

SEQUENCE OF OPERATION

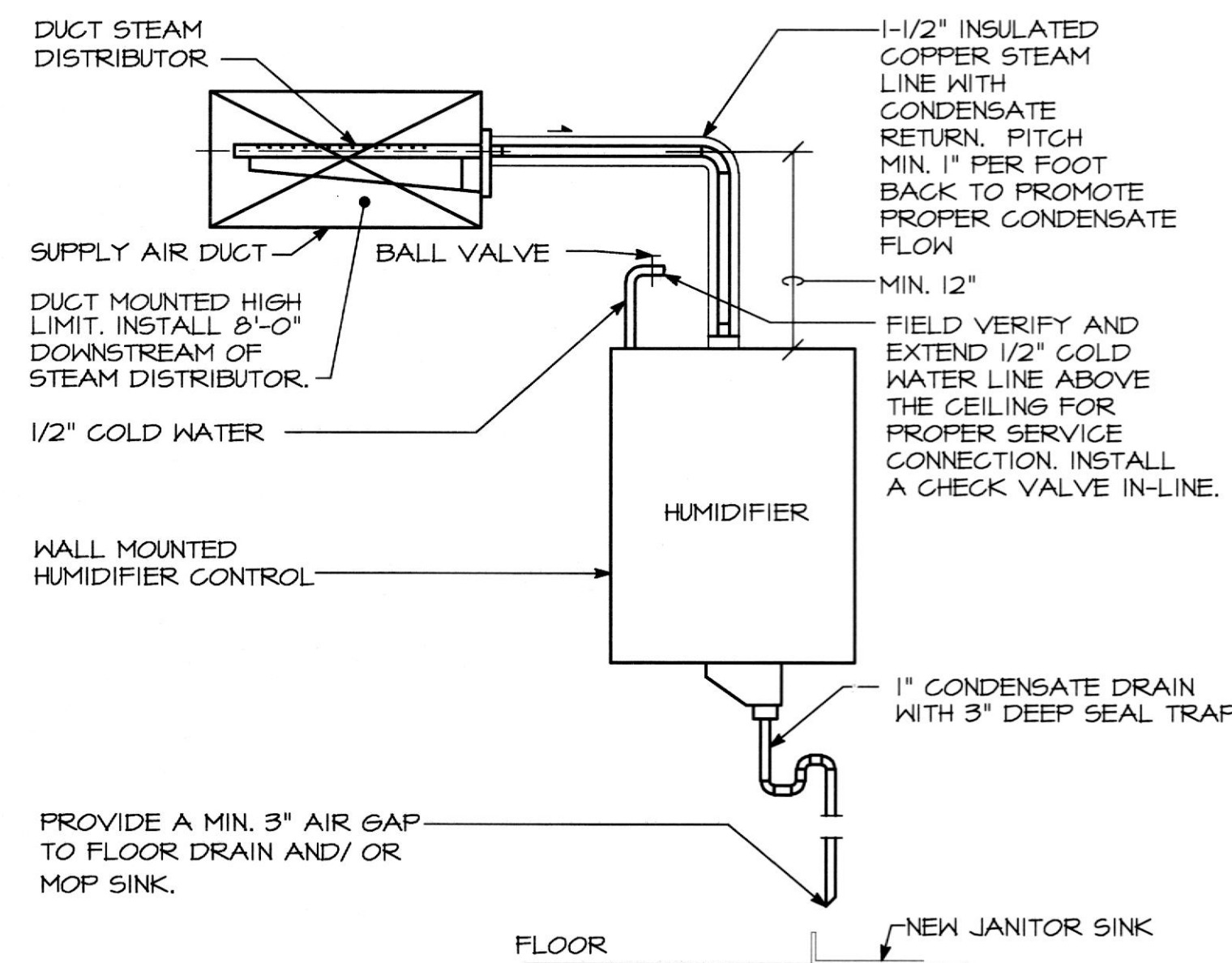
- AIR HANDLING UNIT**
- DURING OCCUPIED PERIOD AS PROGRAMMED ON ASSOCIATED AIR HANDLING UNIT THERMOSTAT, BLOWER FAN SHALL RUN CONTINUOUSLY AND OUTSIDE AIR DAMPERS OPEN TO MAXIMUM POSITION.
 - ON A CALL FOR HEATING, COMPRESSOR SHALL BE ENERGIZED AND/OR ELECTRIC HEAT AND SHALL RUN UNTIL SETPOINT IS SATISFIED.
 - DURING NIGHT SETBACK PERIOD AS PROGRAMMED ON ASSOCIATED AIR HANDLING UNIT THERMOSTAT, BLOWER FAN SHALL CONTINUE OPERATION AND OUTSIDE AIR DAMPERS SHUT TO ITS SCHEDULED MINIMUM POSITION. ON A CALL FOR HEATING OR COOLING, THE OUTSIDE AIR DAMPERS SHALL MAINTAIN ITS MINIMUM POSITION AND THE ASSOCIATED COMPRESSOR AND/OR ELECTRIC HEATING COIL SHALL CYCLE UNTIL SPACE SETPOINTS ARE SATISFIED.
 - UNIT SHALL BE DE-ENERGIZED IF EXISTING SMOKE DETECTOR SENSES SMOKE OR ANY SAFETY/CONTROL EXCEEDS ITS LIMITS.
- ** AHU-1 & 2 DURING OCCUPIED MODE THE OUTSIDE AIR DAMPERS SHALL MODULATE TO THEIR MAXIMUM AIRFLOW AND DURING THE UNOCCUPIED PERIOD THE OUTSIDE AIR DAMPERS SHALL MODULATE TO ITS MINIMUM POSITION.
- **AAON AIR HANDLING UNITS DURING UNOCCUPIED MODES WILL HAVE NIGHT TEMPERATURE NIGHT SETBACK AS FOLLOWS:
- AHU-1 & AHU-2 COOLING NIGHT SETBACK TEMPERATURE TO BE 70°F AND HEATING SETPOINT TO BE 66°F.
- AHU-1 & AHU-2 UNIT'S DE-HUMIDIFICATION SETPOINT IS TO BE SET FOR 50% RH.

