FAN SCHEDULE

		SELECTION DATA			FAN DATA			MOTOR DATA				GENERAL DATA				
TAG	SERVICE AREA	MANUF.(*)	MODEL	CONFIG.	CFM	ESP ("WG)	SONES	HP/WATTS	RPM	DRIVE	VOLTAGE	WEIGHT (LBS)	DIMENSIONS L"xW"xH"	OPENING L"xW	CONTROL	ACCESSORIES
EF-1,2	PET AREAS	GREENHECK	G-163-VG	ROOF	2700	.75	15.3	2/–	1725	DIRECT	208/1/60	71	22X22X24	18.5x18.5	OARTU INTERLOCK	1-4

(*) APPROVED EQUAL MANUFACTURER: COOK, TWIN-CITY, ACME, PENN

ACCESSORIES NOTES:
1. PROVIDE BACK DRAFT DAMPER
2. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH AND INTEGRAL THERMAL OVERLOAD PROTECTION, COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ANY PURCHASING.
3. PROVIDE BIRD SCREEN
4. PROVIDE ROOF CURB

GENERAL FAN NOTES:
a. MOTOR STARTERS, FUSED DISCONNECTS AND ALL EQUIPMENT POWER WIRING PROVIDED BY ELEC. CONTRACTOR MECHANICAL AND ELECTRICAL CONTRACTORS TO COORDINATE PRIOR TO ANY WORK AND PURCHASING
b. ALL CONTINUOUS-DUTY MOTORS SHALL BE PROVIDED WITH OVERLOAD PROTECTION ACCORDING TO NATIONAL ELECTRICAL CODE PAR. 430-32.
c. FIELD ADJUST OPENINGS WITH STRUCTURE.
d. ALL OUTDOOR EQUIPMENT SHALL COMPLY WITH LOCAL ZONING NOISE ORDINANCE OR NOT EXCEED A NOISE LEVEL OF 65dB AS MEASURED RADIALLY 30 FT. FROM THE EQUIPMENT IN ALL DIRECTIONS.
e. COORDINATE WITH ELECTRICAL CONTRACTOR BEFORE BIDDING OR ORDERING ANY EQUIPMENT.
f. AS APPLICABLE, ALL FANS MANUFACTURE AND INSTALLATION SHALL COMPLY WITH FMC 301.12 FOR WIND RESISTANCE
g. ALL MOTORS DRIVEN BY A VARIABLE FREQUENCY DRIVE (PWM) SHALL INCLUDE A MAINTENANCE FREE, CIRCUMFERENCIAL, CONDUCTIVE MICRO-FIBER SHAFT GROUNDING RING EQUAL TO AEGIS SGR TO DISCHARGE SHAFT CURRENTS TO THE GROUND.
h. WARRANTY COATING BY SURFSIL, LUVATA, THERMOGUARD OR BYGOLD.

EXISTING AIR CONDITIONING SPLIT SYSTEM EQUIPMENT SCHEDULE

CONDENSING UNIT

CU TAG	MANUFACTURER & MODEL	NOMINAL TONNAGE	CAP. STAGES	(S)EER/IPLV	REFRIG./LBS	LIQ./SUCT.	NO. FANS	FAN FLA(EA)	NO. COMP.	COMP.RLA(EA)	VOLTAGE/PH	MCA/MOCP	WEIGHT (LBS)	L x W x H (IN)	NOTES
(E)CU-1	YORK HRA078625H	–	*	*	*	*	1	2.2	1	18.5	208-3-60	25.8/60	516	46X59X50	SEE BELOW

