

PUMPS																										
MARK		P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12	P-13	P14	FUTURE P15	P-16	P-17	P-18	P-19		JP-1	GPS-1	GPS-2	BWP-1	
LOCATION		MECH ROOM	MECH ROOM	MECH ROOM	CHILLER RM	CHILLER RM	CHILLER RM	CHILLER RM	CHILLER RM	CHILLER RM	CHILLER RM	CHILLER RM	LEVEL 5	LEVEL 5	MECH ROOM	MECH ROOM	LEVEL 5	LEVEL 5	LEVEL 1	LEVEL 1	MECH ROOM	MECH ROOM	MECH ROOM	MECH ROOM	MECH ROOM	
SERVES		HEATING	HEATING	HEATING	CHILLED	CHILLED	CHILLED	CHILLED	CONDENSER	CONDENSER	CONDENSER	CONDENSER	RECOVERY	RECOVERY	LLHWC	HLHWC	PROC CHW	PROC CHW	PROC CHW	PROC CHW	SPRINKLER	SPRINKLER	HEAT RECOV.	PROC CHW	BOOSTER WTR	
CAPACITY	FLOW: GPM	480	480	480	400	400	400	400	750	750	750	750	365	365	32	24	200	200	50	50	750	10	3	3	45	
	TDH: FT	100	100	100	75	75	75	75	90	90	90	90	75	75	25	27	60	60	105	105	254	289	100	100	60	
	EFFICIENCY: %	72	72	72	68	68	68	68	83	85	85	85	82	82	—	—	71	71	46	46	70	49	—	—	54	
TYPE	DESCRIPTION	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	CIRC	CIRC	VERT INLINE	VERT INLINE	VERT INLINE	VERT INLINE	FIRE PUMP	JOCKEY PUMP	PERIPHERAL	PERIPHERAL	CENT	
	RPM	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	3,600	3,600	3,550	3,450	2,900	2,900	1,800	
	MAX BHP	16.89	16.89	16.89	11.1	11.1	11.1	11.1	20.5	20.5	20.5	20.5	12	12	—	—	4.28	4.28	2.9	2.9	—	—	—	—	1.25	
	MOTOR HP	20	20	20	15	15	15	15	25	25	25	25	15	15	1/2	1/2	5	5	5	5	75	2	1/2	1/2	(3) 2	
	VOLT/PHASE	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	120/1	120/1	460/3	
	CONTROL	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	DDC	PACKAGED	PACKAGED	PRESS SW.	PRESS SW.	PACKAGED
	VFD	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	YES	YES	PACKAGED	PACKAGED	NO	NO	PACKAGED
	SUCT CONN: IN	4	4	4	4	4	4	4	4	6	6	6	6	6	6	1 1/2	1 1/2	3	3	1 1/2	1 1/2	6	1 1/4	—	—	1 1/2
	DISCH CONN: IN	4	4	4	4	4	4	4	4	6	6	6	6	6	6	1 1/2	1 1/2	3	3	1 1/2	1 1/2	4	1 1/4	—	—	1 1/2
	IMP DIA: IN	11.02	11.02	11.02	9.92	9.92	9.92	9.92	9.92	10.22	10.22	10.22	10.22	9.25	9.25	—	—	8.2	8.2	5.76	5.76	8 1/2	—	—	—	8.19
BASE TYPE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NONE	NONE	—	—	—	—	PACKAGED	PACKAGED	NONE	NONE	PACKAGED	
BASIS OF DESIGN	SUCT DIFFUSER	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NONE	NONE	YES	YES	YES	YES	PACKAGED	PACKAGED	NONE	NONE	—	
	MANUFACTURER	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	
	MODEL	4300	4300	4300	4300	4300	4300	4300	4300	4300	4300	4300	4300	4300	4300	SERIES H	SERIES H	4300	4300	4300	4300	L-F-VIL	4700	GLA-U-LP-1	GLA-U-LP-1	6733
	SIZE	4x4x11.5	4x4x11.5	4x4x11.5	4x4x10	4x4x10	4x4x10	4x4x10	4x4x10	6x6x11.5	6x6x11.5	6x6x11.5	6x6x11.5	6x6x10	6x6x10	H53	H53	3x3x10	3x3x10	1 1/2x1-1/2x6	1 1/2x1 1/2x6	6x4 LB-F	VMS 0308	—	—	1.5x1.5x8
	NOTES	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1] FUTURE	[1]	[1]	[1]	[1] FUTURE	[1, 3]	[1, 3]	[1, 6]	[1, 6]	[1]	[1]	[1]	[1, 2]	[1, 2]	[3]	[3]	[1, 4, 5]

- NOTES:
1. PUMP ON EMERGENCY POWER.
 2. PACKAGED SYSTEM CONTAINS BOTH FP-1 AND FP-2; PROVIDE WITH OPTIONAL TRANSFER SWITCH; TOTAL WEIGHT IS 2545 POUNDS.
 3. SYSTEM FLUID PROPYLENE GLYCOL 20%.
 4. PROVIDE DRAWDOWN TANK 125PSI 132 GAL. 57"Hx30" DIAMETER, 330LBS, SKID MOUNTED.
 5. PACKAGED WITH THREE VARIABLE SPEED PUMPS EACH 45 GPM.
 6. ALL BRONZE CONSTRUCTION.