- EXISTING PACKAGED UNITS**
- DURING OCCUPIED PERIOD AS PROGRAMMED ON ASSOCIATED PACKAGED UNIT'S THERMOSTAT, BLOWER FAN SHALL RUN CONTINUOUSLY AND OUTSIDE AIR DAMPERS OPEN TO MAXIMUM POSITION AS SCHEDULED.
 - EX-AHU-1 TO MAINTAIN OCCUPIED MODE AS SCHEDULED WITH SEVEN (7) DAY TWENTY-FOUR (24) OPERATION.
 - ON A CALL FOR HEATING, GAS HEATING SHALL BE ENERGIZED AND SHALL RUN UNTIL SETPOINT IS SATISFIED.
 - ON A CALL FOR COOLING, THE UNIT MOUNTED CONTROLS SHALL ENERGIZE THE UNIT COMPRESSOR (MECHANICAL COOLING) SHALL BE ENERGIZED. THE UNIT COOLING CYCLE SHALL RUN UNTIL SETPOINT IS SATISFIED.
 - DURING NIGHT SETBACK PERIOD AS PROGRAMMED ON ASSOCIATED PACKAGED UNIT'S THERMOSTAT, BLOWER FAN SHALL BE OFF AND OUTSIDE AIR DAMPERS CLOSE. ON A CALL FOR HEATING OR COOLING, THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED AND THE FAN OR ASSOCIATED GAS HEATING AND/OR COMPRESSOR CYCLE UNTIL SPACE SETPOINTS ARE SATISFIED.
 - UNIT SHALL BE DE-ENERGIZED IF EXISTING SMOKE DETECTOR SENSES SMOKE OR ANY SAFETY/CONTROL EXCEEDS ITS LIMITS.

