

VARIABLE REFRIGERANT VOLUME - AIR-COOLED CONDENSING UNIT SCHEDULE														
TAG: ROOM	DESCRIPTION	COOLING CAPACITY		HEATING CAPACITY		CONNECTION RATIO (%)	ELECTRICAL			EFFICIENCY (NonDucted/Ducted)			NOMINAL TONNAGE	BASIS OF DESIGN (DAIKIN)
		Btu/hr	AMBIENT DESIGN (°F DB)	Btu/hr	AMBIENT DESIGN (°F DB / WB)		VOLTAGE PHASE	MIN CIRCUIT AMPS (MCA)	MAX OVERCURRENT PROTECTION (MOP)	EER	IEER	COP 47		
CU1	HP-AC	134,349	90	114,708	32.0 / 27.0	103	208/3	55.1	60	24.1			12	RXYQ144TTJU
CU2	HP-AC	147,040	90	115,253	32.0 / 27.0	117	208/3	55.1	60	24.1			12	RXYQ144TTJU
CU3	HP-AC	119,857	90	101,164	32.0 / 27.0	112	208/3	36.3	45	23.5			10	RXYQ120TTJU
CU4	HP-AC	123,452	90	101,319	32.0 / 27.0	118	208/3	36.3	45	23.5			10	RXYQ120TTJU

Schedule Notes:

- Manufacturer must be certified, listed, and labeled per AHRI 1230.
- System rating data based on design ambient conditions for cooling and for heating.
- Manufacturer must certify and submit system performance at extreme conditions of 120 degrees F ambient in cooling mode and -4 degrees F in heating mode.
- Submitted performance data must be fully de-rated for all components and accessories, including but not limited to, line length, vertical separation, connection ratio, design conditions, condenser coil coating.
- System must provide continuous heating during defrost and oil return. Systems without this capability must be de-rated to account for heating lost during defrost cycle and unit size increased accordingly.
- Manufacturer must have published continuous performance rating data at least 120F and -4F to ensure performance during extreme conditions.
- Condensing units must have fully modulating INVERTER compressors.
- Non-VFD compressors (including digital scroll compressors and compressors with hot gas bypass) will not be permitted.
- Condensing units must have auto changeover functions.
- Demand limiting relay contact must be provided.
- Condensing units must have a minimum of 3 minutes of non-volatile operational memory for use in diagnostics.
- All Mode Changeover Devices and FCU refrigerant controls shall be via Electronic Expansion Valves (EEVs) with 2000:1 throttling range.
- EEV actuators must be removable from valve body without disturbing the refrigerant system.
- Systems using solenoid control valves must include full port isolation valves before and after refrigerant control box and acoustic treatment to provide no greater than NC20 in the occupied mode.
- Solenoid control valves and full port isolation valves must be rated for 2.5 times the maximum working pressure in the system and be rated for a minimum L10 life of 500,000 hours.
- VRF systems using solenoid control valves must provide acoustic treatment to attenuate valve noise below NC20 in all occupied modes.
- Condensing units must be furnished with protective coil coating to withstand ASTM B117 salt spray test for a minimum of 2500 hours. Performance of system must be de-rated for coil coating.
- Condensing units must have published performance data with 200% indoor connected capacity.
- FCU thermostats must provide +/- 1 degree dead-band set-point and control capability.
- Air handling units shall be provided with condensate pump if required. Coordinate with plumbing contractor.
- System shall be provided with i-Touch Manager controller with WEB based software for displaying up to 8 DIII-Net systems with 128 indoor units per system. PC by others.
- Manufacturers submittal must include refrigerant piping diagram with pipe diameters, lengths, and refrigerant volume.
- Substitute manufacturer shall be responsible for additional piping and refrigerant.
- Contractor to verify piping dimensions.
- System shall utilize REFLOK mechanical piping system with AL tubing to eliminate contaminants introduced in the brazing process.
- Installing contractor must have successfully completed manufacturers certified installation class within past 36 months.
- Contractor to furnish and install insulation on refrigerant piping.
- Manufacturers Representative must have local stock of parts and factory certified technician on staff.
- Manufacturers Representative shall provide proof of ongoing installation training at their local facility for at least the past 5 years.
- Manufacturers Representative shall provide proof of continuous sales and support of their products for at least 15 years.
- Mechanical contractor shall be responsible for all direct costs and operating costs increases for 20 years associated with any deviations resulting from changes in design.
- Condensing unit shall provide auto charging and indoor unit auto addressing capability.
- Manufacturer must provide 10 years parts warranty on all FCUs, Condensing Units, Mode Changeover Devices and Zone Controls. Warranty conditions must be clarified during submittal phase.

