

**SEQUENCE OF OPERATION**

**ROOFTOP UNIT**

- DURING OCCUPIED PERIOD AS PROGRAMMED ON ASSOCIATED ROOFTOP THERMOSTAT, BLOWER FAN SHALL RUN CONTINUOUSLY AND OUTSIDE AIR DAMPERS OPEN TO MAXIMUM POSITION AS SCHEDULED. EXISTING ROOFTOP UNIT SHALL OPERATE TO ITS MINIMUM OUTSIDE AIR INTAKE. REFER TO ITEM #7 FOR MORE INFORMATION.
- 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 OPEN/CYCLE THE UNIT ECONOMIZER, IF THE OUTSIDE CONDITIONS EXCEED THE SETTINGS OF THE ECONOMIZER CYCLE, THEN 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 ROOFTOP UNIT 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 SMOKE DETECTOR SENSES SMOKE OR ANY SAFETY/CONTROL EXCEEDS ITS LIMITS.

**ENTHALPY ECONOMIZER CONTROL (EX.15 TON ROOFTOP UNIT)**

- WHEN THE OUTDOOR AIR TEMPERATURE IS BELOW 70°F, THE ENTHALPY OF THE OUTDOOR AIR IS LOWER THAN THE ENTHALPY OF THE RETURN AIR, THE SPACE TEMPERATURE IS ABOVE THE SETPOINT THE OUTDOOR AIR DAMPER SHALL MODULATE OPEN, THE RELIEF/POWER EXHAUST SHALL ENERGIZE PROPORTIONALLY TO THE BUILDING PRESSURE ALONG WITH AIR DAMPER SHALL MODULATE OPEN AND THE RETURN AIR DAMPER SHALL MODULATE CLOSED PROPORTIONALLY TO MAINTAIN THE DISCHARGE AIR SETPOINT OF 55°F (ADJUSTABLE). A DIFFERENTIAL PRESSURE SENSOR SHALL MONITOR BUILDING PRESSURE AND ENERGIZE THE POWER EXHAUST AS REQUIRED TO MAINTAIN PROPER BUILDING PRESSURE.

\*\* RTU-1 SHALL OPERATE IN THE OCCUPIED MODE 24/7 AND DURING THE UNOCCUPIED PERIOD THE OUTSIDE AIR DAMPERS SHALL MODULATE TO IT'S MINIMUM POSITION (AAON ROOFTOP UNITS).

\*\*ALL OCCUPIED AND UNOCCUPIED MODES ARE TO BE SET FOR THE SAME TIME FOR ALL THE ROOFTOP UNITS.

\*\*THE AAON ROOFTOP UNIT'S DE-HUMIDIFICATION SETPOINT IS TO BE SET FOR 50% RH.

**CO2 MONITORING (EX.15 TON ROOFTOP UNIT)**

- PROVIDE A NEW CARBON DIOXIDE SENSOR (CO2) SHALL MODULATE OUTDOOR AIR FROM THE MINIMUM POSITION TO MAXIMUM POSITION WHEN ITS SETTING OF 700 PPM (ADJUSTABLE) IS EXCEEDED. UPON A DECREASE IN CO2 LEVEL BELOW 500 PPM (ADJUSTABLE) THE REVERSE SHALL OCCUR. SENSOR SHALL BE A MOUNTED BELOW CEILING.

**EXHAUST/VENTILATION FANS**

- ROOF MOUNTED EXHAUST FAN E-1 SHALL BE INTERLOCKED WITH EXISTING 15 TON ROOFTOP 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 ROOFTOP UNIT, EXHAUST FAN SHALL BE ENERGIZED AND REMAIN ENERGIZED UNTIL THE ROOFTOP 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 71°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.

**ELECTRIC WALL HEATER**

- FAN FORCED ELECTRIC WALL HEATER SHALL BE CONTROLLED VIA UNIT/FACTORY MOUNTED INTEGRAL THERMOSTAT. HEATER SHALL BE ENERGIZED UPON A CALL FOR HEAT. UPON REACHING SET POINT HEATER SHALL BE DE-ENERGIZED (SETPOINT 72°F).

**HUMIDIFIERS**

- REFER TO DETAIL ON SHEET E-103.00 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.

