

COOLING TOWER UNITS									
UNIT NO.	LOCATION	NO. CELLS	EACH CELL	MAX. P.D. FT. WATER		TEMPERATURES		FAN MOTOR	
				WATER IN	WATER OUT	WATER IN	WATER OUT	SPEED	HP
1	7D	2	1275	15	79	95	85	1750	(2) 30
2	7C	2	1275	15	79	95	85	1750	(2) 30
3	7C	1	1500	15	79	95	85	1750	(1) 40

WATER COOLED CHILLER UNIT									
UNIT NO.	LOCATION	MIN. TONS	MAX. KW	COMPRESSOR MOTOR		EVAPORATOR		CONDENSER	
				PHASE	HP	PHASE	HP	ENT. TEMP. F	LVG. WATER TEMP. F
1-CCU1	7D	85.0	0.65	553	39/4160	1370	56.9	42.0	15
1-CCU2	7D	85.0	0.65	553	39/4160	1370	56.9	42.0	15
1-CCU3	7D	500	0.65	325	39/4160	807	56.9	42.0	15

FCO SV PROVIDE UNIT CAPABLE OF USING R134 OR R22 REFRIGERANT.

PACKAGE AIR COOLED RECIPROCATING CHILLER UNIT (OPERATING ROOM)									
UNIT NO.	EQUIPMENT	LOCATION	PERFORMANCE		HOTOR	PHASE	VOL.	REMARKS	
			MINIMUM CAPACITY	KW INPUT					
1-ACR1	COMPRESSOR		240 TONS (TOTAL OF 2 MACHINES)	16	39/460			COMPRESSOR SHALL BE CAPABLE OF CAPACITY REDUCTION TO 10%	
	CHILLER	ROOF	553 GPM	56.7 F WATER IN				16.8 FT. MAX. WATER P.D. EACH	
	AIR COOLED CONDENSER		AIR COOLED CONDENSER SHALL PROVIDE ABOVE PERFORMANCE WITH 85° AMBIENT TEMP.	17	39/460			SHALL PERFORM SATISFACTORILY AT 100% COMPRESSOR CAPACITY WITH 85° AMBIENT TEMP.	

① PACKAGE AIR COOLED RECIPROCATING CHILLER UNIT SHALL BE PROVIDED WITH HOT GAS BYPASS BY MANUFACTURER TO MAINTAIN MINIMUM CAPACITY OF 10% AT 100% COMPRESSOR CAPACITY. COMPRESSOR STARTER SHALL BE PROVIDED WITH A MAXIMUM CURRENT INRUSH OF 60% OF LOCKED ROTOR CURRENT OR MULTIPLE COMPRESSORS SHALL BE FURNISHED.

② CHILLERS SHALL BE PIPED IN SERIES TO PRODUCE SPECIFIED DUTY. MACHINE SHALL BE IDENTICAL.

PACKAGE AIR COOLED RECIPROCATING CHILLER UNIT (ANIMAL ROOM)									
UNIT NO.	EQUIPMENT	LOCATION	PERFORMANCE		HOTOR	PHASE	VOL.	REMARKS	
			MINIMUM CAPACITY	KW INPUT					
1-ACR1	COMPRESSOR		193 TONS	237	39/460			COMPRESSOR SHALL BE CAPABLE OF CAPACITY REDUCTION TO 10%	
	CHILLER	ROOF	272 GPM	59 F WATER IN				12 FT. MAX. WATER P.D.	
	AIR COOLED CONDENSER		AIR COOLED CONDENSER SHALL PROVIDE ABOVE PERFORMANCE WITH 85° AMBIENT TEMP.	20	39/460			SHALL PERFORM SATISFACTORILY AT 100% COMPRESSOR CAPACITY WITH 85° AMBIENT TEMP.	

① PACKAGE AIR COOLED RECIPROCATING CHILLER UNIT SHALL BE PROVIDED WITH HOT GAS BYPASS BY MANUFACTURER TO MAINTAIN MINIMUM CAPACITY OF 10% AT 100% COMPRESSOR CAPACITY. COMPRESSOR STARTER SHALL BE PROVIDED WITH A MAXIMUM CURRENT INRUSH OF 60% OF LOCKED ROTOR CURRENT OR MULTIPLE COMPRESSORS SHALL BE FURNISHED.

PRESSURE REDUCING VALVES									
PRV NO.	LOCATION	STEAM PRESSURE PSIG		CAPACITY LBS/HR		BYPASS VALVE	PIPE SIZES		
		INLET	OUTLET	REQUIRED	MAXIMUM		D <sub>1</sub>	D <sub>2</sub>	
1-PRV1A	BOILER ROOM NORTH	65	30	350	510	3/4"	1"	2"	
1-PRV2A	BOILER ROOM SOUTH	65	30	3350	4050	2 1/2"	3"	5"	
1-PRV2B	BOILER ROOM SOUTH	65	30	6660	7555		4"	6"	
1-PRV3A	SERV. BAY A PENTHOUSE	65	30	1400	1950		2"	4"	
1-PRV3B	SERV. BAY A PENTHOUSE	65	30	2900	10275	2 1/2"	4"	6"	
1-PRV4A	SERV. BAY B PENTHOUSE	65	30	1400	1950		2"	4"	
1-PRV4B	SERV. BAY B PENTHOUSE	65	30	4600	6975		3"	5"	
1-PRV4C	SERV. BAY C PENTHOUSE	65	30	4600	6975	2"	3"	5"	
1-PRV5A	SERV. BAY C PENTHOUSE	65	30	1600	2920		2"	4"	
1-PRV5B	SERV. BAY C PENTHOUSE	65	30	4750	6975		3"	5"	
1-PRV6B	SERV. BAY D PENTHOUSE	65	30	4700	6975	2"	3"	5"	

