AIR HANDLING UNIT SCHEDULE

AIR HANDLING UNIT		AH–2	AH–3	AH–4
McQUAY MODEL	NUMBER	CAH025GDAC	CAH012GDAC	OAH004GDAC NOA# 07–1003.03
SUPPLY FAN WHEEL TYPE AND SIZE	TYPE / DIA.	HOUSED A.F. / 21.56	HOUSED A.F. / 16.19	CENT. FC / 9.5
FAN SPEED	RPM	2,210	2,538	1,790
EXTERNAL STATIC PRESSURE	IN. W.G.	3.30	3.60	1.00
UNIT STATIC PRESSURE (MEAN FILTER PRESSURE DROP)	IN. W.G.	2.65	2.07	1.38
TOTAL STATIC PRESSURE	IN. W.G.	5.95	5.67	2.38
FAN MOTOR (460V / 3ø / 60CY)	BHP / HP	17.44 / 20.0	6.57 / 7.5	1.42 / 2.0
FAN CONTROL	TYPE	VFD	VFD	CV
DESIGN CONDITIONS				
OUTSIDE WINTER DESIGN TEMPERATURE	F	39	39	39
INSIDE WINTER DESIGN TEMPERATURE	F	68	68	68
OUTSIDE SUMMER DESIGN TEMPERATURE	FDB / FWB	93 / 79	93 / 79	93 / 79
INSIDE SUMMER DESIGN TEMPERATURE	FDB / FWB	78 / 65	78 / 65	78 / 65
DESIGN RELATIVE HUMIDITY (MAX.)	%	55	55	55
AIR QUANTITIES				
OUTSIDE AIR QUANTITY	CFM / CFM	1,500	1,600	350
TOTAL AIR QUANTITY	CFM / CFM	12,000	4,800	1,800
HEAT GAINS				
SENSIBLE COIL LOAD	BTUH	405,270	148,560	59,710
TOTAL COIL LOAD	BTUH	606,960	230,200	98,320
DESIGN TEMPERATURES				
ENTERING AIR COOLING COIL	FDB / FWB	83.0 / 68.4	81.0 / 68.0	84.0 / 70.5
LEAVING AIR COOLING COIL	FDB / FWB	52.1 / 51.9	52.7 / 52.4	53.7 / 53.4
COOLING COIL DATA				
ENTERING & LEAVING WATER TEMPERATURES	F / F	45.0 / 55.0	45.0 / 55.2	45.0 / 55.3
MIN. FACE AREA & FACE VELOCITY	S.F. / FPM	24.33 / 493	12.15 / 395	3.94 / 460
ROWS & FINS PER INCH	NO. / NO.	8 / 12	8 / 8	8 / 9
AIR FRICTION DROP	IN. W.G.	1.09	0.6	0.81
WATER FLOW RATE & PRESSURE DROP	GPM / FT.	121.4 / 6.8	45.2 / 6.4	19.2 / 6.3
CONTROL VALVE SIZE & TYPE	IN. / TYPE	2–1/2 / 3–WAY	1–1/4 / 3–WAY	1 / 3–WAY
CONTROL VALVE Cv & PRESSURE DROP (BELIMO)	Cv / FT.	65 / 8.1	32 / 4.6	10 / 8.5
RUNOUT PIPE SIZE	IN.	3	2	1–1/4
SOUND DATA				
DISCHARGE SOUND POWER LEVELS (Hz)	63/125/250/500/1000/2000/4000/8000	93/95/93/94/88/82/78/70	88/90/88/89/83/77/73/65	81/81/78/77/79//76/75/72
FILTER DATA				
PRE – FILTER EFFICIENCY – 2"	% / %	30 (MERV 8)	30 (MERV 8)	30 (MERV 8)
PRE – AIR PRESSURE DROP – CLEAN / MEAN	IN. W.G.	0.26 / 0.63	0.18 / 0.59	0.23 / 0.62
AFTER – FILTER EFFICIENCY – 4"	% / %	65 (MERV 11)	65 (MERV 11)	65 (MERV 11)
AFTER – AIR PRESSURE DROP – CLEAN / MEAN	IN. W.G.	0.37 / 0.93	0.26 / 0.88	0.21 / 0.86
DIMENSIONS (CURBS OR BASE RAIL NOT INCLUDED)	L x W x H	108 x 86 x 66	98 x 66 x 48	126 x 40 x 32
UNIT WEIGHT	LBS.	3,350	1,950	1,600
NOTES		1–15	1–15	2–13, 15–18