AIR DEVICE SCHEDULE								
UNIT TAG	MFGR & MODEL	CFM RANGE	FACE SIZE /MODULE	NECK	FRAME	DAMPER TYPE	THROW	REMARKS
SA	TITUS TMS-AA	-	24x24	SEE PLANS	LAY-IN	-	-	-
SB	TITUS TMS-AA	0-50	12x12	6"ø	LAY-IN	-	-	-
SC	TITUS 300FL	0-100	8x6	SEE PLANS	LAY-IN	-	-	-
RA	TITUS 50F	0-2000	24x24	SEE PLANS	LAY-IN	-	-	-
RB	TITUS 50F	0-1000	12x12	SEE PLANS	LAY-IN	-	-	-

AIR TERMINAL NOTES:

- AIR DEVICE SIZES SCHEDULED UNLESS OTHERWISE NOTED ON HVAC FLOOR PLANS.
- AIRFLOW SHALL BE AS NOTED ON PLANS.
- ALL AIR DEVICES INSTALLED IN INACCESSIBLE AND/OR DRYWALL CEILING SHALL BE PROVIDED WITH MANUAL OPPOSED BLADE DAMPERS.
- ALL AIR DEVICES INSTALLED IN LAY-IN CEILING SHALL HAVE MANUAL VOLUME DAMPER INSTALLED IN THE BRANCH TAKE-OFF.
- MAXIMUM PRESSURE DROP FOR ALL AIR DEVICES SHALL NOT EXCEED 0.10 IN. W.C.
- ALL AIR DEVICES SHALL BE WHITE UNLESS OTHERWISE NOTICED. COORDINATE WITH ARCHITECT.
- MAXIMUM NC FOR ALL DEVICES SHALL NOT EXCEED 25.
- ALL AIR DEVICES SHALL BE ALUMINUM CONSTRUCTION UNLESS OTHERWISE NOTICED.
- UNLESS INDICATED OTHERWISE, LAY-IN TYPE REGISTERS & DIFFUSERS INSTALLED IN GYPSUM BOARD CEILINGS SHALL BE PROVIDED WITH RAPID MOUNT FRAME, MODEL TITUS TRM OR EQUAL.

Single Duct Terminal Unit Schedule - No Heat													
Tag	Qty	Model	Size			Design Airflow		Unit Options Control Config	Pressures		NC Levels		
			Case Type	Inlet	Outlet	Max (CFM)	Min (CFM)		Max (inH ₂ O)	Unit (inH ₂ O)	Rad	Dis	Op Ps Drop (inH ₂ O)
VAV-1-X	SEE PLANS	MQTHIS	6 6 in Round	12x8	12x8	375	65	Right Hand	1	0.096	19	14	0.5
VAV-2-X	SEE PLANS	MQTHIS	6 6 in Round	12x8	12x8	450	65	Right Hand	1	0.125	21	16	0.5
VAV-3-X	SEE PLANS	MQTHIS	8 8 in Round	12x10	12x10	575	105	Right Hand	1	0.06	14	18	0.5
VAV-4-X	SEE PLANS	MQTHIS	8 8 in Round	12x10	12x10	630	115	Right Hand	1	0.072	16	19	0.5