- EXHAUST/VENTILATION FANS**
- ROOF MOUNTED EXHAUST FAN E-1 SHALL BE INTERLOCKED WITH EXISTING 5 TON PACKAGED UNIT. DO NOT INTERLOCK WITH THE BLOWER FAN, BUT THE ACTUAL OCCUPIED/UNOCCUPIED OPERATIONS AT THE THERMOSTAT. UPON ACTIVATION OF OCCUPIED MODE FOR THE EXISTING PACKAGED UNIT, EXHAUST FAN SHALL BE ENERGIZED AND REMAIN ENERGIZED UNTIL THE PACKAGED UNIT GOES INTO UNOCCUPIED MODE. IN THE UNOCCUPIED MODE IT SHALL REMAIN DE-ENERGIZED.
 - EXHAUST FAN E-2 SHALL OPERATE 24 HOURS/7 DAYS A WEEK.
 - COMP/TELE ROOM EXHAUST FAN E-3 SHALL BE INTERLOCKED WITH WALL MOUNTED REVERSE ACTING THERMOSTAT. UPON A RISE IN SPACE TEMPERATURE ABOVE (78°F ADJUSTABLE) FAN SHALL BE ENERGIZED. MAKE-UP AIR SHALL BE TRANSFERRED FROM ADJACENT STORAGE SPACE. FAN SHALL RUN UNTIL SETPOINT IS SATISFIED. UPON SATISFYING THERMOSTAT SETPOINT FAN SHALL BE DE-ENERGIZED.

- ELECTRIC DUCT HEATER**
- ELECTRIC DUCT HEATER SHALL BE INTERLOCKED WITH HEATING ONLY REMOTE THERMOSTAT AND DUCT MOUNTED SENSOR (SETPOINT 72°F). UPON AIRFLOW AIR PROVING SWITCH, BEING SATISFIED, SHALL ALLOW ELECTRIC HEATER TO BE ENERGIZED UPON A CALL FOR HEAT. UPON REACHING SETPOINT HEATER SHALL BE DE-ENERGIZED.

- HUMIDIFIER**
- REFER TO DETAIL ON SHEET FOR MORE INFORMATION. THE "STAND ALONE" HUMIDIFICATION SETPOINT IS TO BE SET FOR 40% RH.
 - FROM APRIL THROUGH OCTOBER THE HUMIDIFIER IS TO BE SET DOWN TO 30% RH. FROM OCTOBER TO APRIL THE HUMIDIFIER IS TO BE SET AT 40% RH.



HUMIDIFIER DETAIL NO SCALE

- NOTES:**
- HUMIDIFIER TO BE PROVIDED WITH AN AIR PROVING SWITCH AND HIGH LIMIT HUMIDISTAT SENSOR.
 - CONTRACTOR TO REFER TO THE MANUFACTURER'S INSTALLATION MANUAL FOR PROPER CONDENSATE RETURN.
 - HUMIDISTAT TO BE PROVIDED WITH HUMIDIFIER FROM MANUFACTURER.
 - MAXIMUM DISTANCE FROM THE DUCT MOUNTED MANIFOLD TO THE WALL MOUNTED HUMIDIFIER IS 20'-0".
 - FROM APRIL THROUGH OCTOBER THE HUMIDIFIER IS TO BE TURN OFF AND FROM OCTOBER TO APRIL THE HUMIDIFIER IS TO BE TURN ON.