AIR HANDLING UNIT

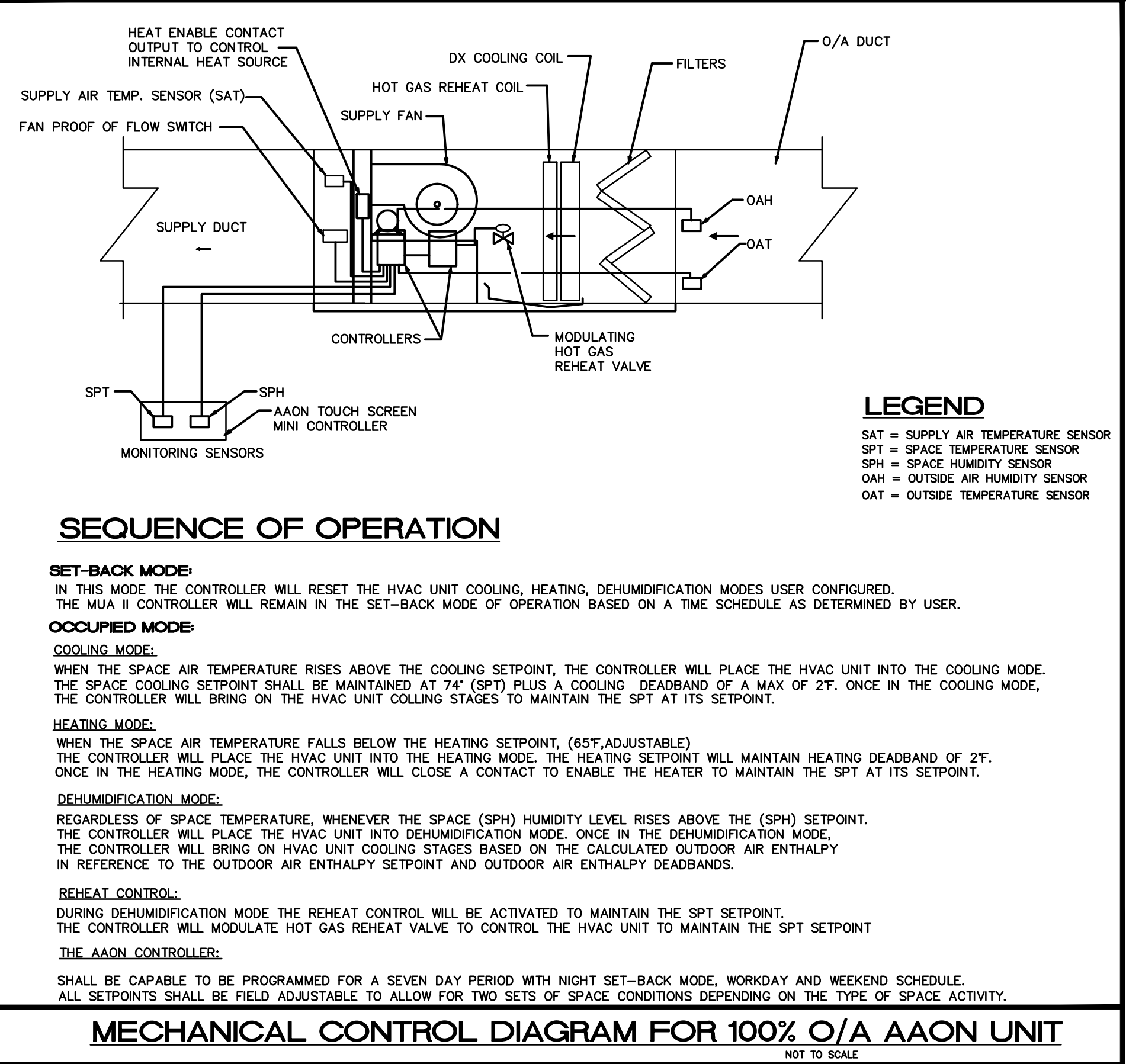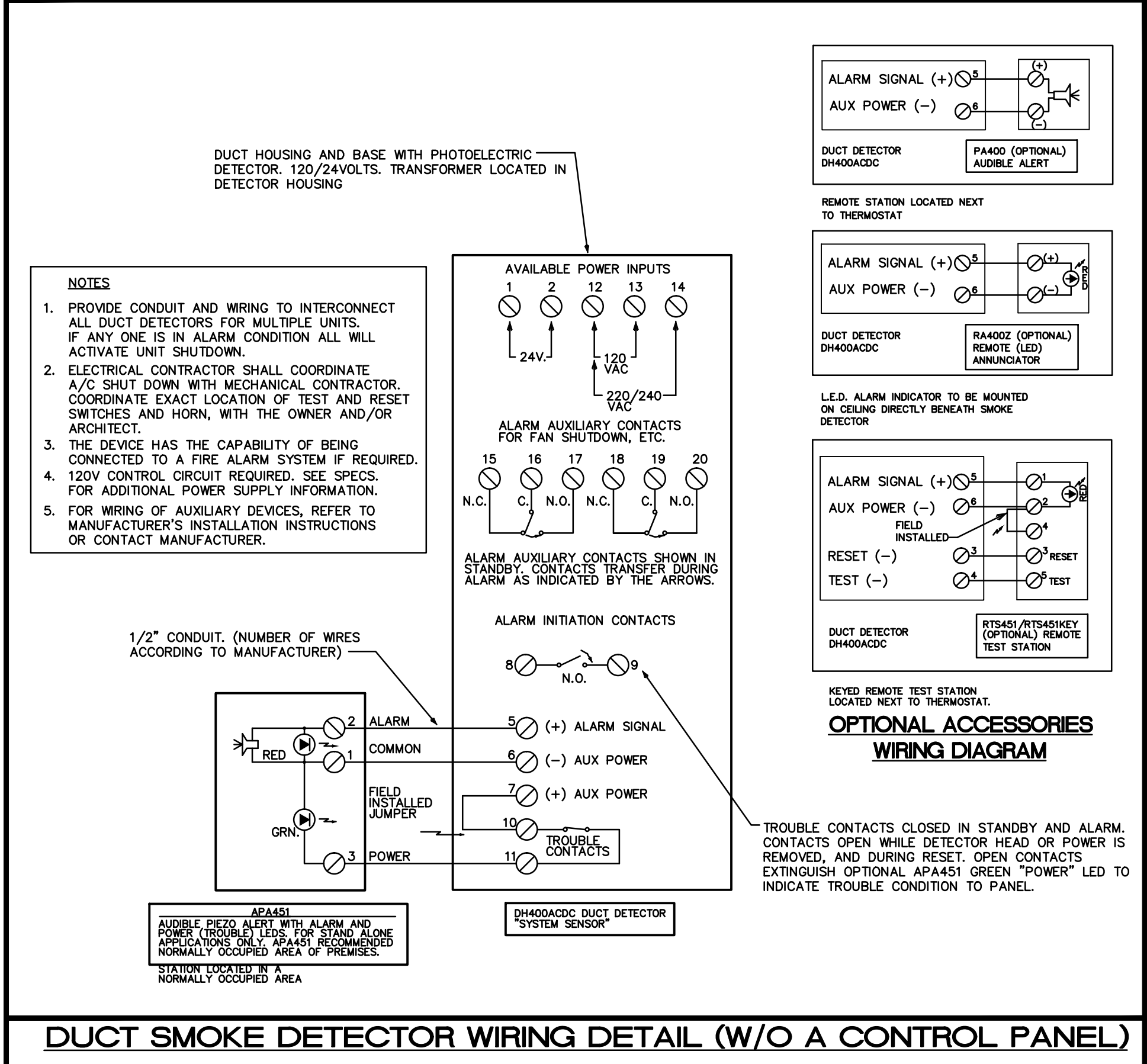| AHU TAG	MANUFACTURER & MODEL	TOTAL MBH	SENSIBLE MBH	TOTAL CFM	O/A CFM	E.S.P.("W.G.)	ENT. DB/WB	LEAV. DB/WB	ROWS/FPI	FAN HP/FLA	HEATER KW	VOLTAGE/PH	MCA/MOCP	WEIGHT (LBS)	L x W x H (IN)	NOTES
(E)AHU-1	YORK K4EU090A33B	90.0	67.5	3000	–	0.77	95/72	55/54	3/13	1.5/6.6	16.0	208-230/3	51/60	391	25X48X51	SEE BELOW

