SPECIFICATIONS:

A) AIR CONDITIONING SPECIFICATION

1. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED FOR THE EXACT LOCATION OF EQUIPMENT, PIPING, DUCTWORK, OR OTHER ITEMS.
2. DRAWINGS DO NOT SHOW EVERY DETAIL OF CONSTRUCTION OR INSTALLATION. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED FOR A COMPLETE AND WORKING SYSTEM.
3. ALL WORK SHALL BE PERFORMED BY A LICENSED CONTRACTOR IN A FIRST CLASS, WORKMAN–LIKE MANNER. THE COMPLETED SYSTEM SHALL BE OPERATIVE AND ACCEPTANCE BY ENGINEER/ARCHITECT SHALL BE A CONDITION OF THE SUB–CONTRACT.
4. THE CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS, AND TESTS.
5. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THE PROJECT AND SHALL VERIFY ALL CONDITIONS PRIOR TO CONSTRUCTION.
6. ALL INSTALLATION SHALL BE COORDINATED BY THE CONTRACTOR WITH OTHER TRADES TO AVOID IMPACTS.
7. ALL REQUIRED CONSTRUCTION INSURANCE FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK SHALL BE PROVIDED BY THE CONTRACTOR.
8. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES, RULES, AND ORDINANCES.
9. ALL MATERIALS SHALL BE NEW AND SHALL BEAR UNDERWRITERS LABEL WHERE APPLICABLE.
10. EQUIPMENT SHALL BE U.L. APPROVED.
11. THE MECHANICAL CONTRACTOR SHALL PROVIDE A WRITTEN WARRANTY THAT SHALL GUARANTEE ALL WORKMANSHIP AND MATERIALS FOR ONE YEAR FROM THE DATE OF FINAL WORK ACCEPTANCE BY THE OWNER OR OWNERS REPRESENTITIVE
12. ARCHITECTURAL AND/OR ENGINEERING EXPENSES THAT ARE INCURRED DUE TO REVISIONS OR SUBSTITUTIONS REQUESTED FOLLOWING THE ISSUE OF APPROVED DRAWINGS SHALL BE PAID FOR BY THE CONTRACTOR.

B) INSTALLATION

1. THE MECHANICAL CONTRACTOR SHALL PROVIDE HVAC EQUIPMENT LISTED IN THE HVAC EQUIPMENT SCHEDULE AND SHALL MEET THE CAPACITIES NOTED.
2. THE MECHANICAL CONTRACTOR SHALL SUBMIT MANUFACTURER SHOP DRAWINGS, CUT SHEETS AND PERFORMANCE DATA ON ALL EQUIPMENT AND OBTAIN THE ENGINEER'S APPROVAL PRIOR TO PURCHASE AND INSTALLATION.
3. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL MOTOR STARTERS, RELAYS, CONTRACTORS, SMOKE DUCT DETECTORS, ETC.
4. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL SWITCHES AND INSTALL ALL CONTROL WIRING.
5. A/C UNIT SUPPLY AND RETURN AIR DUCTS SHALL BE R–6 JOHNS MANVILLE MAT–FACED MICRO–AIRE FIBERGLASS DUCT BOARD, TYPE 800 (UL APPROVED) , INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
6. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED TO S.M.A.C.N.A. STANDARDS. ALL DUCTWORK SIZES ARE INSIDE DIMENSIONS.

a) SUPPLY DUCT ELBOWS SHALL BE FURNISHED WITH TURNING VANES.
b) BRANCH TAKEOFFS SHALL BE PROVIDED WITH ADJUSTABLE, ACCESSIBLE AIR SPLITTER DAMPERS.
c) ROUND DUCT ELBOWS SHALL HAVE A CENTERLINE RADIUS OF NOT LESS THAN 1.5 TIMES THE DIAMETER OF THE DUCT.
d) RECTANGULAR DUCT ELBOWS SHALL HAVE A CENTERLINE RADIUS OF NOT LESS THAN 1.5 TIMES THE WIDTH OF THE DUCT.