Notes:

- All sound power levels referenced to 1 x 10 watts.
- Room NC levels based on sound pressure levels calculated from adjustments to sound levels using attenuation credits given in ARI 885-2008.
- Room NC levels calculated at the Operating Ps Drop.
- Sound data obtained from tests conducted in accordance with ARI Standard 880-2008.
- Legend:
 - a. Min Ps = minimum static pressure loss through ATU
 - b. Unit (Pressures) = Min Ps + PD

1. TYPICAL VAV ARE TAGGED AS FOLLOWS: VAV-X-X
 VAV IDENTIFIER (UNIQUE)
 SIZE/AIRFLOW

2. VAV BOXES SHOWN ON PLAN DIAGRAMMATICALLY. CONTRACTOR SHALL CONFIRM AND COORDINATE WITH ALL MANUFACTURER CLEARANCE REQUIREMENTS.

100 % OUTDOOR AIR UNIT (DAIKIN AS BASIS OF DESIGN)														
TAG	Qty	Model	Electrical		Efficiency		Supply Fan			Filters				
			Voltage	MCA (A)	MROPD (A)	EER (AHRI 360)	IEER (AHRI 360)	Airflow (CFM)	ESP (inH ₂ O)	TSP (inH ₂ O)	Altitude (ft)	Motor Size (HP)	Face Area (ft ²)	Efficiency
OAU-1 (East)	1	DPS012A	208/60/3	144.7	150	11.4	17.8	3500	1.5	2.95	0	4	18 2"	MERV 8
OAU-2 (Core)	1	DPS010A	208/60/3	144.7	150	12.2	19.1	2500	1.5	2.45	0	4	18 2"	MERV 8
OAU-3 (West)	1	DPS012A	208/60/3	144.7	150	11.4	17.8	3600	1.5	3.01	0	4	18 2"	MERV 8

Equipment Notes:

- VERIFY ALL A/C ELECTRICAL REQUIREMENTS WITH MANUFACTURERS SPEC. PRIOR TO INSTALLATION.
- PROVIDE R-410A REFRIGERANT.
- RTU SHALL BE PROVIDED WITH FACTORY MOUNTED DAIKIN D3 GATEWAY COMMUNICATION CARD.
- REFER TO OAU SPECIFICATION SHEET M6.2 AND COORDINATE WITH CONTROLS (SEE M3.1)
- PROVIDE SMOKE DUCT DETECTORS AT SUPPLY AND EXHAUST AIR PLENUMS IN UNIT.
- SA AND EA FAN MOTORS SHALL BE DIRECT DRIVE NEMA PREMIUM EFFICIENCY ECM OR INVERTER DUTY.
- PROVIDE AUTOMATIC SHUTOFF FLOAT SWITCH AT DRAIN PAN TO PREVENT CONDENSATE OVERFLOW.
- PROVIDE AIR FILTER FRAME AND 2" MERV 8 FILTERS.
- CABINET SHALL BE 1" DOUBLE WALL WITH INJECTED FOAM CONSTRUCTION.
- DISCONNECTS AND ALL EQUIPMENT POWER WIRING BY ELECTRICAL CONTRACTOR. COORDINATE PRIOR TO ANY WORK AND/OR PURCHASING.
- CONDENSER AND EVAPORATOR COILS, AND INTERNAL HVAC COMPONENTS SHALL HAVE LUVATA "INSITU ES2", OR EQUAL, WATER-BASED SYNTHETIC POLYMER COATING WITH EMBEDDED STAINLESS STEEL PIGMENT SPRAY-APPLIED CORROSION COATING WITH NO MATERIAL BRIDGING BETWEEN FINS. COATING SHALL HAVE COMPLETED 10,000 HOURS ASTM B117-07 SALT SPRAY TESTING. CALL TULIA RIOS 954-973-0584x23
- UNIT SHALL BE CERTIFIED FOR HIGH WIND LOADS FOR THE SPECIFIC LOCATION. THE CERTIFICATION SHALL BE BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER.
- COMPRESSORS MUST BE TRUE VARIABLE SPEED "INVERTER" TYPE AND NON DIGITAL TYPE.
- FACTORY INSTALLED HOT GAS REHEAT.
- FACTORY MOUNTED ELECTRIC HEAT.