① SEE REFER TO DETAILS ON DWG 119, 110

SAFETY VALVES & RELIEF VALVES									
VALVE NO.	SERVICE	FLUID	TEMP. F.	MINIMUM CAPACITY	SET PRESSURE PSIG	SIZE & ORIFICE			
1-SV1	1-PRV1A	STEAM	312	510	40	3/4" X 1" - E			
1-SV2	1-PRV 2A, 2B	STEAM	312	11605	40	4 X 6" - N			
1-SV3	1-PRV3A, 3B	STEAM	312	12295	40	4 X 6" - P			
1-SV4	1-PRV4A, 4B, 4C	STEAM	312	15900	40	4 X 6" - P			
1-SV5	1-PRV5A, 5B	STEAM	312	9695	40	4 X 6" - N			
1-SV6	1-PRV6A, 6B	STEAM	312	6925	40	3 X 4" - H			

CIRCULATING PUMPS									
PUMP NO.	LOCATION	SYSTEM	FLUID	CIRCULATING FLUID		SPEC. GRAV.	Z EFF.	TYPE	REMARKS
				GPM	PUMP HEAD FT. FLUID				
1-P1	LEVEL 7 NORTH BOILER ROOM	CONDENSER WAT	WATER	2550	75	85	1.0	63	HORIZ. SPLIT
1-P2	LEVEL 7 NORTH BOILER ROOM	CONDENSER WAT	WATER	2550	75	85	1.0	63	HORIZ. SPLIT
1-P3	LEVEL 7 NORTH BOILER ROOM	CONDENSER WAT	WATER	1500	65	85	1.0	60	HORIZ. SPLIT
1-P4	LEVEL 7 NORTH BOILER ROOM	CH. WAT PRI	WATER	1370	35	42	1.0	80	HORIZ. SPLIT
1-P5	LEVEL 7 NORTH BOILER ROOM	CH. WAT PRI	WATER	1370	35	42	1.0	80	HORIZ. SPLIT
1-P6	LEVEL 7 NORTH BOILER ROOM	CH. WAT PRI	WATER	807	35	42	1.0	80	HORIZ. SPLIT
1-P7	LEVEL 7 NORTH BOILER ROOM	CH. WAT SEC	WATER	2000	105	42	1.0	81	HORIZ. SPLIT
1-P8	LEVEL 7 NORTH BOILER ROOM	CH. WAT SEC	WATER	2000	105	42	1.0	81	HORIZ. SPLIT
1-P9	LEVEL 7 NORTH BOILER ROOM	CH. WAT - O.R.	WATER	433	65	42	1.0	72	END SUCT.
1-P10	LEVEL 7 NORTH BOILER ROOM	CH. WAT - O.R.	WATER	300	80	42	1.0	74	END SUCT.
1-P11	LEVEL 7 NORTH BOILER ROOM	CH. WAT - A.R.	WATER	300	80	42	1.0	74	END SUCT.
1-P12	LEVEL 7 - "A" SERVICE BAY	PREHEAT	20X EGV	155	70	180	1.025	65	END SUCT.
1-P13	LEVEL 7 - "A" SERVICE BAY	PREHEAT	20X EGV	155	70	180	1.025	65	END SUCT.
1-P14	LEVEL 7 - "B" SERVICE BAY	PREHEAT	20X EGV	210	70	180	1.025	67	END SUCT.
1-P15	LEVEL 7 - "B" SERVICE BAY	PREHEAT	20X EGV	210	70	180	1.025	67	END SUCT.
1-P16	LEVEL 7 - "C" SERVICE BAY	HTG - PRI	WATER	175	25	180	1.0	65	END SUCT.
1-P17	LEVEL 7 - "C" SERVICE BAY	HTG - PRI	WATER	175	25	180	1.0	65	END SUCT.
1-P18	LEVEL 7 - "C" SERVICE BAY	TRU - SEC	WATER	380	80	180	1.0	70	END SUCT.
1-P19	LEVEL 7 - "C" SERVICE BAY	TRU - SEC	WATER	40	90	180	1.0	47	END SUCT.
1-P20	LEVEL 7 - "C" SERVICE BAY	FTR - SEC	WATER	160	25	180	1.0	63	END SUCT.
1-P21	LEVEL 7 - "D" SERVICE BAY	HTG - PRI	WATER	160	25	180	1.0	63	END SUCT.
1-P22	LEVEL 7 - "D" SERVICE BAY	TRU - SEC	WATER	335	70	180	1.0	74	END SUCT.
1-P23	LEVEL 7 - "D" SERVICE BAY	TRU - SEC	WATER	335	70	180	1.0	74	END SUCT.
1-P24	LEVEL 7 - "D" SERVICE BAY	FTR - SEC	WATER	45	50	180	1.0	47	END SUCT.
1-P25	LEVEL 7 - "D" SERVICE BAY	GLYCOL CIR.	20X EGV	3	116	180	1.025	--	---
1-P26	LEVEL 7 - "A" SERVICE BAY	GLYCOL CIR.	20X EGV	3	116	180	1.025	--	---
1-P27	LEVEL 7 - "A" SERVICE BAY	C.H. WAT - O.R.	20X EGV	433	65	42	1.0	72	END SUCT.
1-P28	LEVEL 7 NORTH BOILER ROOM	RUN AROUND STGT	20X EGV	175	65	1.025	66	66	END SUCT.
1-P29	NOT USED								
1-P30	SEE CONDENSATE PUMP SCHEDULE								
1-P31	SEE CONDENSATE PUMP SCHEDULE								
1-P32	NOT USED								
1-P33	SEE CONDENSATE PUMP SCHEDULE								
1-P34	SEE CONDENSATE PUMP SCHEDULE								
1-P35	NOT USED								
1-P36	NOT USED								
1-P37	NOT USED								
1-P38	NOT USED								
1-P39	NOT USED								
1-P40	NOT USED								
1-P41	NOT USED								
1-P42	NOT USED								
1-P43	SEE CONDENSATE PUMP SCHEDULE								

