

FILE: T:\Jen\02487_EJA_Shands\T:\Design\Jen\02487\02487.dwg DATE: 04/20/06 TIME: 8:00 am BY: Thomas Campbell

OZONE SYSTEM SCHEDULE					
SYSTEM COMPONENTS	COOLING TOWER GPM	ELECTRICAL REQUIREMENTS		DESIGN BASED MANUFACTURER	NOTES
VOLTS	PHASE	AMPS			
3 OZONE GENERATORS 2 OXYGEN CONCENTRATORS 2 REFRIGERATED AIR DRYERS 2 AIR COMPRESSORS 1 CONTROL PANEL WITH SAFETY INTERLOCKS 2 VENTURI ASSEMBLIES 2 CIRCULATING PUMPS 1 TELEMETRY SYSTEM 1 CONDUCTIVITY CONTROLLER	12,200	460	3	120	ZENTOX

NOTE:
1. REDUNDANT SYSTEM.

SOLIDS SEPARATOR SCHEDULE							
TAG	LOCATION	DIAMETER (MMHSES)	INLET/OUTLET (INCHES)	DESIGN GPM	PRESSURE DROP (PSI)	DESIGN BASIS MANUFACTURER	MODEL NO.
SS-1	MACHINE ROOM	24	12	1275/2000	6.5	LAKOS	HIM-1275-V

AIR/DIRT SEPARATOR SCHEDULE							
TAG	LOCATION	DIAMETER (INCHES)	INLET/OUTLET (INCHES)	DESIGN GPM	PRESSURE DROP (PSI)	DESIGN BASIS MANUFACTURER	MODEL NO.
ADS-1	MACHINE ROOM	48	24	12000	6.1	SPIRO-THERM	WT-2400FL
ADS-2	MACHINE ROOM	48	24	8000	6.1	SPIRO-THERM	WT-2000FL

COOLING TOWER SCHEDULE												
TOWER NO.	NUMBER OF CELLS	GPM EACH CELL	TEMPERATURES (°F)			FAN MOTOR			VOLT/PHASE	DESIGN BASED MANUFACTURER	DESIGN BASED	COMMENTS
			AIR Wb	WATER IN	WATER OUT	SPEED	NOMINAL HP (EA)	NUMBER OF FANS				
CT-1	4	4066	80	99.1	85	VFD	100	3	460/3	MARLEY	F445A-4-3	-
CT-2 (FUTURE)	2	4000	80	99.1	85	VFD	100	2	460/3	MARLEY	F445A-4-3	-

CIRCULATING PUMPS SCHEDULE												
PUMP NO.	PUMP LOCATION	SYSTEM	CIRCULATING FLUID			DESIGN BASED MANUFACTURER	MODEL NO.	% EFF.	TYPE	MOTOR		
			FLUID (RPM)	GPM	PUMP HEAD FT. FLUID					NOM. HP	VOLT. PHASE	RPM
CHP-1	MACHINE ROOM	CHILLED WATER	WATER	6100	137	39/51	AURORA	410-HSC-1800	10X12X158	-	VFD	300
CHP-2	MACHINE ROOM	CHILLED WATER	WATER	6100	137	39/51	AURORA	410-HSC-1800	10X12X158	-	VFD	300
CHP-3	MACHINE ROOM	CHILLED WATER (STANDBY)	WATER	6100	137	39/51	AURORA	410-HSC-1800	10X12X158	-	VFD	300
CHP-4	MACHINE ROOM (FUTURE)	CHILLED WATER	WATER	6100	137	39/51	AURORA	410-HSC-1800	10X12X158	-	VFD	300
CHP-5	MACHINE ROOM (FUTURE)	CHILLED WATER	WATER	6100	137	39/51	AURORA	410-HSC-1800	10X12X158	-	VFD	300
CWP-1	COOLING TOWER	TOWER/COND.	WATER	6100	63	85	AURORA	410-HSC-1200	12X14X158	-	-	125
CWP-2	COOLING TOWER	TOWER/COND.	WATER	6100	63	85	AURORA	410-HSC-1200	12X14X158	-	-	125
CWP-3	COOLING TOWER	TOWER/COND. (STANDBY)	WATER	6100	63	85	AURORA	410-HSC-1200	12X14X158	-	-	125
CWP-4	COOLING TOWER	TOWER/COND. (FUTURE)	WATER	6100	63	85	AURORA	410-HSC-1200	12X14X158	-	-	125
CWP-5	COOLING TOWER	TOWER/COND. (FUTURE)	WATER	6100	63	85	AURORA	410-HSC-1200	12X14X158	-	-	125
SPW-1	COOLING TOWER	SWEEP SYSTEM	WATER	2000	69	85	ARMSTRONG	SERIES 4300	12X12X17	-	-	50