PLUMBING DRAINS																				1
MARK		AD1	PD1	PD2	RD1	OD1	RD2	OD2	ON1	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	
DESCRIPTION	FIXTURE	AREA DRAIN	AREA DRAIN	AREA DRAIN	ROOF DRAIN	OVERFLOW	ROOF DRAIN	OVERFLOW	DOWNSPOUT	FLOOR DRAIN	FLOOR DRAIN	FLOOR SINK	HUB DRAIN	FLOOR DRAIN	FLOOR SINK	FLOOR DRAIN	DRAIN	DRAIN	DRAIN	
	TYPE	FLUSH	DOME	DOME	DOME	DOME	CORNIC	CORNIC	NOZZLE	STD DUTY	STD DUTY	STD DUTY	STD DUTY	HVY DUTY	HVY DUTY	HVY DUTY	TRENCH	STD DUTY	STD DUTY	
SIZE	PIPE SIZE: IN	—	—	—	—	—	3	3	—	—	—	—	2	—	4	3	4	—	2	
	SIZE: IN	12	12	12	15	15	5	5	—	5x5	5x5	12x12	4	9	12x12	12 DIA	—	12" DIA	5 DIA	
	TRAP PRIMER: IN	—	—	—	—	—	—	—	—	1/2	—	1/2	1/2	1/2	—	—	—	—	—	
MATERIAL	BODY	DCCI	DCCI	DCCI	DCCI	DCCI	DCCI	DCCI	NB	DCCI	DCCI	PCCI	DCCI	DCCI	DCCI	DCCI	DCCI	DCCI	DCCI	
	STRAINER / GRATE	CI	CI	CI	CI	CI	ZN	CI	—	NB	NB	PCCI	DCCI	NB	SS	DCCI	DCCI	NB	NB	
BASIS OF DESIGN	MANUFACTURER	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	ZURN	JR SMITH	ZURN	JR SMITH	
	MODEL	Z154-DT	Z348	Z348	Z100	Z100	ZN181-HD	Z127-EHD	Z199	ZN415S	ZN415S	Z1900-2	Z1030	ZN520	Z1901-2	2147	Z794-TS	DX3068	Z415BL	
	NOTES	[1, 2]	[1, 2, 6]	[1, 2, 3, 6]	[1, 2]	[1, 2, 3]	[1, 2]	[1, 2, 5]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1, 4]	[7]			

- NOTES:
1. SIZE AS INDICATED ON PLANS.
 2. PROVIDE WITH UNDERDECK CLAMP, ROOF SUMP RECEIVER AND SECONDARY CLAMP.
 3. PROVIDE WITH 2" HIGH INTERNAL WATER DAM.
 4. GRATE WITH FRAME.
 5. PROVIDE WITH 2" HIGH EXTENSION.
 6. PROVIDE STAINLESS STEEL MESH OVER DOME.
 7. PROVIDE WITH ACID RESISTANT INTERIOR COATING, ALUMINUM SEDIMENT BUCKET, AND VANDAL PROOF GRATE.