NOTE: PUMPS 1-P44 THROUGH 1-P49 NOT USED.

CONDENSATE PUMPS									
PUMP NO.	LOCATION	TYPE UNIT	DISCHARGE PRESSURE FT. FLUID	GPM	NOM HP	MOTOR		REMARKS	
						PHASE/ VOLT	RPM		
1-CP33	1ST LEVEL PARK.	DUPLEX	75	210	(2) 10	39/460	3500	12.5 GAL. REC.	
1-CP34	1ST LEVEL PARK.	DUPLEX	60	210	(2) 10	39/460	3500	90 GAL. REC.	
1-CP35	LEVEL 7 SOUTH	DUPLEX	22	30	(2) 3/4	39/460	3500	37 GAL. REC.	
1-CP43	LEVEL 7 NORTH	DUPLEX	23	30	(2) 1 1/2	39/460	3500	15 GAL. REC.	

NOTE: PROVIDE FLASH TANK WITH EACH CONDENSATE SET. SEE DETAIL ON 1-H8 FOR METHOD OF SIZING.

CONVERTORS									
CONVERTOR NO.	LOCATION	FLUID	TEMP. IN F.	GPM	TEMP. OUT F.	MAX. LOSS FT. FLUID	ENTERING CONTROL VALVE	TRAP LBS/HR	REMARKS
1-C1	LEVEL 7 - "A" S.B.	20X EGV	140	140	180	5'	30	2835	MAX. LENGTH 7'-0"
1-C2	LEVEL 7 - "A" S.B.	20X EGV	140	140	180	5'	30	2835	MAX. LENGTH 7'-0"
1-C3	LEVEL 7 - "B" S.B.	20X EGV	194	140	180	5'	30	3925	MAX. LENGTH 7'-0"
1-C4	LEVEL 7 - "B" S.B.	20X EGV	194	140	180	5'	30	3925	MAX. LENGTH 7'-0"
1-C5	LEVEL 7 - "C" S.B.	WATER	160	153	180	5'	30	2185	MAX. LENGTH 7'-0"
1-C6	LEVEL 7 - "C" S.B.	WATER	160	153	180	5'	30	2185	MAX. LENGTH 7'-0"
1-C7	LEVEL 7 - "D" S.B.	WATER	145	153	180	5'	30	1980	MAX. LENGTH 7'-0"
1-C8	LEVEL 7 - "D" S.B.	WATER	145	153	180	5'	30	1980	MAX. LENGTH 7'-0"
1-C9	LEVEL 7 - COND. COOLER/HV ECONOMIZER	WATER	160	160	120	5'	160	140	MAX. LENGTH 8'-0"

NOTE: EACH CONVERTOR IS SIZED FOR 50% CAPACITY.

CONVECTOR SCHEDULE									
UNIT SYMBOL	TYPE	EVT	GPM	RUNOUT SUPPLY	RETURN SIZE	APPROX. SIZE W X H X D	RBH	LOCATION	
1-CONV 1	RECESSED	160	1/2	3/4"	3/4"	26" X 10" X 4"	1.9	STORAGE KEEPER	BB100A
1-CONV 2	RECESSED	160	1/2	3/4"	3/4"	32" X 10" X 4"	2.5	TOILET	BB100B
1-CONV 3	RECESSED	160	1/2	3/4"	3/4"	32" X 10" X 4"	2.5	LOUNGE	4014
1-CONV 4	RECESSED	160	1/2	3/4"	3/4"	32" X 10" X 4"	2.5	GLN SCINT OFF	401500

## HVAC GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY TO ALL HVAC WORK SHOWN ON H