CENTRIFUGAL CHILLER SCHEDULE														
CHILLER NO.	LOCATION	MINIMUM (TR)	MAX. KW PER 10N	COMPRESSOR MOTOR		EVAPORATOR			CONDENSER			DESIGN BASED MANUFACTURER	REFRIGERANT	MODEL
				KW INPUT	PHASE VOLTAGE	GPM	WATER TEMP. IN (°F)	WATER TEMP. OUT (°F)	GPM	WATER TEMP. IN (°F)	WATER TEMP. OUT (°F)			
CH-1	MACHINE ROOM	1449.2	-	10806.9	4160/3	6069	44.7	39	-	8100	85	91.69	-	TRANE R123 CVHF1470
CH-2	MACHINE ROOM	1600.6	-	10887.7	4160/3	6069	51	44.7	-	8100	91.69	99.1	-	TRANE R123 CVHF1470
CH-3	MACHINE ROOM	1449.2	-	10806.9	4160/3	6069	44.7	39	-	8100	85	91.69	-	TRANE R123 CVHF1470
CH-4	MACHINE ROOM	1600.6	-	10887.7	4160/3	6069	51	44.7	-	8100	91.69	99.1	-	TRANE R123 CVHF1470
CH-5	MACHINE ROOM	1600.6	-	10887.7	4160/3	6069	51	44.7	-	8100	91.69	99.1	-	TRANE R123 CVHF1470
CH-6	MACHINE ROOM (FUTURE)	1449.2	-	10806.9	4160/3	6069	44.7	39	-	8100	85	91.69	-	TRANE R123 CVHF1470
CH-7	MACHINE ROOM (FUTURE)	1600.6	-	10887.7	4160/3	6069	51	44.7	-	8100	91.69	99.1	-	TRANE R123 CVHF1470
CH-8	MACHINE ROOM (FUTURE)	1449.2	-	10806.9	4160/3	6069	44.7	39	-	8100	85	91.69	-	TRANE R123 CVHF1470

EXPANSION TANK									
NO.	DESCRIPTION	MANUFACTURER	MAWP (PSI)	MAX. TEMP.(°F)	CHARGE (LBS)	DIAMETER (IN.)	HEIGHT (IN.)	WEIGHT (LBS)	MODEL NO.
ET-1	CHILLED WATER EXPANSION TANK	WESSELS	125 PSIG	240	110 PSI	72	233	5925	NLA 15000

FAN COIL UNIT SCHEDULE										
TAG	LOCATION	ROOM TEMPERATURE (°F)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	ENTERING WATER TEMPERATURE (°F)	LEAVING WATER TEMPERATURE (°F)	WATER FLOW GPM	# OF FANS AND HP	ELECTRICAL V/PH	MANUFACTURER
FCU-1	VFD ROOM	80	252.8	185.8	39	55.2	31	2 @ 1/2	460/3	YORK SCC-266TH-BR
FCU-2	ELECTRICAL ROOM	80	101.3	82.94	39	52.43	15	1 @ 1/2	460/3	YORK SCC-166TH-BR
FCU-3	ELECTRICAL ROOM	80	101.3	82.94	39	52.43	15	1 @ 1/2	460/3	YORK SCC-166TH-BR

MECHANICAL LEGEND

AHU AIR HANDLING UNIT	DH DUCT HEATER	GS GLYCOL STATION	ST STORAGE TANK	VS VIBRATION SWITCH	GV - GLOBE VALVE	PS PRESSURE SUSTAINING VALVE	RV RELIEF VALVE	DP DIFFERENTIAL PRESSURE SWITCH
AMP AIR HANDLER PUMP	DPT DIFF. PRESSURE TRANSMITTER	GP GLYCOL PUMP	TDV TRIPLE DUTY VALVE	AV - AUTOMATIC AIR VENT	FCV - FLOW CONTROL VALVE	INSULATION	ERFOT - ECCENTRIC REDUCER FLAT ON TOP	FM FLOW METER
AMU AIR MAKE-UP UNIT	DR DRAIN	GPM GLYCOL PUMP MOTOR	TS TEMPERATURE SENSOR	BV - BALL VALVE	LBV - LUG BUTTERFLY VALVE (W/ MANUAL OPERATOR)	PRV - PRESSURE REGULATING VALVE	ERFOT - ECCENTRIC REDUCER FLAT ON TOP	TE - TEMPERATURE ELEMENT
BOI BOTTOM OF INSULATION	ET EXPANSION TANK	HTR HEATER	TW TOWER WATER	BV - BALL VALVE	LBV - LUG BUTTERFLY VALVE (W/ ELECTRIC ACTUATOR)	STR - STRAINER (CONTROL VALVE)	FLANGED UNION	TT - TEMPERATURE TRANSMITTER
BOF BOTTOM OF PIPE	EQ EQUALIZING LINE	LBV LUG TYPE BUTTERFLY VALVE	TWO TOWER WATER OVERFLOW	CKV - CHECK VALVE	MBV - MOTORIZED BALL VALVE	CONCENTRIC REDUCER	PG - PRESSURE GAUGE	STR - STRAINER (WATER)
C COMPRESSOR	EV EVAPORATOR	OD OIL DRAIN	TWP TOWER WATER PUMP	EJ - EXPANSION JOINT	PS - PRESSURE DIFFERENTIAL SWITCH	ERFOB - ECCENTRIC REDUCER FLAT ON BOTTOM		
CCP CHILLER CONTROL PANEL	FC FAN COIL UNIT	PRG PURGE	TWR TOWER WATER RETURN					
CHMS CHILLED WATER SUPPLY	FD FIRE DAMPER	PPO PUMP/OUT LINE	TWS TOWER WATER SUPPLY					
CHWR CHILLED WATER RETURN	FM FAN MOTOR	PS PRESSURE SWITCH	WD WATER DRAIN					
CM COMPRESSOR MOTOR	FN FAN	PT PRESSURE TRANSDUCER	WN WELD NECK/BUTT WELD					
CND CONDENSER	FS FLOAT SWITCH	RV RELIEF VENT	WPM WATER PUMP MOTOR					
CNO CLEAN OUT	FT FLOW TRANSMITTER	SD SUCTION DISTRIBTER						
CT COOLING TOWER	GMP GLYCOL MAKE-UP PUMP	SP SPOOL PIECE						

