

DEAERATOR SCHEDULE	
DESIGNATION	
STEAM TO HEATER (*HR)	
TEMP. H <sub>2</sub> O IN. (*F)	
TANK CAP. GAL.	
TANK HEIGHT FT.	
PUMP TYPE	
FEED PUMP TDH	
FEED PUMP HP	
FEED PUMP FLOW (GPM)	
TRANSFER PUMP HP	
TRANS. DIS. TDH	
TRANS PUMP FLOW (GPM)	
POWER TYPE	
VOLTAGE	
OPERATING WEIGHT	
REMARKS:	
1. PROVIDE FACTORY MOUNTED CONTROL PANEL WITH SINGLE POINT POWER CONNECTION, MAIN DISCONNECT, CONTROL TRANSFORMER, AND COMBINATION STARTERS FOR PUMPS.	
2. PROVIDE SAMPLE COOLER AT SAMPLING PORT.	
SIZE BASED ON INDUSTRIAL STEAM MODEL 6SP5II.	

FIN TUBE RADIANT HEATER		
DESIGNATION	FT-1 THRU 7	FT-9 THRU 10
BTU/FT	765	765
GPM	1	1
E.W.T. (*F)	180°	180°
E.A.T. (*F)	65°	65°
LENGTH	8'-0"	12'-0"
RUN-OUT	1/2"	1/2"
COVER TYPE	NONE	NONE
REMARKS:	1	1
REMARKS: 1. HYDRONIC FIN TUBE RADIANT HEATING ELEMENT. PROVIDE COPPER TUBES WITH STEEL ELEMENTS.		

ROOFTOP A/C UNIT	
UNIT No.	RTU-16
SERVES	POWERHOUSE
CFM	4000
MIN. O.A.	----
EXT. S.P. H <sub>2</sub> O	0.75
EVAP. FAN H.P.	3.0
EFFICIENCY (SEER/EER)	12.0
TOTAL BTUH	120,640
SENSIBLE BTUH	89,020
O.A.D.B. *F	95°
E.A.T. DB-WB	80°/67°
UNIT ELECTRICAL	460/3/60
EVAP MCA	26.9
EVAP MOC	35
COMPRESSOR R.L.A.	7.4/9.5
CONDENSER FAN F.L.A.	2.8
ACCESSORIES	
FILTER	YES
COMB. SUP & RET GRILLE	NO
FACTORY FAB SUP & RET PLENUM	YES
ECONOMIZER	YES
REMARKS:	
1. UNIT SHALL BE PROVIDED WITH SINGLE POINT POWER CONNECTION FROM EMERGENCY POWER PANEL.	
2. PROVIDE UNIT MOUNTED COMBINATION STARTER AND PACKAGED CONTROL WITH BACNET INTERFACE TO BUILDING AUTOMATION SYSTEM.	
3. PROVIDE FACTORY ROOF CURB.	
4. PROVIDE UNIT MOUNTED SUPPLY AND RETURN SMOKE DETECTOR.	
5. UNIT BASED ON TRANE MODEL TSC 120.	

REFRIGERATION MACHINE ① WATER COOLED CENTRIFUGAL			
DESIGNATION	CH-1	CH-2	CH-3
TYPE	①	①	①
CAPACITY-TONS	500	500	500
VFD	YES	YES	YES
COOLER			
GPM	1000	1000	1000
EWT	54°F	54°F	54°F
LWT	42°F	42°F	42°F
PASSES	2	2	2
FOUL FACTOR	0.00010	0.00010	0.00010
MAX PD (FT)	15	15	15
CONDENSER			
GPM	1500	1500	1500
EWT	80°F	80°F	80°F
LWT	90°F	90°F	90°F
PASSES	2	2	2
FOUL FACTOR	0.00025	0.00025	0.00025
MAX PD (FT)	20.0	20.0	20.0
ELECTRICAL			
VOLTAGE	460/3/60	460/3/60	460/3/60
POWER CONSUMED @ FULL LOAD (KW)			
KW/TON			
NPLV - KW/TON			
RLA AT MOTOR KW			
M.O.C.P.			
STARTER TYPE			
MCA	VFD	VFD	VFD
REMARKS:			
1. UNIT TO BE MOUNTED ON NEOPRENE ISOLATORS.			
2. MACHINE TO BE CAPABLE OF STABLE OPERATION FROM 20-100% AT 85° ENTERING CONDENSER WATER TEMP.			
3. PROVIDE BACNET CHILLER CONTROLS GATEWAY TO INTERFACE WITH BUILDING EMS.			
4. CONNECT AND ROUTE 4" STEEL PIPE FROM CHILLER REFRIGERANT RELIEF VALVE, CONNECT TO OUTSIDE. 4" RELIEF SYSTEM TO BE INSTALLED PER ASHRAE STANDARD 15.			
5. CHILLERS ARE BASED ON YORK MODEL YK MAXE.			

