AIR-COOLED WATER CHILLER

DESIGNATION	REFERENCE PRODUCT	TOTAL CAPACITY (TONS)	OPERATING WEIGHT (LBS)	REFRIGERANT TYPE	COMPRESSOR TYPE	No. OF COMPRESSORS	EVAPORATOR: WATER FLOW RATE (GPM)	EVAPORATOR: EWT / LWT (°F)	EVAPORATOR: PRESSURE DROP (FT. WATER)	CONDENSING: AIR TEMPERATURE (°F)	FOULING FACTOR	ELECTRICAL: TOTAL ENERGY (KW)	VOLTS / PHASE	FLA CKT-1	FLA CKT-2	MCA CKT-1	MCA CKT-2	MOP CKT-1	MOP CKT-2	EER AT FULL LOAD	REMARKS
CH-1	TRANE RTAA130	125	11,200	HCFC-22	ROTARY SCREW	2	300	55/45	16.0	105	0.00010	172.0	208/3	314	313	383	389	600	600	8.2	FURNISH W/ CONTROL POWER TRANSFORMER, EMCS INTERFACE (4-20 mA SETPOINT RESET), 15° LOW AMBIENT OPERATION, NEOPRENE ISOLATORS, CONDENSER COIL PROTECTION, AND TWO INDEPENDENT CIRCUITS.

BOILERS (HEATING WATER)

DESIGNATION	REFERENCE PRODUCT	LOCATION	TYPE	FUEL	NAT. GAS INPUT (MBH)	HEATING OUTPUT (MBH)	WATER FLOW RATE (GPM)	EWT / LWT (°F)	WATER PRESSURE DROP (PSI)	MINIMUM GAS PRESSURE (IN. WATER)	RELIEF VALVE SETTING (PSIG)	RATED PRESSURE (PSIG)	FLUE DIAMETER (IN.)	OPERATING WEIGHT (LBS)	ELECTRICAL: PUMP MOTOR (HP)	VOLTS/PHASE	CONTROLS (AMPS/VOLTS)	REMARKS
B-1	RAYPAK TYPE H	MECHANICAL ROOM	ATMOSPHERIC COPPER TUBE	NATURAL GAS	1223	1002	50	140.0/180.0	3.9	7	60	160	16	900	1/2	120/1	5 / 120	FURNISH BOILER WITH CONTROL PANEL, EMCS INTERFACE, (4-20Ma SETPOINT RESET), DRAFT HOOD, RELIEF VALVE, GAS PRESSURE REGULATOR, AND ELECTRONC FLAME SAFEGUARD.
B-2	RAYPAK TYPE H	MECHANICAL ROOM	ATMOSPHERIC COPPER TUBE	NATURAL GAS	1223	1002	50	140.0/180.0	3.9	7	60	160	16	900	1/2	120/1	5 / 120	

WATER HEATERS

DESIGNATION	REFERENCE PRODUCT	LOCATION	TYPE	FUEL	NAT. GAS INPUT (MBH)	HEATING OUTPUT (MBH)	WATER FLOW RATE (GPM)	EWT / LWT (°F)	WATER PRESSURE DROP (PSI)	MINIMUM GAS PRESSURE (IN. WATER)	RELIEF VALVE SETTING (PSIG)	RATED PRESSURE (PSIG)	FLUE DIAMETER (IN.)	OPERATING WEIGHT (LBS)	ELECTRICAL: PUMP MOTOR (HP)	VOLTS/PHASE	CONTROLS (AMPS/VOLTS)	REMARKS
WH-1	RAYPAK TYPE W	MECHANICAL ROOM	ATMOSPHERIC COPPER TUBE	NATURAL GAS	1223	1002	50	80.0/120.0	3.9	7	125	160	16	900	1/2	120/1	5 / 120	FURNISH EACH WATER HEATER WITH CONTROL PANEL, EMCS INTERFACE, (4-20Ma SETPOINT RESET), DRAFT HOOD, RELIEF VALVE, GAS PRESSURE REGULATOR AND ELECTRONIC FLAME SAFEGUARD.
WH-2	RAYPAK TYPE W	MECHANICAL ROOM	ATMOSPHERIC COPPER TUBE	NATURAL GAS	1223	1002	50	80.0/120.0	3.9	7	125	160	16	900	1/2	120/1	5 / 120	