SPLIT SYSTEM HEAT PUMP SCHEDULE

PLAN SYMBOL		LOCATION	INDOOR UNIT										OUTDOOR UNIT					NOTES			
INDOOR UNIT	OUTDOOR UNIT		TOTAL (W5H)	SENS. (W5H)	MIN. SEER / EER	HEATING 67°W/35°B	MIN. HSPF / COP	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	EXT. S.P. (IN. WG)	MOTOR HP	FAN FPA	INDOOR UNIT	AUX. HT. (IN)	FAN FPA	COMP. RLA	MAX. AMPS		BASIS OF DESIGN		
AHU-1	CU-1	WELFARE AREA	24.0	16.7	10.0	22.8	-	800	160	0.5	1/4	1.7	208/1	3.6	-	208/1	0.9	10.9	25	-	1,2,3,4

NOTES:
1. PROVIDE FILTER RACK FOR 5" PLEATED FILTERS. (FRAME TFM215A04M)
2. PROVIDE SINGLE POINT CONNECTION.
3. PROVIDE DISCONNECT SWITCH.
4. 5" PLEATED FILTERS.
5. PROVIDE LOW AMBIENT COOLING TO 30°F.

EXHAUST FAN SCHEDULE

PLAN SYMBOL	LOCATION	TYPE	CFM	TSP (IN. WG)	FAN RPM	MOTOR HP	VOLT/PH	WEIGHT (LBS.)	ROOF OPENING	BASIS OF DESIGN	NOTES
EF-1	MACHINE ROOM	3	31,344	0.35	767	7.5	460/3	1,150	61 1/2" x 61 1/2"	COOK 34LEU	1,3,5,8,12
EF-2	MACHINE ROOM	3	31,344	0.35	767	7.5	460/3	1,150	61 1/2" x 61 1/2"	COOK 34LEU	1,3,5,8,12
EF-3	MACHINE ROOM	3	31,344	0.35	767	7.5	460/3	1,150	61 1/2" x 61 1/2"	COOK 34LEU	1,3,5,8,12
EF-4	MACHINE ROOM	8	5,615	0.35	1,290	1.0	460/3	220	N/A	COOK 24XUMH	1,8,13
EF-5	WELFARE AREA	11	160	0.33	1,100	.04	120/1	30	N/A	COOK 100W100L	1,6,7,11

FAN TYPES:

1. CENTRIFUGAL POWER ROOF VENTILATOR.
2. CENTRIFUGAL UPBLAST POWER ROOF VENTILATOR.
3. PROPELLER POWER ROOF EXHAUST VENTILATOR.
4. IN-LINE CENTRIFUGAL CABINET FAN.
5. CEILING CENTRIFUGAL CABINET FAN.
6. SQUARE IN-LINE CENTRIFUGAL FAN.
7. PROPELLER TUBE AXIAL FAN.
8. PROPELLER POWER WALL EXHAUST VENTILATOR.
9. PROPELLER POWER WALL SUPPLY VENTILATOR.
10. SMOKE & HEAT REMOVAL POWER ROOF VENTILATOR.
11. CENTRIFUGAL WALL EXHAUST FAN.

NOTES:

1. NEW 1. POWER DISCONNECT.
2. PROVIDE MOTORIZED (120 V) DAMPER.
3. PROVIDE ROOF CURB OF SUFFICIENT HEIGHT TO PROVIDE A MINIMUM OF 8" FROM FINISHED ROOF SURFACE TO TOP OF HAULER AND CLOPPED TO MATCH ROOF PITCH SUCH THAT HAULER IS LEVEL.
4. PROVIDE SPARKPROOF CONSTRUCTION W/ ALUMINUM BLADES.
5. PROVIDE BUTTERFLY DAMPER WITH RAIN SHUTTER.
6. TWO SPEED MOTOR.
7. PROVIDE BIRD SCREEN.
8. ADJUSTABLE BELT DRIVE.
9. PROVIDE EXHAUST ROOF JACK/CAP W/ BIRD SCREEN.
10. PROVIDE EXHAUST WALL CAP W/ BIRD SCREEN.
11. PROVIDE GRANTY DAMPER.
12. PROVIDE INLET GUARD.
13. PROVIDE WALL BOX, SHUTTER AND OSHA WIRE GUARD AND WEATHER HOOD.
14. PROVIDE HANGING RODS, BRACKETS AND VIBRATION ISOLATORS.
15. PROVIDE TIME DELAY SWITCH.

