

SHELL AND TUBE HEAT EXCHANGER SCHEDULE																				
SYMBOL	LOCATION	SERVICE	MBH	FOUL FACTOR	TUBE SIDE							SHELL SIDE						REMARKS (SEE NOTE 1)	BASIS OF DESIGN	
					GPM	SERVICE	EWT °F	LWT °F	PD (FT.W.G.)	NO. OF PASSES	CONN. SIZE		LBS/HR	PSI	PD (FT.W.G.)	NO. OF PASSES	CONN. SIZE			
											SUP.	RET.					STM			COND
HX-1	BASEMENT MER	HEATING HOT WATER	1,400	0.00025	105	HW	152.7	180	0.6	2	4	4	1,439	2	0.2	1	4	1.25	-	BELL & GOSSETT SU-104-2

NOTE:

1. ELEVATE HEAT EXCHANGERS AS REQUIRED TO ACCOMMODATE FOR BOTTOM PIPING INLET OR OUTLET CONNECTIONS AND LAYOUT.

PLATE AND FRAME HEAT EXCHANGER SCHEDULE																					
SYMBOL	LOCATION	SERVICE	MBH	FOUL FACTOR	TOTAL SURFACE AREA (FT.)	CHILLED WATER SIDE							EMERGENCY CHILLED WATER SIDE							REMARKS (SEE NOTE 1)	BASIS OF DESIGN
						GPM	PERCENT GLYCOL	EWT °F	LWT °F	PD (FT.WG.)	CONN. SIZE (IN.)		GPM	PERCENT GLYCOL	EWT °F	LWT °F	PD (FT.WG.)	CONN. SIZE (IN.)			
											SUP.	RET.						SUP.	RET.		
HX-2	BASEMENT MER	CHILLED WATER	320	0.00025	244	50	0%	56	43	2	2.5	2.5	67	40%	40	50	6	2.5	2.5	-	BELL & GOSSETT GPX

NOTE:

1. PLATES MUST BE 304 STAINLESS STEEL

AIR COOLED CHILLER SCHEDULE (SEE HPE SCHEDULE FOR ELECTRICAL SERVICE)																								
SYMBOL	LOCATION	SERVICE	CAPACITY		EVAPORATOR							AMBIENT AIR		COMPRESSOR			FAN		PUMPS			FULL LOAD KW/TON (MAX.)	REMARKS	BASIS OF DESIGN
			NOM. TONS	MBH	GPM	PD / FT. WG	EWT °F	LWT °F	REF.	FOUL FACTOR	CONN. SIZE	°F		QTY.	TYPE	KW EA	QTY.	HP EA	QTY.	GPM	HP EA			
												SUMMER	WINTER											
CH-1	NORTH SERVICE YARD	ARCHIVES	30	360	67	22.4	50	40	R-410A	0.0001	2.5	92	2	2	SCROLL	14	3	1.5	2	67	5	1.06	NOTES: 1,2,3	TRANE CGAM030

NOTES:

1. PROVIDE INTEGRAL EXPANSION TANK AND 140 GALLON BUFFER TANK.
2. PROVIDE INTEGRAL DUAL PUMPS (N-1) WITH VFDS.
3. CHILLED WATER INCLUDES 40% PROPYLENE GLYCOL.
4. ALL CHILLER AND PUMP COMPONENTS, TRIM, AND ACCESSORIES MUST BE WINTERIZED AND FULLY FACTORY INSULATED.