PUMPS

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	WATER FLOW RATE (GPM)	TOTAL HEAD (FT. WATER)	ROTATION (RPM)	EFFICIENCY (%)	MOTOR SIZE: BHP	MOTOR SIZE: MHP	ELECTRICAL: VOLTS	ELECTRICAL: PHASE	REMARKS
CP-1	GROUND FOS UPS40-80/4	MECHANICAL ROOM	BOILER B-1	IN-LINE CENTRIFUGAL	50	18	–	46	1/2	1/2	120	1	CAST IRON CONSTRUCTION
CP-2	GROUND FOS UPS40-80/4	MECHANICAL ROOM	BOILER B-2	IN-LINE CENTRIFUGAL	50	18	–	46	1/2	1/2	120	1	CAST IRON CONSTRUCTION
PCHP-1	ARMSTRONG 4300 5x5x8	MECHANICAL ROOM	PRIMARY CHILLED WATER	VERTICAL IN-LINE	300	50	1750	75	5.1	7.5	208	3	
SCHP-1	ARMSTRONG 4300 4x4x10	MECHANICAL ROOM	SECONDARY CHILLED WATER	VERTICAL IN-LINE	300	80	1750	71	8.5	10	208	3	
SCHP-2	ARMSTRONG 4300 4x4x10	MECHANICAL ROOM	SECONDARY CHILLED WATER	VERTICAL IN-LINE	300	80	1750	71	8.5	10	208	3	
HWP-1	ARMSTRONG 4300 3x3x10	MECHANICAL ROOM	HEATING WATER	VERTICAL IN-LINE	80	80	1750	54	3.0	5	208	3	
HWP-2	ARMSTRONG 4300 3x3x10	MECHANICAL ROOM	HEATING WATER	VERTICAL IN-LINE	80	80	1750	54	3.0	5	208	3	
CP-3	GROUND FOS UPS40-80/4	MECHANICAL ROOM	WATER HEATER WH-1	IN-LINE CENTRIFUGAL	50	18	–	46	1/2	1/2	120	1	ALL BRONZE CONSTRUCTION
CP-4	GROUND FOS UPS40-80/4	MECHANICAL ROOM	WATER HEATER WH-2	IN-LINE CENTRIFUGAL	50	18	–	46	1/2	1/2	120	1	ALL BRONZE CONSTRUCTION
HW/R P-1	GROUND FOS UP26-99	MECHANICAL ROOM	DOMESTIC HOT WATER RETURN	IN-LINE CENTRIFUGAL	6	28	–	–	–	1/6	120	1	ALL STAINLESS STEEL CONSTRUCTION

VARIABLE FREQUENCY DRIVES*

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	APPLICATION	RATED HORSEPOWER	EFFICIENCY (%)	VOLTS	PHASE	MAX. OUTPUT CURRENT (AMPS)	REMARKS
VFD-SCHP1	ABB	MECHANICAL ROOM	SCHP-1	PWM	VARIABLE TORQUE	10	–	208	3	–	FURNISH W/ MANUAL BYPASS, INPUT DISCONNECT SWITCH, INPUT LINE REACTORS, AND EMCS INTERFACE
VFD-SCHP2	ABB	MECHANICAL ROOM	SCHP-2	PWM	VARIABLE TORQUE	10	–	208	3	–	FURNISH W/ MANUAL BYPASS, INPUT DISCONNECT SWITCH, INPUT LINE REACTORS, AND EMCS INTERFACE
VFD-HWP1	ABB	MECHANICAL ROOM	HWP-1	PWM	VARIABLE TORQUE	5	–	208	3	–	FURNISH W/ MANUAL BYPASS, INPUT DISCONNECT SWITCH, INPUT LINE REACTORS, AND EMCS INTERFACE
VFD-HWP2	ABB	MECHANICAL ROOM	HWP-2	PWM	VARIABLE TORQUE	5	–	208	3	–	FURNISH W/ MANUAL BYPASS, INPUT DISCONNECT SWITCH, INPUT LINE REACTORS, AND EMCS INTERFACE

*VARIABLE FREQUENCY DRIVES ARE SPECIFIED IN SECTION 15900

EXPANSION TANKS

DESIGNATION	REFERENCE PRODUCT	SERVES	TYPE	SYSTEM VOLUME (GAL)	MINIMUM TEMPERATURE (°F)	MAXIMUM TEMPERATURE (°F)	INITIAL TANK AIR PRESSURE (PSIG)	MAXIMUM PRESSURE (PSIG)	MINIMUM TANK SIZE (GAL)	MINIMUM ACCEPTANCE (GAL)	TANK DIAMETER (IN.)	TANK LENGTH (IN.)	REMARKS
ET-1	WHEATLEY WFA-140	CHILLED WATER	EXPANSION (DIAPHRAGM)	2000	40	100	12	75	37	37	20	40	FULL ACCEPTANCE
ET-2	WHEATLEY WFA-215	HEATING WATER	EXPANSION (DIAPHRAGM)	1000	40	180	12	75	57	57	20	54	FULL ACCEPTANCE
ET-3	AMTROL ST-25V	DOMESTIC HOT WATER	EXPANSION (DIAPHRAGM)	600	40	140	75	125	10	10	16	19	FULL ACCEPTANCE (NSF APPROVED)