NOTES:

1. FURNISH AND INSTALL VARIABLE FREQUENCY DRIVE FOR EACH AH–2 AND AH–3.
2. PROVIDE 2" DOUBLE WALL G–60 18 GAUGE PAINTED GALVANIZED STEEL PANEL AND 16 GAUGE PAINTED FRAME CONSTRUCTION MEETING ASTM B–117 SALT SPRAY TEST OF 500 HOURS WITH WITH INJECTED FOAM INSULATION FOR A R–VALUE OF R–13 IN FILTER SECTION, ACCESS SECTION, COOLING COIL SECTION, ACCESS SECTION AND FAN SECTION. PROVIDE 26 GAUGE G–90 STEEL LINER.
3. PROVIDE INJECTED FOAM INSULATION FOR A R–VALUE OF R–13 UNDER DRAIN PAN – COMPRESSED INSULATION IS NOT ACCEPTABLE.
4. PROVIDE RED BRASS NON–FERROUS HEADERS AND WATER PIPE CONNECTIONS FOR ALL COOLING COILS WITH RED BRASS AIR VENTS AND RED BRASS COIL DRAIN CONNECTIONS.
5. PROVIDE 304 STAINLESS STEEL SLOPED DRAIN PANS. RUN CONDENSATE LINE FULL PIPE SIZE FROM BOTH ENDS OF DRAIN PAN.
6. PROVIDE 304 STAINLESS STEEL COOLING COIL CASING CONSTRUCTION.
7. PROVIDE HINGED (STAINLESS STEEL HINGES) ACCESS DOORS IN FILTER SECTION. FAN MOTOR ACCESS AND FAN MOTOR LOCATION SAME SIDE AS COIL CONNECTION, ALL DOORS AND PANELS SHALL BE GASKETED FOR THERMAL BARRIER AND REDUCED AIR LEAKAGE.
8. MAXIMUM AIR HANDLING UNIT CASING LEAKAGE SHALL BE 0.5 CFM PER SQUARE FOOT OF SURFACE AREA OF CABINET.
9. FAN SPEED AND COIL FACE VELOCITIES SCHEDULED ARE MAXIMUM ALLOWABLE FOR SOUND CONTROL.
10. PROVIDE L50 500,000 HOUR FAN SHAFT BEARINGS.
11. PROVIDE INTERNAL GREASE LINE PORTS TO FAN ACCESS SIDE OF UNIT.
12. PROVIDE PREMIUM EFFICIENT ODP FAN MOTOR AND INTERNAL SPRING ISOLATIONS WITH 2" DEFLECTION ON ALL UNITS.
13. AIR HANDLING UNITS COIL CONNECTIONS SHALL BE EXTENDED THRU SIDE OF UNIT.
14. PROVIDE 6" BASE RAIL AROUND THE ENTIRE PERIMETER OF UNITS AH–2 AND AH–3.
15. PROVIDE PRE AND AFTER FILTER SECTION WITH 2" DOUBLE WALL CONSTRUCTION WITH INJECTED FOAM INSULATION FOR A R–VALUE OF R–13. 2" 30% PLEATED (MERV 8) PRE–FILTER AND 4" 65% PLEATED (MERV 1) AFTER–FILTER PER ASHRAE 52.2 IN FILTER HOUSING WITH STAINLESS STEEL HINGES, ACCESS DOORS, CAM LOCKS, G–60 18 GAUGE PAINTED GALVANIZED STEEL CONSTRUCTION MEETING ASTM–117B 600 HOUR SALT SPRAY RESISTANCE AND GASKETED DOORS.
16. PROVIDE UNIT AH–4 WITH A FULL PERIMETER CURB ADAPTER FOR A ROOF MOUNTING APPLICATION ON ENTIRE CURB. FIELD VERIFY EXACT SIZE OF EXISTING CURB BEFORE FABRICATION OF ADAPTER. CURB ADAPTER SHALL MEET FLORIDA WIND LOAD REQUIREMENTS FOR EQUIPMENT LOCATION AND APPLICATION. EXISTING CURB TO BE MODIFIED IN FIELD BY CONTRACTOR TO MEET WIND LOAD CODE REQUIREMENTS.
17. ROOF MOUNTED CHILLED WATER AHU SHALL MEET STATE OF FLORIDA WIND LOADING AND MISSLE IMPACT REQUIREMENTS FOR LOCATION AND APPLICATION AND SHALL BE MIAMI DADE NOA# 07–1003.03 4/17/2013 EXPIRATION LABELED.
18. PROVIDE FAN MOTOR STARTER, FUSED DISCONNECT, H–O–A SWITCH AND 460/3 TO 24 VOLT TRANSFORMER.