**EMERGENCY SHUT DOWN SYSTEM**

- \*\*ALL NEW ROOFTOP UNITS AND FANS SHALL BE INTERLOCKED WITH A ON/OFF SWITCH. THIS ON/OFF SWITCH SHALL BE LOCATED IN THE NURSES STATION AREA AND CLEARLY/NEATLY IDENTIFY ON THE WALL DIRECTLY ABOVE THE ON/OFF SWITCH WITH 1/2" HIGH LETTERS "NORMAL HVAC SHUTDOWN PER NFPA 90A". THE ON/OFF SWITCH OVERRIDES THE EVERYDAY CONTROLS AND SHALL STOP ALL HVAC EQUIPMENT OPERATIONS IN THE "OFF" POSITION AND RESUME NORMAL OPERATIONS IN THE "ON" POSITION. THE ON/OFF SWITCH IS TO A 24 VOLT CONTROL LINE ITEM THAT INTERLOCKS WITH THE HVAC EQUIPMENT CONTROLS AND NOT THE POWER TO THE EQUIPMENT. THE MANUAL SHUTDOWN OF THE HVAC EQUIPMENT IS TO BE IN COMPLIANCE WITH NFPA 90A.

PROVIDE FOR THE ON/OFF SWITCH INDICATED FOR THE MANUAL SHUTDOWN. A RED (30.5 MM) MUSHROOM PUSH BUTTON WITH NO CLOSED CONTACTS TO DE-ENERGIZE CONTROL CIRCUIT OF ALL AIR HANDLING UNITS AND FANS. MOUNT PUSH BUTTON IN FLUSH MOUNTED OUTLET BOX WITH STAINLESS STEEL COVER AND PHENOLIC NAMEPLATE WITH WHITE LETTERS AND RED BACKGROUND THAT READS "EMERGENCY HVAC SHUTDOWN".

GAS FIRED "AAON" ROOFTOP UNIT SCHEDULE																		
ITEM#	AREA SERVED	NOMINAL TONS	FAN DATA				COOLING DATA (BTUH)			HEATING DATA (BTUH)			ELECTRICAL DATA	WEIGHT (LBS.)	MANUAL SHUTDOWN PER NFPA 90A (YES/NO)	MODEL #	MANUFACTURER	
			C.F.M.	OUTSIDE AIR	H.P.	E.S.P.	TOTAL	SENSIBLE	EER	INPUT	OUTPUT	TEMP. RISE °F						NO. STAGES
RTU-1	127 PROCEDURE ONE AND 128 PROCEDURE TWO	5	1,260	150 min-240 max	2	2.6'	55,020	33,620	9.5	60,000	48,600	35.8	1	208v/3Ø	1,200	YES	RO-100-3-V-FAN-319-1000-EOL-GRD-GA-01-TABEE-00-0000100AE	AAON

- NOTES:**
- ROOFTOP UNIT RTU-1 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 ROOFTOP UNIT TO HAVE FACTORY SUPPLIED 2" HEAVY B 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 ROOFTOP UNITS ARE TO ONLY BE INSTALLED AND COMMISSIONED BY FACTORY TRAINED/CERTIFIED CONTRACTORS. PROVIDE OUTSIDE AIR DAMPER OPERATION SO THAT MINIMUM OUTSIDE AIRFLOW IS OBTAINED DURING UNOCCUPIED MODE AND MAXIMUM OUTSIDE AIRFLOW IS OBTAINED DURING OCCUPIED MODE AS SCHEDULED ABOVE.
  - AAON ROOFTOP UNIT COOLING TEMPERATURE SETPOINT TO BE 66°F AND HEATING SETPOINT TO BE 68°F.
  - CONTRACTOR WILL (NO SUBSTITUTES) ONLY PURCHASE/OBTAIN THE AAON EQUIPMENT FROM THE FOLLOWING: CONTACT: GRAHAME ELDRIDGE WITH WINDY CITY REPRESENTATIVES Phone (630) 590-6933 CELL (708) 790-1122
  - ROOFTOP UNIT TO BE PROVIDED WITH DISCONNECT SWITCH AND GFI RECEPTACLES. THESE DEVICES TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR. ALSO PROVIDE 14" HIGH ROOF CURBS FOR EACH ROOFTOP UNIT.
  - ALL ROOFTOP UNIT CAPACITIES ARE BASED ON 95°F db/74°F wb AMBIENT TEMPERATURE

**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	WAITING AREA	ELECTRIC DUCT HEATER	120	1.0	3,413	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-2	RECEPTION AREA	ELECTRIC DUCT HEATER	410	3.0	10,239	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-3	CONFERENCE/ LOUNGE	ELECTRIC DUCT HEATER	230	2.0	6,826	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-4	SITE MGR/PHYSICIAN	ELECTRIC DUCT HEATER	310	2.0	6,826	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-5	PREP/HOLDING AND PATIENT RECOVERY	ELECTRIC DUCT HEATER	315	2.5	8,532	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-6	PATIENT RECOVERY	ELECTRIC DUCT HEATER	125	1.0	3,413	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-7	CLEAN WORK AND SOILED WORK	ELECTRIC DUCT HEATER	180	1.5	5,120	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-8	PROCEDURE ROOM	ELECTRIC DUCT HEATER	420	3.0	10,239	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EDH-9	PROCEDURE ROOM	ELECTRIC DUCT HEATER	420	3.0	10,239	120/1	1	WALL MTD. THERMOSTAT	INDEECO/SLIP-IN
EWH-1	BACK ENTRANCE	ELECTRIC WALL HEATER	100	2.0	6,826	240/1	1	INTEGRAL THERMOSTAT	BERKO/FRA-4024

- 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.
  - ELECTRIC WALL HEATER TO BE PROVIDE AND INSTALLED WITH FACTORY OPTION SURFACE MOUNTING FRAME.