AIR CONDITIONING UNITS - SPLIT SYSTEM															
MARK		ACU-1A	ACU-1B	ACU-1C	ACU-2A	ACU-2B	ACU-3A	ACU-3B	ACU-4A	ACU-4B	ACU-5A	ACU-5A	ACU-6A	ACU-6B	ACU-6C
SERVES		ELEV MACH	ELEV MACH	ELEV MACH	IS 1087	IS 1087	IS 2136	IS 2136	IS 3142	IS 3142	IS 4152	IS 4152	ELEV MACH	ELEV MACH	ELEV MACH
LOCATION		STOR 1004	PKG 1001	PKG 1001	IS 1087	PKG 1001	IS 2136	PKG 1001	IS 3142	ROOF LEVEL 5	IS 4152	ROOF LEVEL 5	MECH 9003	MECH 9003	MECH 9003
CAPACITY		SUP/RET	—	—	SUP/RET	—	SUP/RET	—	SUP/RET	—	SUP/RET	—	SUP/RET	—	—
		NOM CLG: TONS	8.0	—	—	—	3.0	—	—	—	3.0	—	8.0	—	—
		NET CLG: BTUH	78,600	—	—	—	25,700	—	25,700	—	25,700	—	78,600	—	—
		SEER	13	—	—	—	13	—	13	—	13	—	13	—	—
		REFRIGERANT	R 407C	—	—	—	R 407C	—	R 407C	—	R 407C	—	R 407C	—	—
CONNECTIONS [8]		SUCTION LINE: IN	7/8 AND 1-1/8	—	—	—	7/8	—	7/8	—	7/8	—	7/8 AND 1-1/8	—	—
		LIQUID LINE: IN	3/8 AND 1/2	—	—	—	3/8	—	3/8	—	3/8	—	3/8 AND 1/2	—	—
		DRAIN: IN	1	—	—	—	3/4	—	3/4	—	3/4	—	1	—	—
INDOOR SECTION		AIRFLOW: CFM	3750	—	—	—	1000	—	1000	—	1000	—	3750	—	—
		ESP: IN WG	1	—	—	—	0.3	—	0.3	—	0.3	—	1	—	—
		MOTOR HP	2.0	—	—	—	0.5	—	0.5	—	0.5	—	2.0	—	—
		ELEC HEAT: KW	—	—	—	—	—	—	—	—	—	—	—	—	—
		FILTER TYPE	DISPOSABLE	—	—	—	DISPOSABLE	—	DISPOSABLE	—	DISPOSABLE	—	DISPOSABLE	—	—
		WEIGHT: LBS	675	—	—	—	225	—	225	—	225	—	675	—	—
		VOLT/PHASE	460/3	—	—	—	460/3	—	460/3	—	460/3	—	460/3	—	—
		FLA	3.1	—	—	—	1.4	—	1.4	—	1.4	—	3.1	—	—
		MCA	3.9	—	—	—	1.8	—	1.8	—	1.8	—	3.9	—	—
OUTDOOR SECTION		CAPACITY: BTUH	—	34,200	52,200	—	34,200	—	34,200	—	34,200	—	34,200	52,200	—
		WEIGHT: LBS	300	300	400	—	300	—	300	—	300	—	300	400	—
		VOLT/PHASE	—	460/3	460/3	—	460/3	—	460/3	—	460/3	—	460/3	460/3	—
		MCA	—	7.8	18.2	—	7.8	—	7.8	—	7.8	—	7.8	18.2	—
BASIS OF DESIGN		MFR	LIEBERT	LIEBERT	LIEBERT	LIEBERT	LIEBERT	LIEBERT	LIEBET	LIEBERT	LIEBET	LIEBERT	LIEBERT	LIEBERT	LIEBERT
		MODEL	MM 96E	PFC 037	PFC 067	MMD36E	PFC 037	MMD36E	PFC 037	MMD36E	PFC 037	MM 96E	PFC 037	PFC 037	PFC 067
		NOTES	[1-9]	[1-9]	[1-9]	[1-7, 9]	[1-7, 9]	[1- 5, 7, 9]	[1-4, 7, 9]	[1-4, 7, 9]	[1-4, 7, 9]	[1-4, 7, 9]	[1-9]	[1-9]	[1-9]

- NOTES:
1. REFER TO ELECTRICAL DRAWINGS FOR DISCONNECT SWITCHES.
 2. PROVIDE EQUIPMENT SUPPORT STAND FOR ROOF MOUNTED OUTDOOR UNIT, REFER TO ARCHITECTURAL DRAWINGS.
 3. ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN.
 4. WALL MOUNTED CONTROL PANEL.
 5. LIQUID SOLENOID VALVE.
 6. SITE LINK - 4' WITH 120/24V TRANSFORMER.
 7. CONDENSING TEMPERATURES 95 F WITH LOW AMBIENT OPERATION TO -30F.
 8. AIR CONDITIONING UNIT REQUIRES TWO CONDENSING UNITS TO MEET THE WSEC REQUIRED EFFICIENCY RATING.
 9. ON EMERGENCY POWER.

BYPASS FILTER		
MARK		BPF-1
LOCATION		LEVEL 1
SERVES		CHILLED WTR
DESCRIPTION		FLOW: GPM 50
		MAX WRK PRSS: PSIG 150
		INLET 2"
		OUTLET 2"
		FILTER CARTRIDGE 1
REMOVAL EFFICIENCY		MICRON AND LRGR 20
BASIS OF DESIGN		MANUFACTURER FLOW-MAX
		MODEL FMJCH40
		OPER WEIGHT: LBS 150
		NOTES

HEAT EXCHANGERS - PLATE		
MARK		PHX-1
LOCATION		LEVEL 1
SERVES		PROCESS
COOL FLUID (COND WTR)		GLYCOL
		TYPE
		FLOW: GPM 50
		EW: F 42
		LWT: F 54