NOTES:
EXISTING SCHEDULE IS USED AS REFERANCE ONLY.

COORDINATION NOTE:
MECHANICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS AND ACCESSORIES WITH ELECTRICAL CONTRACTOR PRIOR TO PURCHASING AND INSTALLATION AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF ENGINEER

OARTU-1 UNIT SCHEDULE

A/C UNIT TAG	OARTU-1,2
MANUFACTURER	AAON
MODEL	RN-020-8-A-EB19-142
TOTAL SENSIBLE CAP. MBH.	115.12
TOTAL COOLING CAP. MBH.	248.63
ENT. AIR TEMP D.B./W.B. °F	91°/79°
LEAV. AIR TEMP D.B./W.B. °F	54.01 /53.81°
SUPPLY AIR CFM	3000
OUTSIDE AIR CFM	3000
VOLTAGE	208/3Φ/60
MCA/MOCP	114/125
SEER/EER	–/ 12.2
OPERATING WEIGHT LBS.	2570
DIMENSIONS L x W x H (IN.)	137x100x59
ROOF OPENING (IN.)	

SYSTEM

COND. SECTION		
REF./LBS.	R-410A
NOMINAL TONNAGE/STAGES	20/MODULATING
NO. OF COMPRESSORS	2
COMP. R.L.A. EACH	30.1
NO. OF OUTDOOR FANS	2
FAN FLA. EACH	7.0

EVAP. SECTION		
INDOOR FAN TYPE	BI – PLENUM TYPE
FAN E.S.P. (IN. W.G.)	2.08
FAN H.P./B.H.P.	2 / 1.44
FAN F.L.A.	7.5
COIL ROWS/FPI	6/12
HEATER TYPE	ELECTRIC
HEATER CAPACITY – KW	30
NO. OF STEPS	2
FILTER TYPE/EFF.	2" PLEATED/30%

(*) EQUIVALENT TO CARRIER, GREENHECK, CORS-AIR

Specification Notes for AAON RM
Provide the following features:
1. Basis of design is AAON. Any approved alternate manufacturer must provide ALL of the features listed below. Contractor is responsible for coordinating all dimensional, weight and electrical changes.
2. Unit shall be UL or ETL listed and labeled by the original manufacturer. Units that have been modified after shipping from original manufacturer are not accepted.
3. Provide G90 galvanized steel construction inside and out. Unit interior and exterior surfaces shall be coated to exceed 10,000 hr salt spray test in accordance with ASTM B-117-95 procedures. If the manufacturer's coating does not meet this requirement, the contractor shall have the entire cabinet coated with Adsil.
4. Provide double wall cabinet construction with minimum of 2" injected polyurethane foam insulation. NO fiberglass.
5. Provide access doors with same construction as above and with full piano stainless steel hinges and tool-less 1/4 turn handles. Provide access doors for the Filters section, Blower Section, Heater Section, Coils Section, and Control/Compressors Cabinet.
6. The unit shall have Scroll Compressors with Independent Refrigerant Circuits.Refrigerant Circuits shall include liquid line filter driers, TXV, crankcase heaters, high and low pressure cutouts and Shrader service fittings on the high and low pressure sides of the system. Compressors shall be installed inside an enclosed compartment with full size service access doors.
7. Provide single point power connection with phase and brownout protection.
8. Provide an Outside Air Intake Damper with a factory mounted and wired 2-position actuator.
9. Provide motor overload and thermal protection.
10. Provide a 2" filter rack with 30% pleated filters.
11. Provide a double sloped and pitched 304 stainless steel drain pan under the cooling coil.
12. Provide a cooling coil with a MINIMUM of 6-rows for dehumidification.
13. Provide Modulating Hot Gas Reheat and Digital Scroll Compressors on the first stage (on two compressor units) or on the first two stages (on 4 compressor units) to achieve infinite capacity modulation for fully modulating temperature and humidity control. Hot Gas Bypass NOT acceptable for capacity modulation.
14. Provide Space Temperature and Humidity Sensors to override discharge setpoint and despoint control.
15. Provide an Electric Heating with Stainless Steel filaments. Provide 2-step control and resetable high temperature limit switch.
16. Provide Backward Inclined, direct driven plenum type fans with aluminum wheels. Provide factory mounted Variable Frequency Drive and NEMA Premium Efficiency motors.
17. Provide copper tubes / aluminum finned condenser coils, evaporator coils and reheat coils. ALL coils must be coated to exceed 10,000 hr salt spray test in accordance with ASTM B-117-95 procedures.
18. Provide a factory 5-year compressor parts warranty.
19. Provide a factory mounted Make-up Air Unit IEC Controller to include programmable 365 day scheduler and holiday scheduling stored in a non volatile EPROM memory. The controller must have logic for cooling, heating and dehumidification cycles. Provide one Hand Held service tool for the project. This tool must remain in the building for future service once the project is completed.
20. Provide Dehumidification Control that stages the compressors based on outside air enthalpy and supplies discharge air based on supply air temperature (adjustable modulating hot gas reheat). The supply air set-point will automatically be reset based on a space temperature reset sensor as per note 16
21. Provide a galvanized roof-curb minimum of 24" high. The contractor shall check and coordinate with roof-curb with the roof pitch to assure the curb is installed level in accordance with manufacturer's requirements. Roof Curb to comply with latest FBC. Provide tie down clips.
22. Provide service clearances per manufacturer recommendations.
23. Provide duct mounted and field wired smoke detector in the supply duct.
24. Provide Variable Speed Condenser Fan with Head Pressure Control.
25. Unit controller shall have a space mounted Touchscreen with BACnet MS/TP communications capability and shall include Space Temperature and Humidity Sensors to override unit control if necessary
26. Provide factory Start-up.
27. Provide AAON Touch screen mini controller.