**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	EX.15 TON UNIT	55	20	1/2"	1"	1"	208v/3Ø	130	MDSI-208-3-55	HERRMIDIFIER
H-2	RTU-2	20	6.6	1/2"	1"	1"	208v/3Ø	82	MDM-208-3-20	HERRMIDIFIER

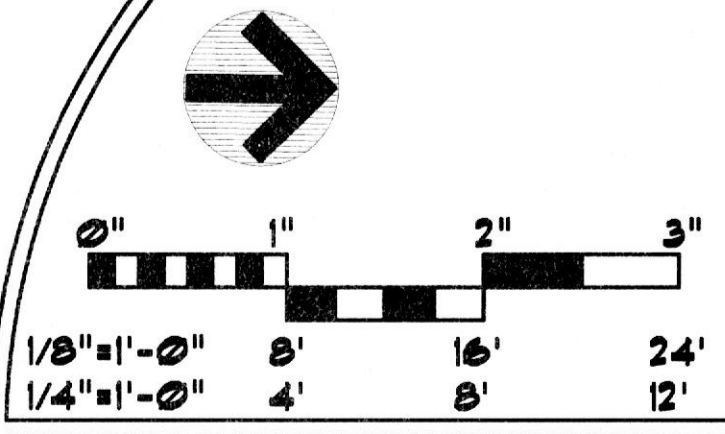
- NOTES:**
- CONTRACTOR WILL ONLY PURCHASE/OBTAIN THE ATS EQUIPMENT FROM THE FOLLOWING: ENVIRONMENTAL PRODUCTS, INC. CONTACT: DAVID ALI 57 TIMONIUM ROAD, SUITE 303 Phone (410) 560-7950 TIMONIUM, MARYLAND 21093 Fax (410) 560-7953
  - PRIOR TO THE INSTALLATION OF THE HUMIDIFIER SYSTEM, A WATER TEST MUST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

**FAN SCHEDULE**

ITEM #	AREA SERVED	C.F.M.	E.S.P.	HP/WATTS	R.P.M.	CONTROL	ELEC. DATA	SONES	MODEL #	MFR.
F-1	TOILET ROOMS, JANITORS, ETC.	535	.50"	.167 HP	1,429	INTERLOCK W/ EX. 15 TON Rooftop Unit Occupied Mode	120v/1Ø	7.8	100 ACEB	COOK
F-2	TRASH ROOM AND SOILED LINEN AREA	200	.375"	.167 HP	1,391	24 HOURS/ 7 DAYS A WEEK	120v/1Ø	8.1	70 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 E-3 TO BE PROVIDED WITH FACTORY OPTION ADJUSTABLE SPEED CONTROLLER TO BE MOUNTED ON SIDE OF FAN HOUSING. SPEED CONTROLLER FOR FINAL AIR BALANCING.

This project was designed in 2013 and was originally signed and sealed and submitted for permit on or about 8/20/13. The stamp below with the current date is to document that this is a record copy of those drawings. These represent no new work done after the construction date based on these drawings and this is ONLY certifying the design work done in 2013.



**SCHEDULES**

REV#	DATE	DESCRIPTION
1	7/16/13	OWNER'S REVISION

DRIVING NO.	M-105.00
SHEET	5 OF 9
DATE	4/18/13
DRAWN BY	DLI
CHECKED BY	DLI
JOB NUMBER	11206
DATE	4/18/13
SCALE	AS SHOWN

ISSUED FOR BUILDING PERMIT

To the best of my knowledge, belief and professional judgment, these plans and specifications, are in compliance with Section 101.4.4 of the New York City Energy Conservation Code (NYCECC).

Richard J. Stern, P.E.  
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Folsom, PA 17132  
Phone: 717-891-6026

TENANT RENOVATIONS FOR:  
Access Center  
1733 Eastchester Road  
Bronx, NY 10461

Lifeline

InSync ARCHITECTURAL DESIGNS, INC.  
1213 Old Pylesville Road  
Whiteford, MD 21166  
Office 410-482-8006 Fax 410-482-8046