STORAGE TANKS

DESIGNATION	REFERENCE PRODUCT	SERVES	TYPE	SYSTEM VOLUME (GAL)	MINIMUM TEMPERATURE (°F)	MAXIMUM TEMPERATURE (°F)	INITIAL TANK AIR PRESSURE (PSIG)	MAXIMUM PRESSURE (PSIG)	MINIMUM TANK SIZE (GAL)	MINIMUM ACCEPTANCE (GAL)	TANK DIAMETER (IN.)	TANK LENGTH (IN.)	REMARKS
ST-1	RAYPAK	WH-1 & 2	LINED STEEL	X	X	X	X	150	115	X	28*	60*	FURNISH WITH OPENINGS AS DETAILED ON SHEET P7

* INCLUDES INSULATED JACKET

EXHAUST FAN

DESIGNATION	REFERENCE PRODUCT	TYPE	SERVES	AIR FLOW RATE (CFM)	TOTAL STATIC PRESSURE (IN. WATER)	ROTATION (RPM)	DRIVE	SONES	MOTOR SIZE: WATTS	MOTOR SIZE: MHP	ELECTRICAL: VOLTS	ELECTRICAL: PHASE	REMARKS
EF-1 THRU EF-5	ACME VQL100	INLINE CENTRIFUGAL	GENERAL EXHAUST	100	0.25	650	DIRECT	1.3	87	–	120	1	
EF-6	ACME FQ18E6	WALL MTD. PROPELLER	MECHANICAL ROOM	2500	0.25	1158	BELT	7.7	0.24	1/4	120	1	FURNISH WITH BACK GUARD, WALL COLLAR, SOLID STATE SPEED CONTROLLER, AND MOTORIZED WALL SHUTTER.

UNIT HEATERS – (HOT WATER)

DESIGNATION	REFERENCE PRODUCT	SERVES	HEATING CAPACITY (MBH)	AIR FLOW RATE (CFM)	AIR EDB / LDB (°F)	WATER FLOW RATE (GPM)	WATER PRESSURE DROP (FT. WATER)	EWT / LWT (°F)	ROTATION (RPM)	MOTOR SIZE (MHP)	ELECTRICAL: VOLTS/PHASE	REMARKS
UH-1	TRANE UHSA 090W	MECHANICAL ROOM	36.7	1214	60 / 88	2.52	0.19	180/150	1550	1/8	120 / 1	

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	NEW EQUIPMENT
PCHS	PRIMARY CHILLED WATER SUPPLY
PCHR	PRIMARY CHILLED WATER RETURN
SCHS	SECONDARY CHILLED WATER SUPPLY
SCHR	SECONDARY CHILLED WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
D	CONDENSATE DRAIN
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE (SWING CHECK)
	CHECK VALVE (BUTTERFLY CHECK)
	STRAINER W/ DRAIN VALVE
	UNION
	CONTROL VALVE (2-WAY) ELECTRIC OR ELECTRONIC
	FLEXIBLE PIPE CONNECTOR
A H	AIR VENT (A – AUTO, H – HAND)
	PRESSURE AND TEMPERATURE TAP
	PRESSURE GAUGE
	PRESSURE GAUGE W/ SIPHON
	THERMOMETER W/ SEP. WELL
	ANCHOR
	PIPE GUIDE
	FLANGE
	VALVE AT RISER
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	RISE OR DROP IN PIPE
	TEE, SIDE CONNECTION
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	CAPPED OUTLET
	CAPPED PIPE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	DIRECTION OF PITCH
TFD	PIPE TO FLOOR DRAIN

SYMBOL	DESCRIPTION
	ELL WITH TURNING VANES
	STREAMLINE TAP
	CONICAL TAP
	MANUAL VOLUME DAMPER
	CONTROL DAMPER
	FIRE DAMPER (FD)
20/12	RECTANGULAR DUCT (WIDTH/DEPTH)
	ROUND DUCT OFFSET
R	CHANGE IN ELEVATION (R – RISE, F – FALL)
	FLEXIBLE DUCT
	SUPPLY DUCT UP
	RETURN DUCT UP
	EXHAUST DUCT UP
	SUPPLY DUCT DOWN
	RETURN DUCT DOWN
	EXHAUST DUCT DOWN
	CEILING DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
AP	ACCESS PANEL
AP	ACCESS PANEL IN ROUND OR OVAL DUCT
X|X X	TYPE – THROW | SUPPLY AIR CFM | DEVICE
X X	TYPE | RETURN/EXHAUST CFM | AIR DEVICE
T	THERMOSTAT
SA	SUPPLY AIR DUCT
RA	RETURN AIR DUCT
EH	EXHAUST AIR DUCT
OBD	OPPOSED BLADE DAMPER
CFM	CUBIC FEET PER MINUTE
Φ	ROUND DIAMETER