HEAT PUMP AIR HANDLING UNIT SCHEDULE

ITEM#	AREA SERVED	FAN DATA				COOLING DATA			HEATING DATA			HEAT PUMP HEATING DATA				ELECTRICAL DATA		HEIGHT (LBS.)		MODEL #		MANUFACTURER	
		C.F.M.	E.S.P.	B.H.P.	R.P.M.	TOTAL BTU/HR	SENSIBLE BTU/HR	EER	TYPE	BTU/HR.	K.W.	HI-TEMP. HEAT 41 O.A.T.		LOW-TEMP. HEAT 17 O.A.T.		INDOOR	OUTDOOR	INDOOR UNIT	OUTDOOR UNIT	INDOOR UNIT	OUTDOOR UNIT		
												HI-TEMP. HEAT 41 O.A.T. BTU/HR.	C.O.P.	LOW-TEMP. HEAT 17 O.A.T. BTU/HR.	C.O.P.								
AHU-1/ HPU-1	PROCEDURE RM. 1	1,400	2.5"	1.45	2,225	140	270	55,770	38,720	11.8	ELECTRIC	35,836	10.5	61,800	3.45	41,700	2.83	208v/3Ø	208v/3Ø	660	285	CC-C-005-B-D-11 D000000	AAON
AHU-1/ HPU-1	PROCEDURE RM. 2	1,400	2.5"	1.45	2,225	140	270	55,770	38,720	11.8	ELECTRIC	35,836	10.5	61,800	3.45	41,700	2.83	208v/3Ø	208v/3Ø	660	285	CC-C-005-B-D-11 D000000	AAON

- NOTES:**
- AIR HANDLING UNIT AHU-1 AND AHU-2 WILL HAVE CAPACITIES CONTROLS DOWN TO WITHIN 10% OF TOTAL CAPACITY WITH MODULATING COMPRESSORS. DIRECT DRIVE SUPPLY FAN WITH VFD, MODULATING HOT GAS REHEAT FOR DEHUMIDIFICATION, UNIT CASING WITH SOLID DOUBLE WALL CONSTRUCTION WITH FOAM INSULATION AND STAINLESS STEEL DRAIN PAN. ALSO EACH AIR HANDLING UNIT TO HAVE FACTORY SUPPLIED 2" MERV 8 FILTERS IN THE RETURN. CONTROLS TO BE PROVIDED IS THE AAON SYSTEM MANAGER TO BE LOCATED IN THE SITE MANAGER'S OFFICE WITH REMOTE TEMPERATURE/HUMIDITY SENSORS TO BE LOCATED IN EACH PROCEDURE ROOM. THE REMOTE TEMPERATURE/HUMIDITY SENSOR WILL ALLOW ONLY THE TEMPERATURE TO BE ADJUSTED IN THE PROCEDURE ROOMS IF SO DESIRED AND NOTHING ELSE. DOWNLOAD THE "PRISM" SOFTWARE ONTO THE TENANT PC. INTERLOCK WITH THE SYSTEM MANAGER TO ALLOW FOR WEB BASE INTERNET ACCESS. AAON AIR HANDLING UNITS ARE TO ONLY BE INSTALLED AND COMMISSIONED BY FACTORY TRAINED/CERTIFIED CONTRACTORS.
 - ALL AIR HANDLING UNITS CAPACITIES ARE BASED ON 99°F db/77°F wb AMBIENT TEMPERATURE.
 - AIR HANDLING UNITS TO BE PROVIDED WITH REVERSIBLE TXV (THERMAL EXPANSION VALVE), FILTER DRYER, P-TRAP, MERV 8 INTEGRAL FILTER AND SINGLE POINT POWER CONNECTION FOR THE ELECTRIC HEATER AND FAN MOTOR.
 - AAON AIR HANDLING UNIT'S COOLING TEMPERATURE SETPOINT TO BE 66°F AND HEATING SETPOINT TO BE 68°F.
 - ANY AIR HANDLING UNITS MUST BE CAPABLE OF THE EXTERNAL STATIC PRESSURE PER THIS SCHEDULE.
 - CONTRACTOR WILL (NO SUBSTITUTES) ONLY PURCHASE/OBTAIN THE AAON EQUIPMENT FROM THE FOLLOWING: CONTACT: GRAHAME ELDRIDGE WITH WINDY CITY REPRESENTATIVES Phone (630) 590-6993 CELL (708) 790-1122