ELECTRIC UNIT HEATER SCHEDULE

PLAN SYMBOL	LOCATION	CAPACITY (KW)	GPM	MOTOR HP	VOLT/PH	AMPS	WEIGHT (LBS.)	HTG. HT. (FT.)	BASIS OF DESIGN	NOTES
EUH-1	MACHINE ROOM	15.0	1250	1/4	480/3	18.0	73	11	BRASCH BTU-15-4803	1,2,3,4,5,6
EUH-2	MACHINE ROOM	15.0	1250	1/4	480/3	18.0	73	11	BRASCH BTU-15-4803	1,2,3,4,5,6
EUH-3	MACHINE ROOM	15.0	1250	1/4	480/3	18.0	73	11	BRASCH BTU-15-4803	1,2,3,4,5,6
EUH-4	MACHINE ROOM	15.0	1250	1/4	480/3	18.0	73	11	BRASCH BTU-15-4803	1,2,3,4,5,6

NOTES:

1. WALL BRACKET WITH SWIVEL CONNECTOR.
2. SINGLE POINT POWER CONNECTION.
3. THERMAL SAFETIES.
4. BUILT-IN CONTACTORS AND CONTROL CIRCUIT TRANSFORMERS.
5. FAN DELAY FOR REMOVAL OF RESIDUAL HEAT.
6. UNIT MOUNTED THERMOSTAT.

WALL LOUVER SCHEDULE

PLAN SYMBOL	LOCATION	FACE SIZE W x H	MOUNTING HEIGHT	DAMPER INTERLOCK	BASIS OF DESIGN	NOTES
L-1	MACHINE ROOM	(2) 72" x 60"	18"	N/A	RUSKIN ELFB3750KD	1,2,3,4,6,7
L-2	MACHINE ROOM	(2) 72" x 60"	18"	N/A	RUSKIN ELFB3750KD	1,2,3,4,5
L-3	MACHINE ROOM	(2) 72" x 60"	18"	EF-4	RUSKIN ELFB3750KD	1,2,3,4,5
L-4	WELFARE AREA	12" x 12"	-	N/A	RUSKIN ELFB3750KD	1,2,3,4

NOTES:

1. LOUVER SIZE GIVEN SHOULD BE CONSIDERED AS THE WALL OPENING SIZE. ACTUAL LOUVER DIMENSIONS SHOULD BE ADJUSTED TO ALLOW FOR FRAMES.
2. MOUNTING HEIGHT FROM TOP OF FINISHED FLOOR TO BOTTOM OF LOUVER.
3. ANODIZED ALUMINUM. COORDINATE COLOR W/ ARCH. DRAWINGS.
4. PROVIDE INSECT SCREEN.
5. PROVIDE CLOSURE MANUAL DAMPER.
6. PROVIDE CLOSURE MOTORIZED (120 V) DAMPER. SEE CONTROL SEQUENCES.
7. DAMPER ACTUATOR SHALL BE POWERED CLOSED AND FAIL OPEN.
8. ALL LOUVERS ARE WMM-DADE APPROVED.

AIR DISTRIBUTION SCHEDULE

PLAN SYMBOL	TYPE	FACE SIZE (IN.)	NECK SIZE	BASIS OF DESIGN	NOTES
⊙	CEILING DIFFUSER	24x24	AS NOTED	TITUS TDC-AA	1,2,3,4
⊙	SUPPLY REGISTER	SEE PLAN	AS NOTED	TITUS 300 FS	4,5
⊙	RETURN AIR GRILLE	24x24	AS NOTED	TITUS SOF	3,4
⊙	RETURN AIR GRILLE	SEE PLAN	AS NOTED	TITUS SOF	4,7

NOTES:

1. ALL DIFFUSERS ARE FOUR WAY UNLESS INDICATED. 1W FOR ONE WAY, 2W FOR TWO WAY, 3W FOR THREE WAY.
2. PROVIDE SPIN-IN FITTING WITH BUTTERFLY DAMPER AND 2" HANDLE STAND-OFF.
3. LAY IN FRAME.
4. ALUMINUM CONSTRUCTION.
5. WITH KEY OPERATED OBD.
6. PROVIDE SPIN-IN FITTING WITH BUTTERFLY DAMPER.
7. BORDER TYPE 1.