7. SECURE FLEXIBLE DUCTS TO BRANCH TAKE–OFF COLLAR WITH HOSE CLAMP.
8. MAXIMUM LENGTH OF ALL FLEXIBLE DUCT SHALL NOT BE MORE THAN 10 FEET, UNLESS OTHERWISE NOTED.
9. ALL EXHAUST AND OUTSIDE AIR DUCT SHALL BE MIN. 24GA GALVANIZED SHEET METAL.
10. ALL DUCT ABOVE THE ROOF TO BE MIN. 16GA SHEET METAL, INSULATED W/ 2? THK RIGID HULL BOARD AND SHEATHED WITH GALV. STEEL. EXTERIOR STEEL TO BE SEALED/WEATHERPROOFED, PRIMED AND PAINTED PER ARCHITECTURAL PAINT SCHEDULE.
11. THE MECHANICAL CONTRACTOR SHALL INSTALL SMOKE DUCT DETECTORS IN THE SUPPLY DUCT OF ALL A/C UNITS EXCEEDING 1999 CFM. SMOKE DETECTOR SHALL BE INTERLOCKED W/ AHU CONTROLS.
12. AIR DISTRIBUTION ACCESSORIES SHALL BE AS NOTED ON THE PLANS.
13. REFRIGERANT PIPING SHALL BE TYPE "K" COPPER WITH SOLDER FITTINGS.

a) ALL REFRIGERATION PIPE INSULATION SHALL BE MIN. ½? ARMAFLEX OR EQUAL APPROVED BY THE ENGINEER.
b) ALL EXTERIOR LIQUID/SUCTION LINES SHALL BE INSULATED AND WEATHER PROOFED. ALL SUCTION LINES INSIDE THE BUILDING SHALL BE INSULATED.
c) LIQUID/SUCTION LINES SHALL BE ROUTED INSIDE THE STRUCTURE TO THE EXTENT PRACTICABLE.
d) THE MECHANICAL CONTRACTOR SHALL SIZE ALL PIPING FOR THE SPECIFIC APPLICATION AND ROUTE OF PIPE.

14. THE MECHANICAL CONTRACTOR SHALL ROUTE CONDENSATE PIPING FOR A LENGTH OF 10 FEET TO A DRAIN SUPPLIED BY THE PLUMBING CONTRACTOR. THE MECHANICAL CONTRACTOR'S CONDENSATE PIPE SHALL INCLUDE A TRAP SIZED FOR AHU FAN STATIC.
15. THE MECHANICAL CONTRACTOR SHALL SET AIR HANDLER UNIT AND CONDENSING UNIT AS SHOWN ON THE DRAWINGS. EQUIPMENT SHALL BE PROVIDED DIM PAD ISOLATORS.
16. ALL OUTDOOR AIR INTAKES SHALL BE PROVIDED WITH BIRD AND INSECT SCREEN OF A CORROSION–RESISTANT MATERIAL. BIRD SCREEN SHALL NOT BE LARGER THAN 1/2" MESH AND INSECT SCREEN SHALL NOT BE LARGER THAN 18X14.
17. THERMOSTATS SHALL BE SUPPLIED AND INSTALLED BY THE MECHANICAL CONTRACTOR:

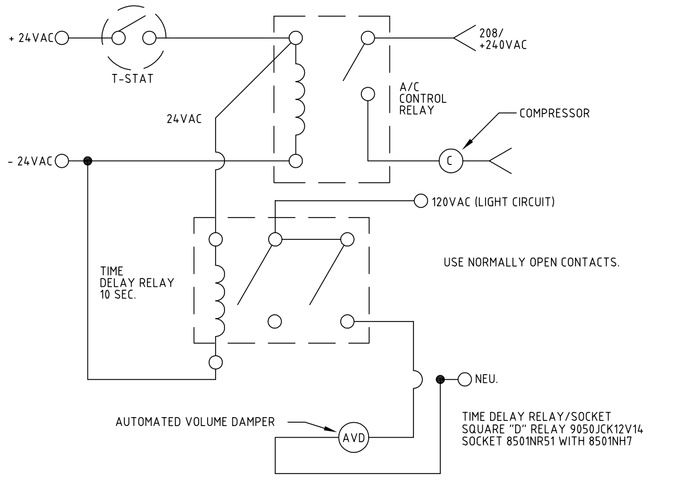
a) SHALL BE MOUNTED 5'–6" ABOVE FINISHED FLOOR, UNLESS NOTED OTHERWISE.
b) SHALL BE HEAT/OFF/COOL AND FAN/AUTO/ON SWITCHED AND SHALL BE APPROVED BY AC EQUIPMENT MANUFACTURER.
c) FURNISH AND INSTALL ALL TEMPERATURE CONTROLS, INCLUDING PROGRAMMABLE THERMOSTAT AND HUMIDISTAT CONTROLS.

18. FIRE DAMPERS SHALL BE INSTALLED IN ALL DUCTS PENETRATING FIRE RATED ROOFS, CEILINGS AND BULKHEADS AS BY CODE. ACCESS DOORS FOR INSPECTION AND RESET SHALL BE PROVIDED AT EACH LOCATION.

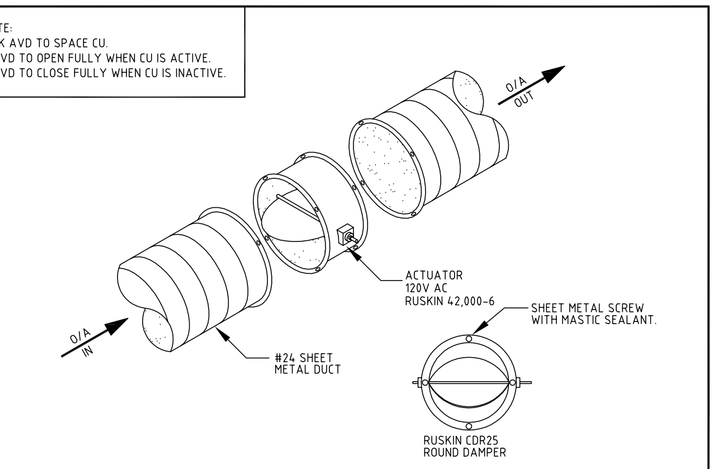
a) FIRE DAMPERS PROVIDED IN KITCHEN EXHAUST DUCT SHALL BE EQUIPPED WITH 212F FUSIBLE LINK.

C) WARRANTIES

1. CORRECTION OF ANY ENGINEERING DEFECT SHALL BE RECTIFIED WITHOUT ADDITIONAL CHARGE AND SHALL NOT INCLUDE REPLACEMENTS OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREBY.
2. CONTRACTOR SHALL ADJUST, TEST AND BALANCE ALL SYSTEMS.
   a) BALANCING OF THE SYSTEM SHALL BE BY A CERIFIED THIRD PARTY.



DETAIL NO. 1	VENTILATION TIME DELAY WIRING DETAIL	NOT TO SCALE



DETAIL NO. 2	AUTOMATIC VOLUME DAMPER DETAIL	NOT TO SCALE

GENERAL NOTES:

1. THE PURPOSE OF THIS DRAWING IS TO PROVIDE HVAC ROUTING AND CONSTRUCTION DETAILS.
2. ALL ELBOWS SHALL HAVE A CENTER LINE RADIUS OF 1.5W OR 1.5D AND BE SUPPLIED WITH TURNING VANES UNLESS OTHERWISE NOTED.
3. ALL HANGER SPACING SHALL BE IN ACCORDANCE WITH S.M.A.C.N.A.
4. ACCESS SHALL BE PROVIDED TO ALL FIRE DAMPERS, FILTERS, INSTRUMENTS AND CONTROLS.
5. NOT USED
6. AHU MOUNTED IN THE HORIZONTAL POSITION SHALL BE EQUIPPED WITH A 1–1/2" DEEP SECONDARY DRAIN PAIN WITH A FLOAT SWITCH THAT SHALL BE CONFIGURED TO PREVENT OVERFLOWING.
7. CONDENSING UNITS SHALL BE LOCATED ON A MIN. 4" SLAB ABOVE THE FLOOD PLANE.
8. REFRIGERANT LINES SHALL BE FIELD ROUTED WITHIN THE BUILDING.
9. CONTRACTOR SHALL LOCATE VCD SUCH THAT THEY ARE ACCESSIBLE FOR ADJUSTMENT AFTER CONSTRUCTION.
10. ALL DIMENSIONS ARE PROVIDED FOR REFERENCE AND THE CONTRACTOR SHALL CONFIRM THE LOCATION IN THE FIELD.
11. ALL DIMENSIONS NOTED FOR DUCT ELEVATIONS AS TOD AND BOD ARE EXTERIOR DIMENSIONS. ALL DIMENSIONS NOTED AS COD ARE TO THE CENTER OF THE DUCT. ALL DIMENSIONS ARE PROVIDED FOR REFERENCE.
12. CONTRACTOR SHALL PROVIDE R4 CONNECTION TO ATTIC SPACE FOR SUPPLY. MVDS SHALL BE PROVIDED IN ACCESSIBLE LOCATIONS FOR ADJUSTMENT AFTER CONSTRUCTION.
13. NOT USED
14. PROVIDE ALL EQUIPMENT AND CONTROL FOR CO2 ON DEMAND VENTILATION.

REVISIONS				
REV. NO.		BY	APRV'D	DATE
00	ISSUE FOR PERMIT	TL	JL	01/26/12

revisions

no.	date
()	//

designed	NW/CH/KP/JL
drawn	NW
checked	RFF
date	01/26/2012
scale	AS NOTED
job no.	212004

AC EQUIPMENT SCHEDULE

DWG TAG	NOM. TON.	QTY	MNF. OR EQUAL	MODEL OR EQUAL	BTU/H TOTAL COOL	BTU/H SENSIBLE COOL	BTU/H HEAT	HEAT TYPE	SYSTEM SEER	CFM SUPPLY AIR	CFM RETURN AIR	CFM OUTDOOR AIR	FAN STATIC (IN. W.G.)	VAPOR/LIQUID PIPE CONNECT SIZE (IN. ACR)	V/PH/HZ	COMPRESSOR QTY	COMPRESSOR FLA	COMPRESSOR LRA	CONDENSER FAN QTY	CONDENSER FAN FLA	INDOOR FAN HP	INDOOR FAN FLA	ELECT. HEAT LOAD (KW)	CONDENSING UNIT MCA	CONDENSING UNIT MAX FUSE	AIR HANDER UNIT MCA	AIR HANDER UNIT MAX FUSE
AHU 1–1	10.0	1	CARRIER	40RM012H	149,000	10,600	85,300	ELEC. STRIP	12.5	4000	2940	1060	1.00	(2) 1–3/8" & (2) 1/2"	208–230/3/60	2	20.7	118.0	2	4.3	3.7	10.2	25	55.6	70	77.9	80
CU 1–1		1	"	38ARD014																							
AHU 1–2	10.0	1	CARRIER	40RM012H	141,000	92,400	51,180	ELEC. STRIP	12.5	3000	2245	755	1.00	(2) 1–3/8" & (2) 1/2"	208–230/3/60	2	20.7	96.0	2	2.2	3.7	10.2	15	55.6	70	51.9	60
CU 1–2		1	"	38ARD014																							
AHU 1–3	10.0	1	CARRIER	24ANA136A30	141,000	92,400	85,300	ELEC. STRIP	12.5	3000	2245	755	1.00	(2) 1–3/8" & (2) 1/2"	208–230/3/60	2	20.7	82.0	2	2.2	3.7	10.2	25	55.6	70	77.9	80
CU 1–3		1	"	FE5ANB004																							
AHU 1–4	10.0	1	CARRIER	24ANA148A30	141,000	92,400	51,180	ELEC. STRIP	12.5	3000	2330	670	1.00	(2) 1–3/8" & (2) 1/2"	208–230/3/60	2	20.7	96.0	2	2.2	3.7	10.2	15	55.6	70	51.9	60
CU 1–4		1	"	FE4ANB006																							