VFD NOTES:

1. VFD TO HAVE NEMA 1 ENCLOSURE. DANFOSS GRAHAM MODEL VLT6000 IS THE BASIS OF DESIGN.
2. PROVIDE INTEGRATED BACNET MS/TP INTERFACE COMMUNICATION CAPABILITY.
3. PROVIDE SIDE–BY–SIDE CONSTANT SPEED MANUAL BYPASS WITH DRIVE/OFF/LINE/TEST SWITCH WITH DISCONNECT.
4. PROVIDE INTEGRATED TWO SETPOINT PID CONTROLLER, AUTOMATIC ENERGY OPTIMIZATION, AUTOMATIC MOTOR ADAPTATION, AUTOMATIC SWITCHING FREQUENCY MODULATION. DIGITAL VOLTAGE VECTOR CONTROL, AND A RUN PERMISSION CONTACT.
5. PROVIDE DRIVE FUSING AND BYPASS FUSING.

GENERAL NOTES

MECHANICAL

1. ALL DUCTWORK SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS AND RECOMMENDATIONS GIVEN IN THE LATEST EDITIONS OF THE "ASHRAE" AND "SMACNA" MANUALS. THE FOLLOWING MINIMUM SCHEDULE OF WEIGHTS FOR DUCTS AND OUTSIDE AIR INTAKES IS TO BE USED:

RECTANGLE MAXIMUM DIMENSION	ROUND DUCTS INSIDE DIAMETER	U.S. GAGE
UP THROUGH 12"		26
13" THROUGH 30"	UP THROUGH 10"	24
31" THROUGH 54"	11" THROUGH 20"	22
55" THROUGH 84"	21" THROUGH 40"	20
OVER 84"	41" THROUGH 60"	18

STANDING SEAMS OF 1" SHALL BE USED ON WIDTHS 24" UP TO 48" AND 1 1/2" ON WIDTHS OVER 48". ALL DUCTS ARE TO HAVE PANELS CROSS BROKEN FOR STIFFNESS, OTHERWISE TWO GAGES HEAVIER SHALL BE USED. ANY SLIP JOINTS SHALL BE MADE IN DIRECTION OF AIR FLOW. ALL ROUND DUCTS ARE SINGLE WALL SPIRAL.