FIRE DAMPER SCHEDULE

TAG NO.	DUCT SIZE	DAMPER SIZE W x H	WALL OPENING	MANUFACTURER	MODEL NO.	FUSIBLE LINK
FD-1	12"x10"	12"x11 3/4"	12 1/2"x12 1/4"	RUSKIN	IB060	165F
FD-2	12"x12"	12"x14 1/4"	12 1/2"x14 1/4"	RUSKIN	IB060	165F

CIRCUIT SETTER SCHEDULE

CIRCUIT SETTER TAG	LOCATION	WATER FLOW GPM	CIRCUIT SETTER TAG	DESIGN P.D. (FT.)	DESIGN SETTING	MANUFACTURER	MODEL NO.
CS-101	VFD ROOM	31	1 1/2"	10	19	BELL & GOSSETT	CB 1-1/2
CS-102	ELECTRICAL ROOM	15	1 1/2"	10	37.6	BELL & GOSSETT	CB 1-1/2
CS-103	ELECTRICAL ROOM	15	1 1/2"	10	37.6	BELL & GOSSETT	CB 1-1/2

GENERAL NOTES:

1. ATTACH DISCONNECT SWITCH FOR EF-1 THRU EF-3 TO BUILDING STEEL BELOW FAN.



JEA SHANDS
CHILLED WATER PLANT
JACKSONVILLE, FLORIDA

CHILLER EQUIPMENT
SCHEDULES
AND
LEGENDS

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RECORD DRAWING	REVISION	DATE	BY
1	08-21-06	TFC	REVISION
2	11-11-06	TFC	CONSTRUCTION ISSUE
3	01-11-07	TFC	PERMIT ISSUE
4	01-11-07	TFC	DATE
5	01-11-07	TFC	DATE

JOB NO. 860 02487

DRAWN

NOTE:

1. SYSTEM SHALL BE MODULAR TYPE, HAVING A MAXIMUM OF 2 SKIDS AT BUILD OUT. SYSTEM TO HAVE AN INITIAL CAPACITY TO HANDLE 24,000 GPM WATER FLOW RATE WITH A FUTURE CAPACITY OF 36,000 GPM.

NOTES:

1. SEE M601 FOR FLOWS AT INITIAL START-UP.

NOTES:

1. EVAPORATOR AND CONDENSER FLOWS BASED ON MAXIMUM BUILDOUT.
SEE MS01 FOR FLOWS AT INITIAL START-UP.

AHU	AIR HANDLING UNIT
AHP	AIR HANDLER PUMP
AMU	AIR MAKE-UP UNIT
BOI	BOTTOM OF INSULATION
BOP	BOTTOM OF PIPE
C	COMPRESSOR
CCP	CHILLER CONTROL PANEL
CM	COMPRESSOR MOTOR
CND	CONDENSER
CT	COOLING TOWER
DPT	DIFF. PRESSURE TRANSMITTER

DR	DRAIN
ET	EXPANSION TANK
EQ	EQUALIZING LINE
EVP	EVAPORATOR
FM	FAN MOTOR
FN	FAN
FS	FLOAT SWITCH
FT	FLOW TRANSMITTER
GMP	GLYCOL MAKE-UP PUMP
GS	GLYCOL STATION
GP	GLYCOL PUMP

GPM	GLYCOL PUMP MOTOR
HTR	HEATER
LBV	LUG TYPE BUTTERFLY VALVE
OD	OIL DRAIN
PRG	PURGE
PO	PUMPOUT LINE
PS	PRESSURE SWITCH
PT	PRESSURE TRANSDUCER
RV	RELIEF VALVE
SD	SUCTION DIFFUSER
SP	SPOOL PIECE

ST	STORAGE TANK
TDV	TRIPLE DUTY VALVE
TS	TEMPERATURE SENSOR
TW	TOWER WATER
TWO	TOWER WATER OVERFLOW
TWP	TOWER WATER PUMP
TWR	TOWER WATER RETURN
TWS	TOWER WATER SUPPLY
WD	WATER DRAIN
WN	WELD NECK/BUTT WELD
WPM	WATER PUMP MOTOR

	VICTAULIC CONNECTION
VS	VIBRATION SWITCH
	AV - AUTOMATIC
	BALV - BALANCE VALVE
IOI	IOI - BALL VALVE
	CKV - CHECK VALVE
	EJ - EXPANSION JOINT

ATION		GV - GLOBE
UR VENT		FCV - FLOAT
ING VALVE		LBV - LOW (W/ MANUAL)
		LBV - LOW (W/ ELECTRIC)
VE		MBV - MOTOR
POINT		PS - PRESSURE

E VALVE
 Y CONTROL VALVE
 BUTTERFLY VALVE
 OPERATOR)
 BUTTERFLY VALVE
 C ACTUATOR)
 RORIZED BALL VALVE
 SURE DIFFERENTIAL SWITCH

	PRESSURE SUSTAINING
	INSULATION
	PRV - PRESSURE REG.
	STR - STRAINER (CON)
	CONCENTRIC REDUCER
	ERFOB - ECCENTRIC R FLAT ON BOT

VALVE		RELIEF
		MODULATOR
ACTUATING VALVE		ERFOT
CONTROL VALVE		CAP
		FLANGE
PRODUCER		PG -

VALVE	
ING VALVE (4-20MA)	
ECCENTRIC REDUCER FLAT ON TOP	
	
UNION	
PRESSURE GAUGE	

DIFFERENTIAL PRESSURE SWITCH
FLOW METER
CONTINUATION TAG
DESIGNATION TAG
TE - TEMPERATURE ELEMENT
TT - TEMPERATURE TRANSMITTER
STR - STRAINER (WATER)

5

FLANGES 2 1/2" AND
150 LB, FORGED STEEL
RAISED FACE TO MATCH
2" AND SMALLER
SOCKET WELD, 150 LB
TO MATCH EQUIPMENT

INSULATION SPECIFICATIONS
2" THICK POLYSTYRENE
APPLIED IN A SINGLE
PERMEABILITY JOINT
SOLVENT WELD.

