCHEDULE

TAG	STORAGE CAPACITY (GALLONS)	PUMP			ELEC.	DESIGN BASIS		NOTES
		GPM	ON PSIG	OFF PSIG		MANUFACTURER	MODEL	
GF-1	50	1.5	15	20	120 V	NEPTUNE	G-50-1A	1, 2

- PROVIDE WITH: POLYETHYLENE TANK MOUNTED ON STEEL FRAME, BRONZE ROTARY GEAR PUMP, FLOAT SWITCH, LOW LEVEL LIGHT AND ALARM. CONTROL PANEL SHALL BE FACTORY WIRED AND PIPED.
- FILL GLYCOL PIPING SYSTEM WITH 30% PROPYLENE GLYCOL AND 70% WATER BY VOLUME.