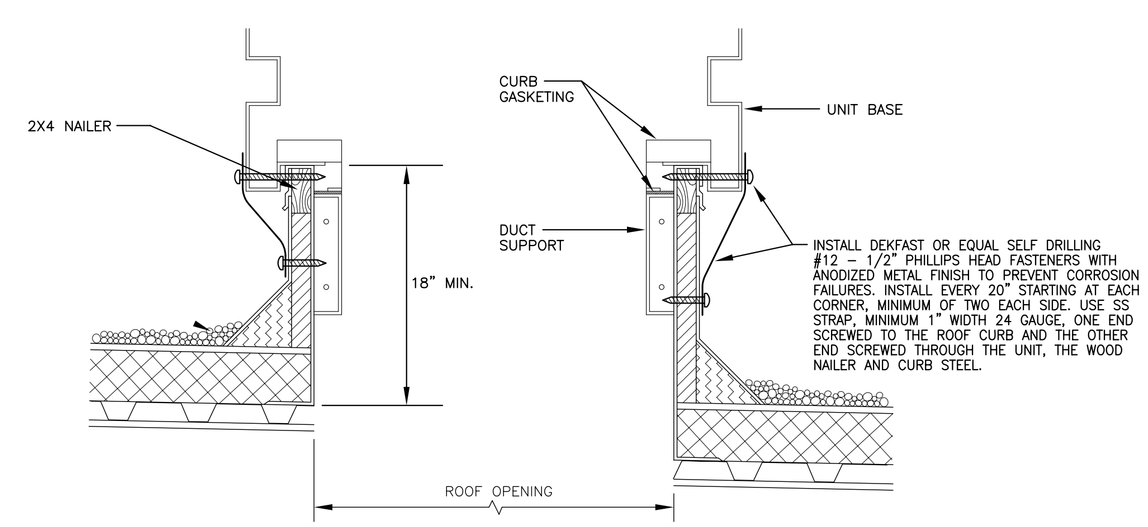
2. ALL EXPOSED DUCTS IN EQUIPMENT ROOMS SHALL BE INSULATED WITH 1–1/2" THICK FIBERGLASS DUCTBOARD EQUAL TO CERTAINTEED ULTRA DUCT TYPE 800 COMMERCIAL BOARD INSULATION.
3. BALANCING DAMPERS: FURNISH AND INSTALL DAMPERS AND DAMPER REGULATORS AT DUCT TRANSITIONS COMPLETE WITH LOCKING QUADRANT AND BEARINGS AS REQUIRED.
4. PROVIDE AND INSTALL MOTORIZED DAMPERS AS SHOWN ON PLANS AND CONTROLS DRAWINGS.
5. CONTRACTOR SHALL VISIT THE SITE, EVALUATE EXISTING CONDITIONS, AND PROPOSE A METHOD OF EQUIPMENT REPLACEMENT.
6. MAKE ANY NECESSARY CHANGES TO THE ELECTRICAL SERVICE TO COMPLETE THE RETROFIT WORK, AND ENSURE THAT ALL MECHANICAL AND ELECTRICAL WORK IS COMPLETE IN EVERY ASPECT WITH NEW EQUIPMENT AND ACCESSORIES READY FOR OPERATION.
7. VERIFY ALL CLEARANCES AVAILABLE BEFORE FABRICATING DUCT WORK. SPECIAL ATTENTION SHALL BE GIVEN TO AVOID INTERFERENCE WITH FIRE SPRINKLER SYSTEM PIPING AND SPRINKLER HEADS.
8. IN GENERAL, PLANS AND DIAGRAMS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED. CONTRACTOR SHALL COORDINATE WITH CEILING AND ELECTRICAL WORK AT SITE SO AS NOT TO CONFLICT IN LOCATION WITH WORK UNDER THE CONTRACT.
9. CHILLED WATER PIPING SHALL BE SCHEDULE 40 BLACK MILD STEEL WITH WELDED PIPE FITTINGS. CHILLED WATER PIPING SHALL BE INSULATED WITH 1–1/2" THICK FOAMGLASS WITH VAPOR BARRIER. ALL EXISTING VALVES AND FITTINGS ARE TO BE REMOVED AND REPLACED WITH NEW. SEE PIPING DIAGRAM ON THIS SHEET.
10. RUN CONDENSATE DRAIN LINES TO EXISTING FLOOR DRAINS IN EQUIPMENT ROOMS. ALL CONDENSATE DRAIN LINES SHALL BE TYPE L COPPER TUBING OR SCHEDULE 40 GALVANIZED BLACK MILD STEEL. MAKE TURNS WITH PLUGGED TEES FOR USE AS CLEANOUTS. CONDENSATE PIPNG SHALL BE INSULATED WITH 1/2" ARMAFLEX WITH SMOKE RATING NOT TO EXCEED 50 AND FIRE RATING NOT TO EXCEED 25.
11. ALL AIR HANDLING UNITS SHALL BE EQUIPPED WITH SMOKE DETECTORS INSTALLED IN SUPPLY AND RETURN AIR DUCTS TO SHUT DOWN THE FAN IN CASE OF INTRO–DUCTION OF SMOKE INTO SYSTEM. EXISTING SMOKE DETECTORS SHALL BE REMOVED. NEW SMOKE DETECTORS SHALL BE FURNISHED AND WIRED BY THE ELECTRICAL CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTRACTOR.
12. PROVIDE SHOP DRAWINGS AND MANUFACTURER DATA SHEETS ONE TIME IN A THREE RING BINDER FOR ENGINEER APPROVAL PRIOR TO ORDERING AND PURCHASING ANY EQUIPMENT OR MATERIAL.
13. PERFORM A TEST AND BALANCE ON ALL EQUIPMENT AND AIR DEVICES. PROVIDE SPECIFIED AND ACTUAL DATA AS FOLLOWS AND AS APPLICABLE:

    EQUIPMENT: MANUFACTURER NAME, MODEL NUMBER, HEATING AND COOLING CAPACITIES, AIR AND WATER CAPACITIES, EXTERNAL AND TOTAL STATIC PRESSURES, VOLTAGE AND PHASE, HORSEPOWER, AND AREA SERVED.

    AIR DEVICES: AIR VOLUME AND NECK SIZE.
14. ALL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FLORIDA BUILDING CODE AS WELL AS ALL LOCAL CODES AND REGULATIONS AND NFPA 90.

ELECTRICAL

1. MECHANICAL CONTRACTOR TO PROCURE THE SERVICES OF A LICENSED ELECTRICIAN TO PERFORM THE NECESSARY ELECTRICAL MODIFICATIONS ASSOCIATED WITH THIS RETROFIT.
2. EXISTING SAFETY SWITCHES SERVING AH–2 AND AH–3 TO BE REPLACED WITH NEW VARIABLE FREQUENCY DRIVES PROVIDED BY CONTRACTOR. MOUNT VFD, AND ADJUST EXISTING CIRCUIT WIRING AND CONDUIT AS NECESSARY AND RUN THROUGH THE NEW VFD'S. MAKE FINAL TERMINATIONS AS REQUIRED.
3. EXISTING SAFETY SWITCH SERVING AH–4 TO BE REPLACED WITH NEW H.O.A. SWITCH PROVIDED WITH UNIT.
4. WIRE ELECTRIC DUCT HEATER TO 120/208V PANEL AS SHOWN. PROVIDE AND INSTALL 3P/30A CIRCUIT BREAKER AT PANEL. RUN THREE #10 THWN CU. AND ONE #10 CU. GROUNDING CONDUCTOR IN 1/2" CONDUIT. MAKE FINAL CONNECTIONS AS REQUIRED. PROVIDE AND INSTALL DISCONNECT SWITCH SIZED PER NEC.
5. ALL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AS WELL AS ALL LOCAL CODES AND REGULATIONS AND NFPA.



NOTE: VERIFY SLOPE OF ROOF

ROOFTOP UNIT MOUNTING DETAIL

NO SCALE

NO.	DATE	REVISIONS	ISSUED
1			
2			
3			
4			
5			
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7			
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9			

H.C.S.O.
SHERIFF'S OPERATION CENTER
2008 8TH AVENUE
TAMPA, FLORIDA 33605

SSI

DATE 04–13–09
PROJECT NO. 0615
DRAWN W.W.
CHECKED F.O.

OSSI CONSULTING ENGINEERS, INC.
1810 SOUTH MacDILL AVENUE
TAMPA, FLORIDA 33629
TELEPHONE (813) 254-6774 FAX (813) 254-2867

NOTES AND SCHEDULES

SHEET NO. **M-1**