SYSTEM DESIGN PRESSURE
THE MAXIMUM DESIGN
CONDENSER WATER

FORGED STEEL, FLAT OR RAISED END
ASTM 105, GR2

— ALL CHILLED WATER PIPING
INSULATION, 1.6LBS/FT³ DENSITY
INSULATION, SEAL ALL JOINTS WITH A
GASKET, JACKET TO BE 20 MIL W

— PRESSURE FOR CHILLED WATER
SYSTEMS IS 150 PSI.

OR

FACE

Y.
OW
TE PVC

ID

JOB NO.	7				
DRAWN:					
CHECKED:					
SCALE:					

5-02161	REV.
TFC	
RWR	
NONE	

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JOB NO. 745-02161	
DRAWN:	TFC

CHECKED:	RWR
SCALE:	NONE

M001
DRAWING NO.

PIPE & FITTINGS SPECIFICATION

PIPE 1/2"-24"
C.S. TO ASME A53, GRADE B, ERW, STANDARD WALL THICKNESS
ALLOW 24"

PIPE 26" - 48" DSW C.S. STANDARD WALL THICKNESS

FITTINGS 2" AND SMALLER
SOCKET WELD, ASTM A105, C.S. TO ANSI B16.11, CLASS 3000,
SOCKET WELD PREPARED,
OR
THREADED, ASTM A105, C.S. TO ANSI B16.11, CLASS 3000.

1 1/2" - 24" FLANGES
BUTTWELD ASTM A234 WPB, ANSI B16.9, BUTT WELD
PREPARED

FLANGES 26" AND LARGER
2" FORGED STEEL SPLICER ON OR WELD NECK, FLAT OR
RAISED FACE TO MATCH EQUIPMENT, ANSI 105, GR2

2" AND SMALLER
SOCKET WELD, 150 LB. FORGED STEEL, FLAT OR RAISED FACE
TO MATCH EQUIPMENT, ANSI 105, GR2

INSULATION SPECIFICATION - ALL CHILLED WATER PIPING

2" THICK POLYSTYROFOAM INSULATION, 1.8LBS/FT³ DENSITY,
APPLY SINGLE LAYER, SEAL ALL JOINTS WITH A LOW
PERMEABILITY JOINT SEALANT, JACKET TO BE 20 MIL WHITE PVC
SOLVED WELD.

SYSTEM DESIGN PRESSURE

THE MAXIMUM DESIGN PRESSURE FOR CHILLED WATER
AND CONDENSER WATER COMPONENTS IS 150 PSIG.

[illegible]

1. CENTRIFUGAL POWER ROOF VENTILATOR.
2. CENTRIFUGAL UPBLAST POWER ROOF VENTILATOR.
3. PROPELLER POWER ROOF EXHAUST VENTILATOR.
4. INLINE CENTRIFUGAL CABINET FAN.
5. CEILING CENTRIFUGAL CABINET FAN.
6. CENTRIFUGAL INLINE BLOWER.
7. PROPELLER TUBE AXIAL FAN.
8. PROPELLER POWER WALL EXHAUST VENTILATOR.
9. PROPELLER POWER WALL SUPPLY VENTILATOR.
10. SMOKE & HEAT REMOVAL POWER ROOF VENTILATOR.
11. CENTRIFUGAL ROOF SUPPLY FAN

1. PROVIDE FACTORY WIRED AND MOUNTED DISCONNECT
2. PROVIDE WITH RAIN CAP AND INSECT SCREEN
3. PROVIDE FACTORY INSULATED 12" HIGH ROOF CURB, SLOPE CURB TO MATCH ROOF
4. MOUNTING KIT
5. PROVIDE FACTORY INSULATED ROOF CURB 18" HIGH, SLOPE CURB TO MATCH ROOF
6. PROVIDE SPARKPROOF CONSTRUCTION, ALUMINUM BLADES AND HOUSING
7. PROVIDE WITH ALUMINUM BLADES AND GALVANIZED HOUSING
8. PROVIDE WALL CAP AND INSECT SCREEN
9. DISCHARGE GUARD
10. PROVIDE STAINLESS STEEL, INSECT SCREEN AND DISCHARGE GUARD
11. SOLID STATE SPEED CONTROL, MOUNTED ON FAN
12. PROVIDE SPRING LOADED GRANTY BACKFAMT DAMPER
13. PROVIDE 10 MPH HOLD DOWN STRAPS FOR CURB AND FAN HEAD
14. PROVIDE CORROSION RESISTANT FINISH FOR COASTAL ENVIRONMENTS
15. PHENOLIC COATING
16. TWO SPEED MOTOR
17. PROVIDE INSECT SCREEN
18. PROVIDE GALVANIZED WEATHERHOOD
19. PROVIDE 1" FILTER SECTION
20. EPOXY COATING FOR CORROSION RESISTANCE
21. TFC MOTOR
22. OSHA MOTOR SIDE GUARD
23. AUTOMATIC WALL SHUTTER
24. PROVIDE BACKFAMT DAMPER
25. INTERLOCKED WITH LIGHT SWITCH