UNIT HEATER SCHEDULE				
IDENTIFICATION	UH-1-2,3-4	UH-5-6	UH-7	UH-8-9
SERVES	CHILLER RM	BOILER RM	FIRE PUMP RM	GENERATOR RM
TYPE	HOT WTR	HOT WTR	HOT WTR	HOT WTR
E.A.D.B.	60°	60°	60°	60°
L.A.D.B.	100°	100°	100°	100°
CAPACITY-BTU/HR	29,000	165,000	9,800	200,000
E.W.T. (*F)	180°	180°/150°	180°/150°	180°/150°
WATER GPM	1.9	11.0	0.7	13.3
MAX PD-FT H <sub>2</sub> O	2.0	2.0	2.0	2.0
MIN. HP	1/12	1/4	1/25	1/2
ELECTRICAL	120/1/60	120/1/60	120/1/60	120/1/60
PIPING RUNOUT	7/8"	1/4"	7/8"	1/4"
REMARKS:				
1. UNITS TO BE EQUAL TO MODINE MODEL S HOT WATER UNIT HEATER. PROVIDE EACH UNIT WITH WALL MOUNTED THERMOSTAT.				

AC UNIT SCHEDULE (D-X SPLIT HEAT PUMP SYSTEM TYPE)			
UNIT NO	AC-1	AC-2	AC-3
AREA SERVED	ELEV. EQ.	ELEV. EQ.	MEG. GAS
INDOOR UNIT			
COOLING			
TOTAL CAPACITY BTUH	28,800	28,800	
SENS. CAPACITY BTUH	19,100	19,100	
EADB-°F	80°	80°	
EAWB-°F	67°	67°	
OADB-°F	95°	95°	
HEATING CAP. BTUH	28,800	28,800	
FAN			
TOTAL CFM	1000	1000	
OA CFM	0	0	
E.S.P.-IN.H <sub>2</sub> O	0.33	0.33	
HP	1/3	1/3	
ELECTRICAL	208/1/60	208/1/60	
TYPE	EMERGENCY	EMERGENCY	
CONDENSING UNIT	CU-1	CU-2	
ELECTRICAL	460/3/60	460/3/60	
M.C.A.	7	7	
M.O.C.P.	15	15	
ACCESSORIES			
FILTER TYPE	30%	30%	
MIN OPER TEMP-°F	0	0	
OTHERS			
REMARKS:			
1. SELECTIONS BASED ON YORK MODEL MA AHU YZB AND CONDENSING UNITS.			
2. PROVIDE LOW AMBIENT ACCESSORIES TO OPERATE UNIT DOWN TO 0°F AMBIENT TEMPS.			

SIDEWALL SUPPLY REGISTER SCHEDULE			
SYMBOL	NOMINAL DUCT SIZE	MAX CFM	MAX N.C.
SSA	8"x6"	180	21
SSB	12"x6"	275	23
SSC	18"x6"	360	20
SSD	12"x10"	415	21
SSE	12"x12"	540	24
SSF	18"x10"	640	23
SSG	18"x12"	800	24
SSH	30"x12"	1040	20
SSJ	36"x12"	1400	22
SSL	36"x24"	3000	28
PERFORMANCE BASIS:			
1. TITUS MODEL 300FL - DOUBLE DEFLECTION WITH 22.5° DEFLECTION.			
2. CONTRACTOR TO USE DUCT SPIN-IN FITTING AND A MANUAL VOLUME DAMPER EQUAL TO GENFLEX MODEL SM-2DEL (OR APPROVED EQUAL)			

SIDEWALL RETURN/EXHAUST REGISTER SCHEDULE			
SYMBOL	NOMINAL DUCT SIZE	MAX CFM	MAX N.C.
SRA/SEA	8"x6"	180	25
SRB/SEB	12"x6"	275	27
SRC/SEC	16"x6"	360	28
SRD/SED	12"x10"	415	28
SRE/SEE	18"x10"	540	28
SRF/SEF	18"x12"	640	29
SRG/SEG	18"x18"	800	28
SRH/SEH	36"x12"	1040	30
SRJ/SEJ	36"x20"	1400	29
SRK/SEK	24"x24"	2000	25
PERFORMANCE BASIS:			
1. TITUS MODEL 350FL - WITH 35° DEFLECTION.			
2. CONTRACTOR TO USE DUCT SPIN-IN FITTING AND A MANUAL VOLUME DAMPER EQUAL TO GENFLEX MODEL SM-2DEL (OR APPROVED EQUAL)			