ERW NOT REQUIRED: PER SEC. C403.2.6 EXCEPTION 1
(FMC SEC. 514, EXCEPTION 1 FOR SEC. 510)

DUCT SMOKE DETECTOR WIRING DETAIL (W/O A CONTROL PANEL)

NOTES
1. PROVIDE CONDUIT AND WIRING TO INTERCONNECT ALL DUCT DETECTORS FOR MULTIPLE UNITS. IF ANY ONE IS IN ALARM CONDITION ALL WILL ACTIVATE UNIT SHUTDOWN.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE A/C SHUT DOWN WITH MECHANICAL CONTRACTOR. COORDINATE EXACT LOCATION OF TEST AND RESET SWITCHES AND HORN, WITH THE OWNER AND/OR ARCHITECT.
3. THE DEVICE HAS THE CAPABILITY OF BEING CONNECTED TO A FIRE ALARM SYSTEM IF REQUIRED. SEE SPECS.
4. 120V CONTROL CIRCUIT REQUIRED. SEE SPECS. FOR ADDITIONAL POWER SUPPLY INFORMATION.
5. FOR WIRING OF AUXILIARY DEVICES, REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS OR CONTACT MANUFACTURER.

OPTIONAL ACCESSORIES WIRING DIAGRAM

MECHANICAL CONTROL DIAGRAM FOR 100% O/A AAON UNIT
NOT TO SCALE

LEGEND
SAT = SUPPLY AIR TEMPERATURE SENSOR
SPT = SPACE TEMPERATURE SENSOR
SPH = SPACE HUMIDITY SENSOR
OAH = OUTSIDE AIR HUMIDITY SENSOR
OAT = OUTSIDE TEMPERATURE SENSOR

SEQUENCE OF OPERATION

SET-BACK MODE:
IN THIS MODE THE CONTROLLER WILL RESET THE HVAC UNIT COOLING, HEATING, DEHUMIDIFICATION MODES USER CONFIGURED.
THE MUA II CONTROLLER WILL REMAIN IN THE SET-BACK MODE OF OPERATION BASED ON A TIME SCHEDULE AS DETERMINED BY USER.

OCCUPIED MODE:

COOLING MODE:
WHEN THE SPACE AIR TEMPERATURE RISES ABOVE THE COOLING SETPOINT, THE CONTROLLER WILL PLACE THE HVAC UNIT INTO THE COOLING MODE. THE SPACE COOLING SETPOINT SHALL BE MAINTAINED AT 74° (SPT) PLUS A COOLING DEADBAND OF A MAX OF 2°F. ONCE IN THE COOLING MODE, THE CONTROLLER WILL BRING ON THE HVAC UNIT COLLING STAGES TO MAINTAIN THE SPT AT ITS SETPOINT.