1. EF-1, EF-2, EF-3, EF-4, EF-5 WILL BE THERMOSTATICALLY CONTROLLED BY A 2 STAGE COOLING THERMOSTAT. EF-1, EF-2 WILL TURN ON @ 80°F. EF-3, EF-4 AND EF-5 WILL TURN ON @ 85°F. EF-4, EF-5 AND L-3 WILL BE INTERLOCKED WITH REFRIGERANT DETECTORS, PROVIDED BY OTHERS.

PLAN SYMBOL	TYPE	FACE SIZE	NECK SIZE	BASIS OF DESIGN	NOTES
D-1	CEILING DIFFUSER	24"x24"	8"	METAL AIRE 5700	1,2,4
D-2	CEILING DIFFUSER	24"x24"	12"	METAL AIRE 5700	1,2,4
G-1	RETURN AIR GRILLE	—	—	METAL AIRE CCS	4
G-2	RETURN AIR GRILLE	24"x24"	—	METAL AIRE CCS	4

1. ALL DIFFUSERS ARE FOUR WAY UNLESS OTHERWISE INDICATED, 1W FOR ONE WAY, 2W FOR TWO WAY, 3W FOR THREE WAY.
2. PROVIDE OPPOSED BLADE DAMPER AT NECK.
3. PROVIDE DISPOSABLE FILTER.
4. ALUMINUM CONSTRUCTION.

ELECTRIC HOT WATER HEATER SCHEDULE									
TAG NO.	LOCATION	CAPACITY (GAL.)	HEATING ELEMENTS		VOLTS/PHASE	INLET INCHES	OUTLET INCHES	RELIEF INCHES	NOTES
			QUANTITY	KW					
WH-1	TOOL STORAGE	40	2	3	208/1	3/4	3/4	3/4	1.2

SYSTEM COMPONENTS	COOLING TOWER TONS	ELECTRICAL REQUIREMENTS			DESIGN-BASED MANUFACTURER	NOTES
		VOLTS	PHASE	AMPS		
1 OZONE GENERATOR	3450	460	3	80	ZENTOX	1
1 OXYGEN CONCENTRATOR						
1 REFRIGERATED AIR DRYER						
1 AIR COMPRESSOR						
1 CONTROLLER						
1 CONTROL PANEL WITH SAFETY INTERLOCKS						
1 VENTURI ASSEMBLY						
1 CIRCULATING PUMP						
1 RECEIVER TANK						
1 AIR HANDLER						

1. SYSTEM SHALL BE MODULAR TYPE WITH A FUTURE CAPACITY OF 10,000 TONS

SOLIDS SEPARATOR SCHEDULE								
TAG	LOCATION	DIAMETER (INCHES)	INLET/OUTLET (INCHES)	DESIGN GPM	PRESSURE DROP (PSI)	DESIGN BASIS MANUFACTURER	MODEL NO	COMMENTS
SS-1	MACHINE ROOM	18	8	1450	8	LIXOS	MLH-0810-V-L	-

AIR/DIRT SEPARATOR SCHEDULE								
TAG	LOCATION	DIAMETER (INCHES)	INLET/OUTLET (INCHES)	DESIGN GPM	PRESSURE DROP (PSI)	DESIGN BASIS MANUFACTURER	MODEL NO	COMMENTS
ADS-1	MACHINE ROOM	32	16	5800	95	SPROTHERM	YHT-1800F-16"	=

[illegible]

1. EVAPORATOR AND CONDENSER FLOWS BASED ON 3400 TONS CHILLER CAPACITY.
SEE M601 FOR FLOWS AT INITIAL START-UP.

[illegible]

ALL 115 VAC MOTORS ARE TO BE PROVIDED WITH
INTERNAL OVERLOAD PROTECTION.