DUCTLESS MULTI-SPLIT HEAT PUMP AIR HANDLING UNIT SCHEDULE

ITEM#	INDOOR UNITS	QTY.	AREA SERVED	NOMINAL TONS	FAN DATA			COOLING DATA			HEAT PUMP HEATING DATA			ELECT. DATA		WEIGHT (LBS.)		MODEL #	ITEM#	MODEL #		MANUFACTURER	
					C.F.M.	E.S.P.	DBA	TYPE	TOTAL BTU/HR	SENSIBLE BTU/HR	HI-TEMP. HEAT 47 O.A.T. BTU/HR.	LOW-TEMP. HEAT 17 O.A.T. BTU/HR.	K.W.	BTU/HR.	K.W.	INDOOR UNIT	OUTDOOR UNIT			INDOOR UNIT	OUTDOOR UNIT		SEER
FCU-1	1	NURSE WORK	.60	385	NA	-	DX	17,000	N/A	19,640	-	-	-	-	208v/1Ø/60hz	30	170	FTX915LVJU	HPU-1A	3MYS24JVJU ONE OUTDOOR UNIT (HEAT PUMP SYSTEM) NOMINAL 2 TONS	16.6	1	DAIKIN
FCU-2	1	LOUNGE/CONF.RM.	.60	210	NA	-	DX	6,800	N/A	7,860	-	-	-	-	208v/1Ø/60hz	30	170	CTX507LVJU	HPU-1A	3MYS24JVJU ONE OUTDOOR UNIT (HEAT PUMP SYSTEM) NOMINAL 2 TONS	16.6	1	DAIKIN

- NOTES:**
- AIR COOLED HEAT PUMP UNITS TO BE PROVIDED WITH LOW AMBIENT CONTROLS DOWN TO 0° F, TXV (THERMAL EXPANSION VALVES) AND FACTORY SUPPLIED WALL MOUNTED PROGRAMMABLE THERMOSTAT.
 - ALL REFRIGERANT PIPING TO BE SIZED AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS FOR A VRV SYSTEM.
 - AIR COOLED DUCTLESS SPLIT HEAT PUMP UNIT WILL HAVE A SINGLE POINT POWER CONNECTION.
 - AIR HANDLING UNITS TO BE PROVIDED WITH FACTORY OPTION CONDENSATE PUMP AND REMOTE THERMOSTAT. FACTORY OPTION CONDENSATE PUMP (HARD WIRED THRU UNIT) TO BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

ELECTRIC STEAM HUMIDIFIER SCHEDULE

ITEM#	AREA SERVED	STEAM (LB./HR)	K.W.	PIPE CONNECTIONS			ELECTRICAL DATA	WEIGHT (LBS.)	MODEL #	MANUFACTURER
				C.W.	DRIP PAN DRAIN	OVERFLOW DRAIN				
H-1	AHU-1	10	3.3	½"	1"	1"	208v/3Ø	82	MDM-208-3-10	HERRMIDIFIER
H-2	AHU-2	10	3.3	½"	1"	1"	208v/3Ø	82	MDM-208-3-10	HERRMIDIFIER
H-3	EX. ROOFTOP UNIT (7½ TON)	40	13.3	½"	1"	1"	208v/3Ø	82	MDS-208-3-40	HERRMIDIFIER
H-4	EX. ROOFTOP UNIT (5 TON)	15	5	½"	1"	1"	208v/3Ø	82	MDM-208-3-15	HERRMIDIFIER

- NOTES:**
- CONTRACTOR WILL ONLY PURCHASE/OBTAIN THE ATS EQUIPMENT FROM THE FOLLOWING: ENVIRONMENTAL PRODUCTS, INC. CONTACT: DAVID ALI 57 TIMONIUM ROAD, SUITE 303 TIMONIUM, MARYLAND 21093 Phone (410) 560-7950 Fax (410) 560-7953
 - PRIOR TO THE INSTALLATION OF THE HUMIDIFIER SYSTEM, A WATER TEST MUST BE CONDUCTED AND THE RESULTS SENT TO DAVE ALI, ABOVE, FOR MANUFACTURER ANALYSIS.