PUMP SCHEDULE (SEE HPE SCHEDULE FOR ELECTRICAL SERVICE)																
SYMBOL	TYPE	LOCATION	SERVICE	GPM	TOTAL HEAD FT. WG	MAX. NPSH FT. WG	OPER. TEMP. °F	SIZE IN.		EFF. %	RPM	BHP	HP	REMARKS NOTE 1	BASIS OF DESIGN	
								SUCT.	DISCH.							
P-1	END SUCTION	BASEMENT MER	TERTIARY CHILLED WATER	220	75	7.15	43	3	2	71.7	1800	5.79	7.5	-	BELL & GOSSETT e1510 2EB	
P-2	END SUCTION	BASEMENT MER	TERTIARY CHILLED WATER	220	75	7.15	43	3	2	71.7	1800	5.79	7.5	SPARE	BELL & GOSSETT e1510 2EB	
P-3	INLINE	BASEMENT MER	HEATING HOT WATER	105	65	7.97	180	2	2	61.3	1800	2.81	5	-	BELL & GOSSETT e80 2x2x9.5C	
P-4	INLINE	BASEMENT MER	HEATING HOT WATER	105	65	7.97	180	2	2	61.3	1800	2.81	5	SPARE	BELL & GOSSETT e80 2x2x9.5C	
FZP-2A	INLINE	AHU-2 VESTIBULE	CW FREEZE PROTECTION	57	35	8.53	43	1 1/2	1 1/2	63.3	1800	0.807	1.5	-	BELL & GOSSETT e90 1.5AB	
FZP-2B	INLINE	AHU-2 VESTIBULE	CW FREEZE PROTECTION	10	35	6.54	180	1	1	62.0	3250	0.4	0.5	-	BELL & GOSSETT PL-55	
FZP-3	INLINE	ABOVE STAGE	HW FREEZE PROTECTION	14	35	7.07	180	1 1/4	1 1/4	63.0	3250	0.4	0.5	-	BELL & GOSSETT PL-55	

NOTES:

1. PUMPS TO BE NON-OVERLOADING AT EVERY POINT ON PUMP CURVE.

EQUIPMENT PHYSICAL PROPERTIES SCHEDULE					
SYMBOL	LENGTH/DEPTH	HEIGHT	WIDTH	WEIGHT	REMARKS
	IN.		IN.	LBS.	
AHU-1	218	69	65	3,500	NOTES 1,4
AHU-2	313	98	135	10,000	NOTES 1,2,4
AHU-3	245	74	74	5,200	NOTES 1,4
B-1	56	80	36	2,778	NOTE 1
CH-1	171	85	51	4,687	NOTE 1
DHU-1	116	100	62	1,532	NOTES 1,5
OAU-1	90	47	38	900	NOTES 1,3,4

NOTES:

1. DIMENSIONS DO NOT INCLUDE SERVICE CLEARANCE.
2. DIMENSIONS INCLUDE SERVICE VESTIBULE. HEIGHT IS TO THE HIGH POINT OF THE SLOPED VESTIBULE ROOF.
3. DIMENSIONS DO NOT INCLUDE WEATHER HOODS.
4. HEIGHT INCLUDES BASERAIL.
5. DIMENSIONS INCLUDE ALL ACCESSORIES.

GLYCOL FILL TANK SCHEDULE (SEE HPE SCHEDULE FOR ELECTRICAL SERVICE)										
SYMBOL	TYPE	LOCATION	SERVICE	PUMP			GLYCOL	TANK VOLUME (GALLONS)	REMARKS	BASIS OF DESIGN
				GPM	HEAD PSI	MOTOR HP				
GFT-1	PROPYLENE	BASEMENT MER	ARCHIVES CHILLER CH-1	5	60	3/4	40	55	NOTE 1	BELL & GOSSETT GMU60

NOTES:

1. FILL TANK TO BE A PACKAGED SYSTEM COMPLETE WITH TRANSFER PUMP, Y-STRAINER, SHUTOFF VALVE, CHECK VALVE, BALANCING VALVE, HIGH AND LOW PRESSURE CUTOUTS, LOW LEVEL CUTOUT, AND ALARM INDICATOR LIGHT.



**US Army Corps
of Engineers ®**

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JACOBS / EWING COLE A Joint Venture

DESIGNED BY:	ISSUE DATE:
DRAWN BY:	PROJECT NO.:
CHECKED BY:	CONTRACT NO.:
SUBMITTED BY:	PROJECT NO.:
SIZE:	20160424
ANSI D	

WEST POINT, NY
USMA BUILDING 605 CULLUM HALL RENOVATION

SCHEDULES - HVAC

SHEET ID

M603