SYMBOL	DESCRIPTION
	SANITARY SEWER (SS)
	SANITARY VENT (V)
SD	STORM DRAIN
	COLD WATER (CW)
	HOT WATER (HW)
	HOT WATER RETURN (HWR)
G	EQUIPMENT NATURAL GAS
F	FIRE PROTECTION PIPING
D	FIRE PROTECTION DRAIN
	SPRINKLER HEAD
	PRESSURE REDUCING VALVE
P-1	PLUMBING FIXTURE DESIGNATION
FD	FLOOR DRAIN
RD	ROOF DRAIN
VTR	VENT THRU ROOF
CO	CLEANOUT PLUG
FCO	FLOOR CLEANOUT
WCO	WALL CLEANOUT
COTG	CLEANOUT TO GRADE
2-WAY COTG	TWO WAY CLEANOUT TO GRADE
1 / P7	RISER DESIGNATION / SHEET NUMBER

ENERGY RECOVERY UNIT

DESIGNATION		ERU-5, 6, 7, 9, 11, 13, 14 16, 18, 19, 20, 22, 30, 45 46, 47, 49, 51, 52, 53, 54 56, 58, 59, 60, 62	ERU-1, 2, 3, 4, 8, 10, 12, 15 17, 21, 23, 24, 25, 41, 42 43, 44, 48, 50, 55, 57, 61, 63, 64, 65, 67, 70, 76	ERU-26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 66, 67, 68, 69, 71, 72, 73, 74, 75, 76
MANUFACTURER/MODEL		BROAN ERV100HC	BROAN ERV100HC	NOT USED
CASING INSULATION		THERMAL ACOUSTIC	THERMAL ACOUSTIC	
TYPE		ENTHALPIC CORE	ENTHALPIC CORE	
MAXIMUM UNIT LENGTH (INCHES)		30	30	
MAXIMUM UNIT WIDTH (INCHES)		20	20	
MAXIMUM UNIT HEIGHT (INCHES, INCLUDES BASE RAIL)		14	14	
SERVES		GENERAL EXHAUST	GENERAL EXHAUST	
SHIPPING SPLITS		NONE	NONE	
TOTAL OSA FLOW (SCFM)		100	125	
SPACE VENTILATION AIR FLOW (SCFM)		100	125	
PURGE AIR FLOW (SCFM)		0	0	
SPACE EXHAUST AIR FLOW (SCFM)		100	125	
TOTAL EXHAUST AIR FLOW (SCFM)		100	125	
SUMMER CONDITIONS	OSA EDB/EWB (°F)	99/76	99/76	
	VENTILATION AIR LDB/LWB (°F)	87/70	87/70	
	SPACE EXHAUST AIR EDB/EWB (°F)	72/60	72/60	
	ENERGY RECOVERY (MBH)	2.6	3.3	
	SENSIBLE EFFECTIVENESS (%)	45	45	
	LATENT EFFECTIVENESS (%)	45	45	
WINTER CONDITIONS	OSA EDB/EWB (°F)	15/12	15/12	
	VENTILATION AIR LDB/LWB (°F)	55/41	55/41	
	SPACE EXHAUST AIR EDB/EWB (°F)	70/53	70/53	
	ENERGY RECOVERY (MBH)	4.3	5.4	
	SENSIBLE EFFECTIVENESS (%)	81	81	
	LATENT EFFECTIVENESS (%)	41	41	
VENTILATION FAN	AIR FLOW (CFM)	100	125	
	EXTERNAL STATIC PRESSURE (INCHES WG)	0.6	0.6	
	FAN RPM	1113	1179	
EXHAUST FAN	AIR FLOW (CFM)	100	125	
	EXTERNAL STATIC PRESSURE (INCHES WG)	0.6	0.6	
	FAN RPM	1113	1179	
ELECTRICAL	VOLTS	120	120	
	PHASE	1	1	
	AMPS	1.3	1.3	
REMARKS:		FURNISH WITH BLOWER INTERLOCK AND FILTERS.		

AIR EDUCATION & TRAINING COMMAND

LITTLE ROCK A.F.B.
ARKANSAS

No.	Revision/Issue	Date	BY	APP'D
1	No Changes from Design to As-Built			

PROJECT TITLE
TEMPORARY LODGING FACILITY

SHEET TITLE
MECHANICAL SCHEDULES AND LEGEND
AS-BUILT

DRAWN BY: TNS	LEAD DESIGNER: WET
TECH REVIEWER:	FILE LOCATION:
DESIGNED BY: TNS	PROJECT NUMBER: NKAK02-5001
DATE: 28 MAY 2002	SHEET: MP19
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