MISCELLANEOUS HEATING SCHEDULE

ITEM#	AREA SERVED	HEATER TYPE	C.F.M.	K.W.	BTU/HR	ELEC. DATA	STEPS OF CONTROL	CONTROL	MANUFACTURER/ MODEL #
EDH-1	SIDE ENTRANCE	ELECTRIC DUCT HEATER	255	2.0	6,826	208/3	2	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-2	WAITING AREA	ELECTRIC DUCT HEATER	550	5.0	17,065	208/3	2	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-3	NURSE CONSULTANT	ELECTRIC DUCT HEATER	285	2.5	8,532	208/3	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-4	SIDE ENTRANCE & PREP/HOLDING	ELECTRIC DUCT HEATER	450	4.0	13,652	208/3	3	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-5	PREP/HOLDING	ELECTRIC DUCT HEATER	105	1.0	3,413	208/3	3	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-6	PATIENT RECOVERY	ELECTRIC DUCT HEATER	110	1.0	3,413	208/3	3	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
HUH-1	ABOVE THE CEILING	ELECTRIC UNIT HEATER	350	4.0	13,652	208/3	1	INTEGRAL THERMOSTAT	BERKO/HUHAA-320

- NOTES:**
- ALL EQUIPMENT SHALL BE AS SCHEDULED OR EQUAL.
 - ELECTRIC DUCT HEATERS HEATING ONLY THERMOSTATS (PULSE-TYPE) BY INDEECO.
 - ELECTRIC DUCT HEATER TO BE QUA SLIP-IN HEATER (OPEN COIL) WITH CONTROL SCR CONTROLLER (OPTION K) AND AIR PROVING SWITCH.
 - ALL ELECTRIC HORIZONTAL HEATERS TO BE PROVIDED AND INSTALLED WITH FACTORY OPTION MOUNTING BRACKETS.

FAN SCHEDULE

ITEM #	AREA SERVED	C.F.M.	E.S.P.	HP/WATTS	R.P.M.	CONTROL	ELEC. DATA	SONES	MODEL #	MFGR.
F-1	TOILET ROOMS, JANITORS, ETC.	450	.45"	.167 HP	1,306	INTERLOCK W/ EX. FLOOR DRAIN	120v/1Ø	6.8	100 ACEB	COOK
F-2	TRASH ROOM AND SOILED LINEN AREA	375	.45"	.167 HP	1,333	24 HOURS	120v/1Ø	7.1	80 ACEB	COOK
F-3	TELE./COMP.	240	.375"	226 W	677	REVERSE THERMOSTAT	120v/1Ø	2.7	GC-640	COOK

- NOTES:**
- MANUFACTURER FAN SELECTIONS SHALL INCLUDE EXTERNAL PRESSURE DROP AND FAN DRIVE LOSS.
 - VENTILATION FAN F-3 TO BE PROVIDED WITH FACTORY OPTION ADJUSTABLE SPEED CONTROLLER TO BE MOUNTED ON SIDE OF FAN HOUSING. SPEED CONTROLLER FOR FINAL AIR BALANCING.

ELECTRIC WATER HEATER SCHEDULE

ITEM #	AREA SERVED	KW ELEMENT	SIZE HEIGHT x DIAMETER (IN.XIN.)	RECOVERY RATE (GPH)	TANK CAPACITY (GALLONS)	PIPE CONNECTIONS INLET (IN.) OUTLET (IN.)	ELEC. DATA	MANUFACTURER/ MODEL #
WH-1	TOILET RMS, LOUNGE, ETC.	9.0	55½x21¾"	37	52	¾"	208v/3Ø	STATE/CSB 52 91FE

- NOTE:**
- PROVIDE 100°F TEMPERATURE WATER RISE FOR 40°F ENTERING WATER TEMPERATURE.