AIR DOOR SCHEDULE	
DESIGNATION	
SERVES	
LENGTH	
MODEL (BERNER)	
MAX VELOCITY (FPM)	
CFM	
HOT WATER COIL	
CAPACITY (BTU/HR)	
EWT (*F)	
LWT (*F)	
GPM	
ELECTRICAL	
VOLTAGE	
HORSEPOWER	
ACCESSORIES:	
1. PROVIDE UNIT WITH TOP MOUNTING KIT FOR SUSPENSION FROM STRUCTURE.	
2. PROVIDE UNIT WITH CLEANABLE ALUMINUM FILTERS.	
3. PROVIDE UNIT WITH NOZZLE EXTENSION, 65MK-06ONE AND AIRFOIL SHAPED DISCHARGE VANES TO ALLOW FLUSH INSTALLATION WITH CEILING.	
4. PROVIDE UNIT WITH AUTOMATIC DOOR SWITCH AND TIME DELAY RELAY.	

COOLING TOWER SCHEDULE		
UNIT NO.	CT-1	CT-2
GPM	1500	1500
EWT	90	90
LWT	80	80
EWB	73	73
APPROX SIZE		
OPERATING WEIGHT ( lbs )		
FAN HP		
ELECTRICAL	460/3/60	460/3/60
FLOW CONT VALVES	YES	YES
FAN SCREEN	YES	YES
WASHDOWN DRAINS	YES	YES
CAT WALK	YES	YES
BASIN HEATER KW		
VFD	YES	YES
NOTES:		
1. TOWER BASED ON MARLEY MODEL NC.		
2. TOWER APPROXIMATE SIZE		
3. PROVIDE HIGH EFFICIENCY MOTOR.		
4. PROVIDE VFD'S FOR TOWER FANS.		
5. PROVIDE STAINLESS STEEL WARM AND COLD WATER BASINS.		
6. PROVIDE TOWER WITH BOTTOM OUTLET WITH DEPRESSED SUMP.		
7. PROVIDE BOTTOM OUTLET FOR EQUALIZATION		
8. PROVIDE LOUVERED COVERS.		
9. PROVIDE INTERNAL WALKWAY.		
10. PROVIDE DISTRIBUTION BASIN WIERS FOR MINIMUM FLOW.		

DUCTWORK LEGEND	
	RECTANGULAR DUCT TURNING DOWN (SINGLE LINE)
	RECTANGULAR DUCT TURNING DOWN (DOUBLE LINE)
	ROUND DUCT TURNING DOWN (SINGLE LINE)
	ROUND DUCT TURNING DOWN (DOUBLE LINE)
	DUCT TURNING DOWN TO SIDEWALL REGISTER AT FLOOR
	DOUBLE LINE TO SINGLE LINE DUCTWORK
	BRANCH TAP OFF MAIN W/DUCT EXTRACTOR OR SPIN-IN FITTING W/DAMPER (LOW PRESSURE)
	TRANSITION IN DUCT (NOT DIRECTION OF AIRFLOW)
	REGISTER TAPPING INTO BOTTOM OF DUCT
	CONTROL DAMPER
	FIRE DAMPER (SINGLE LINE DUCT)
	FIRE DAMPER (DOUBLE LINE DUCT)
	SMOKE DAMPER
	SMOKE DAMPER (DOUBLE LINE DUCT)
	FIRE/SMOKE DAMPER
	FIRE/SMOKE DAMPER (DOUBLE LINE DUCT)
	DUCT SMOKE DAMPER (DOUBLE LINE DUCT)
	DUCT TERMINATION
	45 FULL RADIUS TURN
	SQUARE ELBOW W/TURNING VANES
	FULL RADIUS TURN
	ADJUSTABLE T-STAT
	TEMP. SENSOR ADJ. BY EMS
	MVD
	SWR
	SAR
	SD 400
	RB 100
	EA 50
	SUPPLY DIFFUSER (4-WAY)
	SUPPLY DIFFUSER (3-WAY)
	SUPPLY DIFFUSER (2-WAY)
	SUPPLY DIFFUSER (1-WAY)
	RETURN / EXHAUST GRILLE