TAG	Energy Recovery								
	Recovered Capacity		Mixed Air LAT		Effectiveness				
	Cooling (Btu/hr)	Heating (Btu/hr)	Cooling (°F)	Heating (°F)	APD (inH ₂ O)	Total Cooling ()	Sensible Cooling ()	Total Heating ()	Sensible Heating ()
OAU-1 (East)	134268	76126	80.7	63.5	0.78	0.62	0.66	0.66	0.66
OAU-2 (Core)	105129	59910	79.6	65.7	0.56	0.7	0.74	0.74	0.75
OAU-3 (West)	136662	77438	80.8	63.3	0.8	0.62	0.65	0.65	0.65

TAG	Cooling										Electric Heating					
	EAT		LAT		Total Capacity	Sensible Capacity	Ambient DB (°F)	Qty	Compressor		Type	Size	Stages	Total Capacity (Btu/hr)	EDB (°F)	LDB (°F)
	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)					Compressor Power (kW)	Refrigerant						
OAU-1 (East)	78.9	67.6	54	54	147605	95473	95	2	9.5	R410A	Electric	36	SCR control	122868	60	92.4
OAU-2 (Core)	79.6	68.2	53.4	53.1	117295	71616	95	2	8.1	R410A	Electric	36	SCR control	122868	60	105.3
OAU-3 (West)	78.9	67.6	54.4	54.3	148383	96809	95	2	9.5	R410A	Electric	36	SCR control	122868	60	91.5

EQUIPMENT NOTES CONTINUED:

- FAN SHALL BE PREMIUM EFFICIENCY, SPRING ISOLATED AND AIRFOIL TYPE.
- FACTORY MOUNTED VFD.
- MINIMUM OF SIX ROW COOLING COIL.
- ALL ACCESS DOORS MUST BE HINGED.
- PROVIDE FACTORY MOUNTED NON-FUSED DISCONNECT SWITCH WITH FIELD POWERED 115V GFI OUTLET.
- 5 YEAR COMPRESSOR WARRANTY.
- PROVIDE COMPRESSOR ISOLATION VALVES.
- PROVIDE PHASE FAILURE MONITOR.
- PROVIDE RTU WITH WALL MOUNTED HUMIDITY SENSOR.
- PROVIDE 2L" ROOF CURB.
- UNITS MUST HAVE INTEGRAL ERWS.
- SCHEDULED IEER RATINGS MUST BE MET OR EXCEEDED.
- BASIS OF DESIGN SHALL BE DAIKIN. CALL SIMON DIEZ FOR PRICING AT 561.512.2506 OR SIMON.DIEZ@DAIKINAPPLIED.COM
- ALTERNATE MANUFACTURERS SHALL BE CONSIDERED. SUBMITTALS TO NOTE EXCEPTIONS TO COMPLIANCE WITH SCHEDULE, SPECIFICATIONS AND NOTES.

TOTAL BUILDING AIR BALANCE SCHEDULE				
	O/A (-)	MAKEUP AIR (-)	E/A (-)	PRESSURE/CFM
OAU's	(+) 9,600	-	-	(+) 9,600
KITCHEN HOOD	-	(-) 2,400	(-) 3,000	(-) 600
DISHWASHER HOOD	-	-	(-) 750	(-) 750
BATHROOMS EXHAUST	-	-	(-) 1,250	(-) 1,250
CLASSROOM PURGE	-	-	(-) 8,145 x 60	(-) 4,887
TOTAL				(+) 2,113

NOTES:

- CLASSROOM PURGE EXHAUST CALCULATED FOR 60% OF PURGE SYSTEMS TO BE IN OPERATION.
- SUPPLY AND EXHAUST FANS IN EACH OAU SHALL BE VARIABLE SPEED AND MAINTAIN BUILDING POSITIVE PRESSURIZATION.