PLUMBING FIXTURE SCHEDULE

ITEM #	DESCRIPTION	PIPE SIZES				TRAP TYPE	REMARKS
		C.W.	H.W.	SAN.	VENT		
P-1	WATER CLOSET	½"	-	4"	2"	INTEGRAL	HANDICAPPED
P-1A	BEDPAN CLEANER	½"	-	-	-	-	-
P-1B	CLINIC SERVICE SINK	1"	-	4"	2"	"P"	-
P-2	HALL HUNG SINK	½"	½"	2"	2"	"P"	HANDICAPPED
P-2A	NURSE/CLEAN WORK SINK	½"	½"	2"	2"	"P"	ONLY THE NURSE WORK SINK TO BE PROVIDED WITH EYE WASH
P-2B	LOUNGE/CONFERENCE SINK	½"	½"	2"	2"	"P"	-
P-2C	SCRUB SINK	½"	½"	2"	2"	"P"	-
P-2D	SOILED WORK AREA	½"	½"	2"	2"	"P"	12" DEEP BOWL
P-2E	PATIENT RECOVERY COUNTERTOP HAND SINK	½"	½"	2"	2"	"P"	HANDICAPPED
P-2F	PATIENT RECOVERY WALL MTD. HAND SINK	½"	½"	2"	2"	"P"	HANDICAPPED
P-3	JANITOR'S SINK	¾"	¾"	3"	2"	"P"	-
P-4	REFRIG. ICE MAKER	½"	-	-	-	-	-
P-5	SHOWER	½"	½"	2" SD	2"	"P"	HANDICAPPED
P-6	WATER FOUNTAIN	½"	-	2"	2"	"P"	HANDICAPPED

- NOTES:**
- ALL EQUIPMENT SHALL BE AS SCHEDULED OR EQUAL.
 - LEONARD MODEL #TA-300 THERMOSTATIC MIXING VALVE WITH WITH TEMPERATURE LIMIT STOP, DIAL THERMOMETER ON THE OUTLET, MOUNTING BRACKETS, MIN. FLOW OF A ½ GPM @ 5 PSI SUPPLY PRESSURE. ½" INLETS, ANGLE CHECKS TOP ON INLETS, AND ROUGH BRONZE FINISH. ASSE 1071 CERTIFIED.
 - NOTE: FIELD SET TEMPERATURE ±75°F
 - IMV-3 THERMOSTATIC MIXING VALVE (POINT OF USE AT ALL SINKS EXCEPT P-2C)
 - SYMONS (LAWLER OR LEONARD) "MAXLINE" MODEL #S-210-CX-NI THERMOSTATIC MIXING VALVE WITH ¾" INLET AND OUTLET WITH COMPRESSION FITTINGS, BRASS AND BRONZE BODY, STAINLESS STEEL FLOW, CONTROL COMPONENTS, VANDAL RESISTANT LOCKABLE HANDLE, SEPARATE CHECKED WALL BRACKETS, ROUGH CHROME FINISH. ASSE 1070 CERTIFIED. FIELD SET TEMPERATURE AT 110°F MAXIMUM.

MECHANICAL CONTRACTOR MUST BE CERTAIN THAT ALL NEW DOMESTIC WATER AND SPRINKLER PIPES INSTALLED THROUGHOUT WILL NOT FREEZE. THE CONTRACTOR MUST MAKE PROVISIONS TO PREVENT ANY PIPE FROM FREEZING THROUGHOUT OF OUR AREA OF WORK. IF NEEDED INSTALL MORE ELECTRIC HEATERS WHERE REQUIRED.

DATE: 07/24/2014
JOB NO: 11216
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- REVISIONS**
- A'-ISSUE DATE
 - B'-ISSUE DATE
 - C'-ISSUE DATE
 - D'-ISSUE DATE
 - E'-ISSUE DATE
 - F'-ISSUE DATE

SCHEDULES

SHEET NUMBER

M8