HEATING MODE:
WHEN THE SPACE AIR TEMPERATURE FALLS BELOW THE HEATING SETPOINT, (65°F,ADJUSTABLE)
THE CONTROLLER WILL PLACE THE HVAC UNIT INTO THE HEATING MODE. THE HEATING SETPOINT WILL MAINTAIN HEATING DEADBAND OF 2°F. ONCE IN THE HEATING MODE, THE CONTROLLER WILL CLOSE A CONTACT TO ENABLE THE HEATER TO MAINTAIN THE SPT AT ITS SETPOINT.

DEHUMIDIFICATION MODE:
REGARDLESS OF SPACE TEMPERATURE, WHENEVER THE SPACE (SPH) HUMIDITY LEVEL RISES ABOVE THE (SPH) SETPOINT. THE CONTROLLER WILL PLACE THE HVAC UNIT INTO THE DEHUMIDIFICATION MODE. ONCE IN THE DEHUMIDIFICATION MODE, THE CONTROLLER WILL BRING ON HVAC UNIT COOLING STAGES BASED ON THE CALCULATED OUTDOOR AIR ENTHALPY IN REFERENCE TO THE OUTDOOR AIR ENTHALPY SETPOINT AND OUTDOOR AIR ENTHALPY DEADBANDS.

REHEAT CONTROL:
DURING DEHUMIDIFICATION MODE THE REHEAT CONTROL WILL BE ACTIVATED TO MAINTAIN THE SPT SETPOINT.
THE CONTROLLER WILL MODULATE HOT GAS REHEAT VALVE TO CONTROL THE HVAC UNIT TO MAINTAIN THE SPT SETPOINT

THE AAON CONTROLLER:
SHALL BE CAPABLE TO BE PROGRAMMED FOR A SEVEN DAY PERIOD WITH NIGHT SET-BACK MODE, WORKDAY AND WEEKEND SCHEDULE.
ALL SETPOINTS SHALL BE FIELD ADJUSTABLE TO ALLOW FOR TWO SETS OF SPACE CONDITIONS DEPENDING ON THE TYPE OF SPACE ACTIVITY.

AIR DISTRIBUTION SCHEDULE

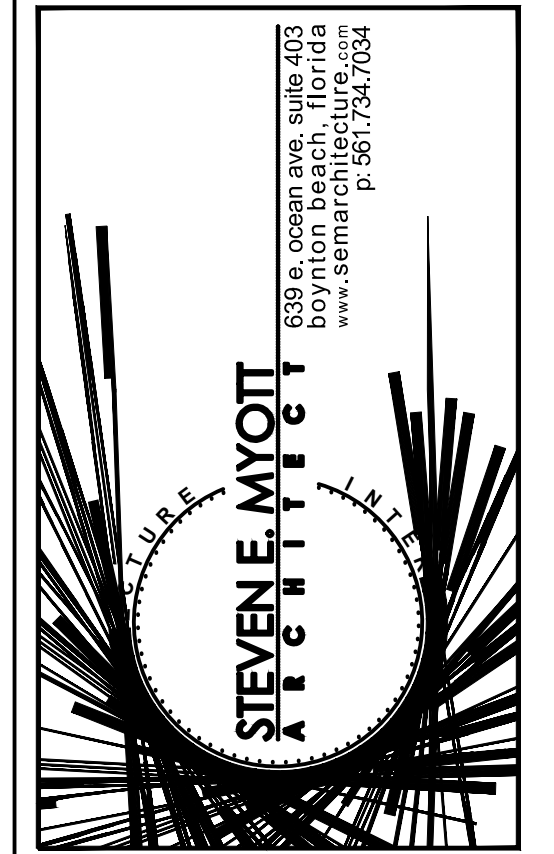| TAG	MANUF. & MODEL	FACE SIZE	NECK SIZE	MATERIAL	FRAME	FINISH	DAMPER	THROW	NC	CFM RANGE	NOTES
A	TITUS TMS-AA	24X24	SEE SCH	ALUM.	LAY-IN	OFF WHITE	OBD	4-WAY	MAX. 30	SEE SCH.	SEE BELOW
B	TITUS TMS-AA	12X12	SEE SCH	ALUM.	LAY-IN	OFF WHITE	OBD	4-WAY	MAX. 30	SEE SCH.	SEE BELOW
AA	TITUS 350-FL	24X24	SEE SCH	ALUM.	SURFACE MOUNT	OFF WHITE	OBD	4-WAY	MAX. 30	SEE SCH.	SEE BELOW
BB	TITUS 350-FL	12X12	SEE SCH	ALUM.	SURFACE MOUNT	OFF WHITE	OBD	4-WAY	MAX. 30	SEE SCH.	SEE BELOW