PIPING LEGEND	
	STEAM LINE-STEAM PRESSURE (60 PSI)
	GRAVITY CONDENSATE RETURN
	PUMPED CONDENSATE RETURN
	MOISTURE CONDENSATE DRAIN LINE
	HOT WATER SUPPLY
	HOT WATER RETURN
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	LOW TEMPERATURE WATER SUPPLY
	LOW TEMPERATURE WATER RETURN
	DIRECTION OF WATER FLOW
	TEE
	LATERAL
	GUIDE
	ANCHOR
	PIPE TURNING DOWN
	PIPE TURNING UP
	C.O. O.S.&Y. CHAIN OPERATED O.S.&Y. VALVE
	END OF MAIN DRIP
	CIRCUIT SETTER

CEILING DIFFUSER SCHEDULE							
SYMBOL	ADAPTER/NECK SIZE	FACE SIZE	MAX CFM	MAX NC	MAX SP	THROW	RUNOUT SIZE
SA	6" Φ/6"x6"	12"x12"	110	20	.07	4-WAY BLOW	6" Φ/8"x4"
SB	8" Φ/9"x9"	15"x15"	230	20	.07	4-WAY BLOW	8" Φ/10"x6"
SC	10" Φ/12"x12"	15"x15"	420	25	.08	4-WAY BLOW	10" Φ/12"x8"
SD	12" Φ/12"x12"	24"x24"	500	28	.10	4-WAY BLOW	12" Φ/16"x8"
SE	12" Φ/15"x15"	24"x24"	650	26	.09	4-WAY BLOW	12" Φ/18"x8"
SF	6" Φ/6"x6"	12"x12"	100	26	.10	3-WAY BLOW	6" Φ/8"x4"
SG	8" Φ/9"x9"	15"x15"	220	27	.09	3-WAY BLOW	8" Φ/10"x6"
SH	10" Φ/12"x12"	15"x15"	400	30	.12	3-WAY BLOW	10" Φ/12"x8"
SJ	8" Φ	48"x12"	150	30	.10	PERFORATED	8" Φ
SK	10" Φ	48"x24"	250	30	.09	PERFORATED	10" Φ
PERFORMANCE BASIS:							
1. TITUS TDC/KRUGER MODEL S-4.							
2. PERFORATED PANELS (SJ & SK) ARE BASED ON TITUS TLF/KRUEGER SERIES 5000 O.R.D.							
3. CONTRACTOR TO USE DUCT SPIN-IN FITTINGS WITH MANUAL VOLUME DAMPER EQUAL TO GENFLEX MODEL SM-2DEL (OR APPROVED EQUAL).							
4. FACE SIZE SHALL BE 24"x24" IN ALL LAY IN CEILING LOCATIONS TO FIT WITHIN GRIDS.							
5. PROVIDE TITUS OMNI DIFFUSERS IN PUBLIC CORRIDORS, MB-30 IN WAITING AREAS AND MODEL PAS IN PSYCH AREAS.							

RETURN & EXHAUST REGISTERS						
SYMBOL	NECK	FACE	CFM	MAX SP	MAX NC	RUNOUT
RA/EA	6" SQ	8"x8"	75	.04	28	8"x4"/6" Φ
RB/EB	8" SQ	10"x10"	200	.05	28	10"x6"/8" Φ
RC/EC	10" SQ	12"x12"	300	.05	27	14"x6"/10" Φ
RD/ED	12" SQ	14"x14"	540	.06	28	16"x8"/12" Φ
RE/EE	14" SQ	18"x18"	700	.07	28	18"x8"/14" Φ
RF/EF	18" SQ	20"x20"	1250	.07	27	24"x10"/16" Φ
RG/EG	22" SQ	24"x24"	1600	.06	25	24"x12"/18" Φ
PERFORMANCE BASIS:						
1. TITUS MODEL 50-F5 WITH 1/2"x1/2" EGG-CRATE CORE.						
2. CONTRACTOR TO USE DUCT SPIN-IN FITTINGS WITH MANUAL VOLUME DAMPER EQUAL TO GENFLEX MODEL SM-2DEL (OR APPROVED EQUAL).						
3. FACE SIZE TO BE 24"x24" IN ALL LAY IN CEILING LOCATIONS TO FIT WITHIN THE GRID.						
4. PROVIDE TITUS MODEL PAR IN PSYCH AREAS.						

SCHEMATIC DESIGN - NOT FOR CONSTRUCTION - 02-06-2009

HVAC SCHEDULES

EXPANSION AND RENOVATION  
CAMPBELL COUNTY MEMORIAL HOSPITAL  
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NOT FOR CONSTRUCTION

DATE: 02-06-2009  
JOB NO.: 20818100  
DR. BY:  
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