KITCHEN AIR BALANCE SCHEDULE				
	O/A (-) FROM UNIT	MAKEUP AIR (-) FROM MUA FAN	E/A (-)	PRESSURE/CFM
KITCHEN HOOD	-	(-) 2,400	(-) 3,000	(-) 600
DISHWASHER HOOD	-	-	(-) 750	(-) 750
TRANSFER AIR FROM CORRIDOR	(+) 1350	-	-	(-) 1350
TOTAL				0

NOTES:

- KITCHEN SHALL BE MAINTAINED AT NEGATIVE PRESSURIZATION RELATIVE TO SURROUNDING SPACES. WHEN HOOD(S) EXHAUST ARE NOT IN OPERATION GENERAL EXHAUST SHALL BE PROVIDED AS SHOWN.
- MAKEUP AIR SHALL BE TEMPERED BEFORE ENTERING KITCHEN IN ACCORDANCE WITH SECTION 508.1.1 OF THE 2014 FLORIDA MECHANICAL CODE.

PERMIT / BID SET: 09/07/16

FAE CONSULTING

700 WEST HILLSBORO BLVD. - BLDG. #1, SUITE 204
 DEERFIELD BEACH, FLORIDA 33441
 TEL: (561) 391-9292 FAX: (561) 391-9898
 CERTIFICATE OF AUTHORIZATION NO. 28107
 LINDA BARBER, P.E. LICENSE #73122
 STEPHEN F. ROLLIN, P.E. LICENSE #36428
 DONALD H. AUSTIN, JR., PE LICENSE #60651
 JASON BARBER, P.E. LICENSE #73050
 E-MAIL: INFO@FAECONSULTING.COM
 DESIGNED BY: BU/SK/JS PM: BJ P/N 15434

PRIOR TO SUBMITTING THE BID, THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND INFORM THE ARCHITECT AND THE ENGINEER OF ANY DISCREPANCY BETWEEN THESE DOCUMENTS AND THE EXISTING CONDITIONS AND SHALL INCLUDE IN THE BID TO CORRECT THE SAME AS DIRECTED. THE ENGINEER AND THE ARCHITECT, ARE NOT RESPONSIBLE FOR ANY ADDITIONAL COSTS RESULTING FROM VERIFYABLE EXISTING CONDITIONS DISCOVERED AFTER CONTRACT HAS BEEN AWARDED. NO CHANGES SHALL BE MADE TO THESE PLANS WITHOUT PRIOR APPROVAL FROM THE ENGINEER OF RECORD. ALL CHANGES SHALL BE SUBMITTED FOR REVIEW PRIOR TO INSTALLATION. NOT FOR BID UNTIL PERMIT HAS BEEN ISSUED.

207 SIXTH STREET
 WEST PALM BEACH, FLORIDA 33401
 PH: 561.684.6844 • gliddenspina.com
 FL Lic. #A0000297

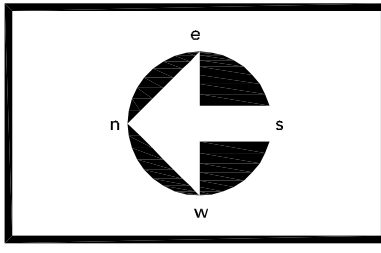


New Building For:
OPPORTUNITY INC.
 EARLY LEARNING CENTER
 4171 Westgate Avenue
 Palm Beach County, Florida

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 10.13.16 ADDENDUM 008

Project no: 15435
 Date: 09.09.16
 Drawn by: RB/SK/JS
 Project Architect: BJ



M0.2

09.09.16 BID/PERMIT

MECHANICAL SCHEDULES