	SQUARE OR RECTANGULAR DUCT. FIRST FIGURE IS DIMENSION OF SIDE SHOWN ON PLAN
	ROUND DUCT. FIGURE IS DIAMETER OF THE DUCT
	DUCTWORK (POSITIVE PRESSURE)
	DUCTWORK (NEGATIVE PRESSURE)
	CEILING SUPPLY AIR DIFFUSER. SHADED AREA INDICATES BLANKED-OFF SECTION
	CEILING RETURN OR EXHAUST AIR GRILLE/REGISTER
	SIDEWALL SUPPLY AIR REGISTER
	SIDEWALL RETURN AIR GRILLE/REGISTER
	ROUND SPIN-IN TAP W/ MANUAL DAMPER
	ELBOW WITH TURNING VANES
	MANUAL VOLUME DAMPER (MVD)
	MOTORIZED (ELECTRIC OPERATED) DAMPER
	FIRE/SMOKE DAMPER (F/S/D) AND SLEEVE PROVIDE ACCESS DOOR (AD)
	FLEXIBLE DUCT
	UNDERCUT DOOR 1"
	CONNECTION OF NEW WORK TO EXISTING
	AIR DISTRIBUTION DEVICE
	THERMOSTAT
	HUMIDISTAT
	DUCT MOUNTED SMOKE DETECTOR
	CONDENSATE DRAIN PIPING
	GAS PIPING
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	FILL LINE
	TEE (PLAN, UP, DOWN)
	ELBOW (90°, 45°)
	ELBOW (UP, DOWN)
MBH	1,000 BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
SA	SUPPLY AIR
RA	RETURN AIR
OA	OUTSIDE AIR
AD	ACCESS DOOR

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWING.

ELECTRIC UNIT HEATER SCHEDULE									
MARK	LOCATION	CAPACITY KW	POWER	MOUNTING HEIGHT	HORIZONTAL THROW FT.	CFM	MAXIMUM AMF RATING	MANUFACTURER/ MODEL	NOTES
UH-1	MACHINE ROOM	15	480/3/60	12' AFF	35	910	18	DAYTON	1,2,3
UH-2	MACHINE ROOM	15	480/3/60	12' AFF	35	910	18	DAYTON	1,2,3
UH-3	MACHINE ROOM	15	480/3/60	12' AFF	35	910	18	DAYTON	1,2,3
UH-4	MACHINE ROOM	15	480/3/60	12' AFF	35	910	18	DAYTON	1,2,3

1. SUPPLY THE UH'S WITH BUILT-IN DISCONNECT SWITCH AND WALL MOUNTING BRACKET FOR HORIZONTAL THROW MODEL 6X957.
2. BUILT IN THERMOSTAT.
3. MOUNT HEATERS 10'-0" ABOVE FINISHED FLOOR.

[illegible]

1. EVAPORATOR AND CONDENSER FLOWS BASED ON MAXIMUM BUILDOUT.
SEE M601 FOR FLOWS AT INITIAL START-UP.

WALL LOUVER SCHEDULE												
GENERAL EQUIPMENT DATA				AIR FLOW	MAX PD	WIDTH	HEIGHT	DEPTH	DESIGN BASIS	MODEL NO	COMMENTS	NOTES
PLAN SYMBOL	AREA SERVED	TYPE	DESCRIPTION	CFM	"wc"	INCHES	INCHES	INCHES	MANUFACTURE			
L-1	MACHINE ROOM	COMBINATION LOUVER/DAMPER	MILL FINISHED ALUMINUM	27,705	0.1"	132	96	6	LOWERS AND DAMPERS	DC-66C	1, 2	2
L-2	MACHINE ROOM	COMBINATION LOUVER/DAMPER	MILL FINISHED ALUMINUM	27,705	0.1"	132	96	6	LOWERS AND DAMPERS	DC-66C	1, 2	2
L-3	MACHINE ROOM	COMBINATION LOUVER/DAMPER	MILL FINISHED ALUMINUM	27,705	0.1"	132	96	6	LOWERS AND DAMPERS	DC-66C	1, 2	1
L-4	MACHINE ROOM	COMBINATION LOUVER/DAMPER	MILL FINISHED ALUMINUM	27,705	0.1"	132	96	6	LOWERS AND DAMPERS	DC-66C	1, 2	2
L-5	MACHINE ROOM	COMBINATION LOUVER/DAMPER	MILL FINISHED ALUMINUM	27,705	0.1"	132	96	6	LOWERS AND DAMPERS	DC-66C	1, 2	2

1. PROVIDE ALUMINUM BIRD SCREEN ON OUTSIDE OF LOUVER
2. PROVIDE ONE OPERATOR FOR EVERY 30 FT SQ. OF LOUVER FACE AREA MAXIMUM.

1. MOTORIZED DAMPERS/ WITH 115/1/60 OPERATORS.
2. MANUAL DAMPERS/ WITH CRANK OPERATORS.

[illegible]

MECHANICAL SCHEDULES AND LEGENDS

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			TFC	RECORD DRAWING
	1	3/21/93	TFC	REVISED CONSTRUCTION ISSUE
	0	4/21/98	TFC	REVISED CONSTRUCTION ISSUE
	C	6/4/98	TFC	CONSTRUCTION ISSUE
	B	5/9/98	TFC	BID ISSUE
	A	6/9/98	JMM	PERMIT ISSUE
	APP-2	6/9/98	JMM	

NO. 745-01858

NAME: _____ TFC _____

RECEIVED: RWR

NAME: NONE

M002

DRAWING NO.