(*) EQUIVALENT MANUFACTURER: TITUS, METALAIRE, KRUEGER, AIRGUIDE, T & B, NAILOR

GENERAL NOTES:
1. PROVIDE SPIN-IN COLLAR WITH VOLUME DAMPER AT TRUNK TO FLEX DUCT CONNECTION (SEE DETAIL).
2. PROVIDE TYPICAL 4-WAY DIFFUSION, 2-WAY OR 3-WAY ONLY WHERE INDICATED ON PLANS.
3. REFER TO ARCHITECT PLANS FOR CEILING TYPE.
4. FINAL COLOR SELECTION SUBJECT TO ARCHITECT APPROVAL.
5. FLEX DUCT SIZE TO BE SAME AS DIFFUSER NECK SIZE.
6. PROVIDE INSULATION ON THE BACK OF DIFFUSER IF IN UNCONDITIONED SPACE
7. PROVIDE VOLUME CONTROL DAMPERS FOR ALL RETURN GRILLES OR REGISTERS FOR BALANCED AIRFLOW.
8. ADJUST LENGTHS TO LINE UP WITH INTERIOR DESIGNER'S PLANS.
9. PROVIDE INTERNAL CABLE CONTROL FOR LINEARS IN HARD CEILINGS.

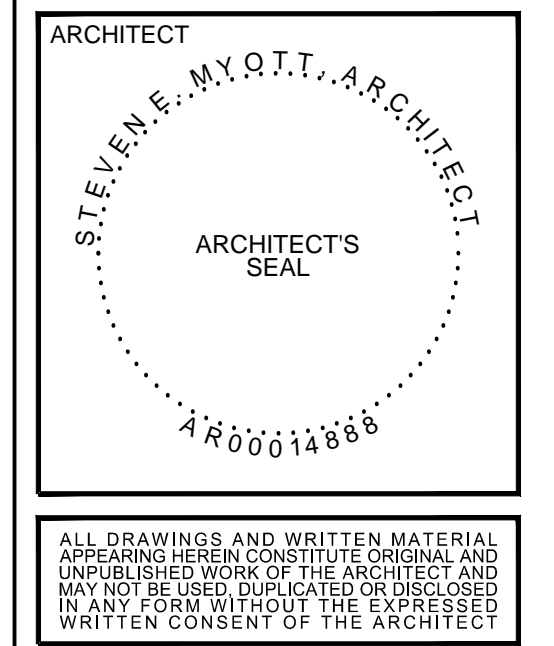| S/A FLEX SCHEDULE	
6Ø"	50-125 CFM
8Ø"	130-200 CFM
10Ø"	205-330 CFM
12Ø"	335-450 CFM
14Ø"	455-700 CFM

CONTRACTOR SHALL VERIFY WITH ARCHITECT AND TENANT/OWNER, PRIOR TO ANY PURCHASING OR INSTALLATION, IF A BUILDING STANDARD HAS TO BE FOLLOWED REGARDING A SPECIFIC MODEL OR MANUFACTURER AND SHALL BRING ANY DISCREPANCY TO THE ATTENTION OF ENGINEER.

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AR00014888

PROJECT NO: 16.049
DRAWN BY: SV
CHECKED BY: SM

NO:	DATE:	ISSUED FOR:
1	05.20.16	PRELIMINARY REVIEW
2	08.04.16	PERMIT / BIDDING

MECHANICAL SCHEDULES

ISSUED FOR PERMIT	08-04-2016
ISSUED FOR CONSTRUCTION	

KAMM Consulting

M6.1

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