NOTES:
1) CAPACITY IS MEASURED BY MANUFACTURE TESTITNG WHEN PAIRED WITH CORRESPONDING CONDENSING UNIT (SEE CONDENSING UNIT SCHEDULE).
2) CONTRACTOR SHALL SUPPLY HUMIDITY SENSORS AND CONTROLS TO SUIT DEHUMIDIFCIATION CYCLE WITHIN EACH SPACE.

VENTILATION (REF.: FBCM 402)

SPACE	# OF OCCUPANTS	MINIMUM O/A	SUPPLIED O/A	MINIMUM INFILTRATION REQUIREMENTS MET
CLASSROOMS, CONIDTIONED	200	3000	3260	YES

FAN SCHEDULE & DATA

DWG TAG	QTY	MNF. OR EQUAL	MODEL OR EQUAL	SERVICE	CFM	FAN STATIC (IN. W.G.)	DUCT CONNECT SIZE	ELECTRIC V/PH/HZ	ELECTRIC FLA	REMARKS
EF03	7	BROAN	QTXE150	TOILET/GEN. EXH.	150	0.1	6"	120/1/60	0.5	–

NOTES:
1) SUPPLY ALL FANS WITH NON–RETURN DAMPERS.

TERMINAL SCHEDULE

DWG TAG	QTY	MNF. OR EQUAL	MODEL OR EQUAL	SERVICE	SIZE	AIR FLOW DEFLECTION	LOCATION	MOUNTING	REMARKS
SA	AR	TITUS	250	SUPPLY AIR	18" x 18"	SEE PLAN	CEILING	SURFACE	
SK	"	"	"	"	8" x 6"	"	"	"	
SG	"	"	"	"	12" x 8"	"	"	"	
RA	"	TITUS	350FL	RETURN AIR	36"x18"	NA	CEILING	SURFACE	
RB	"	"	"	"	24"x24"	"	"	"	
RF	"	"	"	"	12"x12"	"	"	"	
RL	"	"	"	"	18"x18"	"	"	"	

NOTES:
1) ALL TERMINALS SHALL BE ALUMINUM & FINISHED WHITE, UNLESS NOTED OTHERWISE.
2) ALL SUPPLY DIFFUSERS SHALL BE PROVIDED WITH OPPOSABLE BLADE DAMPERS.
3) ALL TERMINALS SHALL HAVE A NOISE CRITERIA OF LESS THAN 25.

Shawn M. Stambaugh, PE
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project

CLUBHOUSE UNIVERSITY DAYCARE

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PERMIT SET: 01/26/12

NOTE:
ANY DESIGN CHANGES, TO THE SYSTEM COVERED BY THESE PLANS WITHOUT PRIOR APPROVAL OF THE ENGINEER WHO PREPARED THESE PLANS, WILL NULL AND VOID THESE PLANS AND THE REVISED INSTALLATION. IN ADDITION, ALL EXPENSES ASSOCIATED WITH RETURNING THE SYSTEM TO ITS ORIGINAL DESIGN WILL BE THE RESPONSIBILITY OF THE COMPANY WHICH APPROVED THESE CHANGES. FINAL BID TO INCLUDE PERMIT COMMENTS.

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drawing

MECHANICAL DATA,DETAILS & NOTES

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