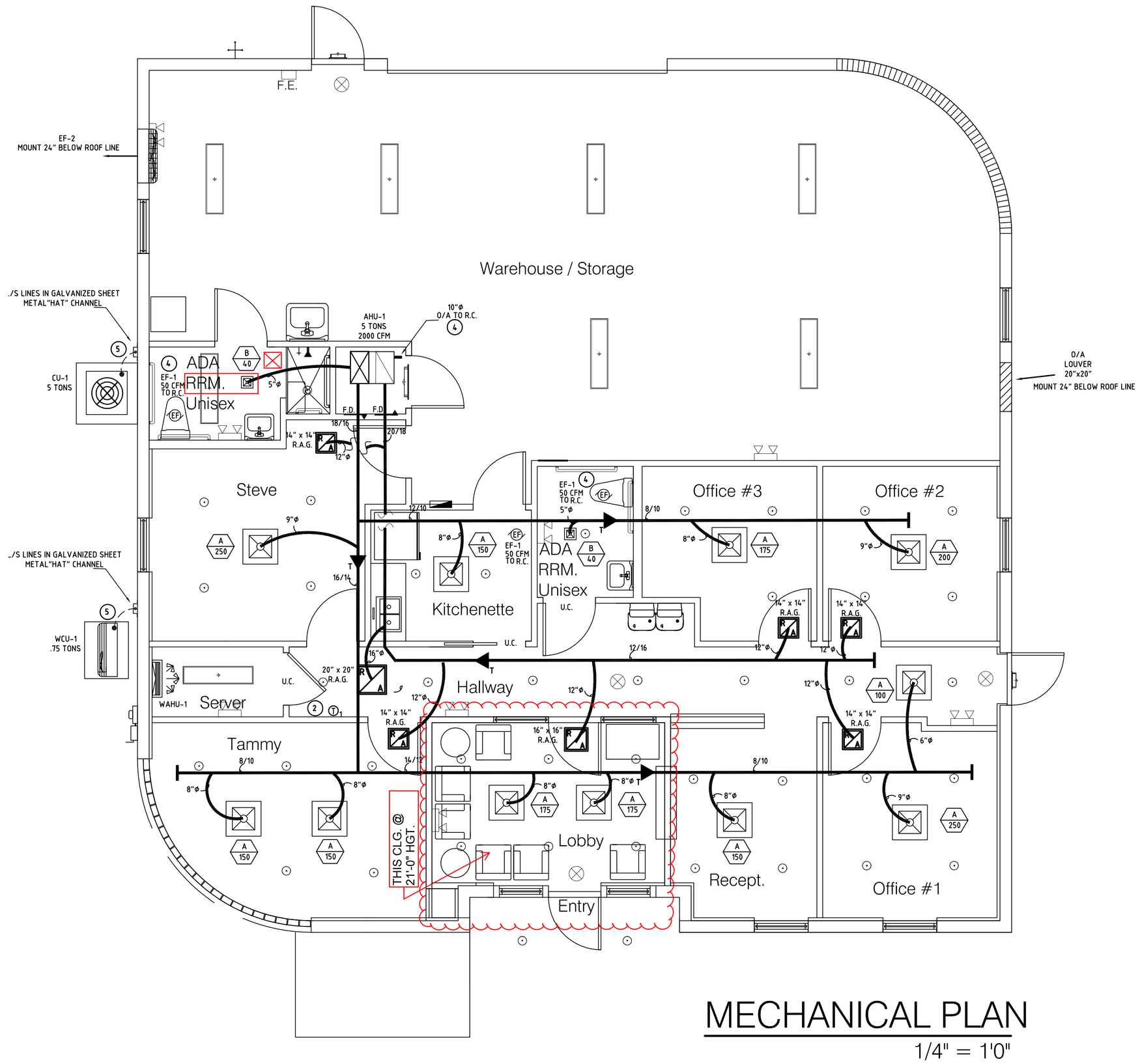

MECHANICAL PLAN

1/4" = 1'0"

KEY NOTES:

1. ALL DUCT WORK SHALL BE SUPPORTED AT INTERVALS SPECIFIED BY FMC.
2. ALL THERMOSTATS SHALL BE PROGRAMMABLE DIGITAL WITH NIGHT SET BACK.
3. O/A DUCT TO BE #26 GAUGE SNAP-LOCK WITH BACK DRAFT DAMPER.
4. ALL RESTROOM EXHAUST DUCT TO BE #26 GAUGE SNAP-LOC SHEET METAL. INSULATE WITH 2" DUCT WRAP. TAPE EVERY 4 FT.
5. SEE SHEET P1.1 FOR CU AND WCU CONDENSATE DRAWINGS.

NOTE:

UNDER CUT ALL DOORS TO A/C ROOMS 1 INCH MAXIMUM.

A/C LEGEND

4W - DIFFUSER	3W - DIFFUSER
1W - DIFFUSER	2W - DIFFUSER
RETURN AIR	SIDEWAY
TRANSITION	AIR FLOW DIRECTION
MANUAL VOLUME DAMPER (M.V.D.)	SMOKE DUCT DETECTOR
T / T_S TEMPERATURE & HUMIDITY CONTROL /SENSOR	
A / 100 DIFFUSER TYPE / CFM	FIRE DAMPER (F.D.)
BACK DRAFT DAMPER (B.D.D.)	
COMBINATION CARBON MONOXIDE/ SMOKE DETECTOR. INTERCONNECT SMOKE DETECTORS SO ALL SOUND UPON ALARM	
REMOTE TEST STATION W/LED & SOUND	

ABBREVIATIONS

W.C.	WALL CAP
U.C.	UNDER CUT
O/A	OUTSIDE AIR
S.A.D.	SUPPLY AIR DUCT
R.A.D.	RETURN AIR DUCT
R.A.G.	RETURN AIR GRILLE
E.A.G.	EXHAUST AIR GRILLE
T.E.D	TOILET EXHAUST DUCT
AVD	AUTOMATED VOLUME DAMPER
FHP	FLORIDA HEAT PUMP
RTU	ROOF TOP UNIT
AHU	AIR HANDLER UNIT
CU	CONDENSING UNIT
WAHU	WALL MOUNTED AIR HANDLER UNIT
RGD	RIGID DUCT
(N)	NEW
(E)	EXISTING TO REMAIN
(D)	EXISTING TO BE DEMOLISH
(RE)	EXISTING TO BE RELOCATED
T.V.	TURNING VANE
BDD	BACK DRAFT DAMPER
	FLEXIBLE DUCT (10 FT. MAX)
	ROUND DUCT (10 FT. PLUS)

NOTE: NOT ALL SYMBOLS ARE USED FOR THIS PROJECT

AIR CONDITIONING SPECIFICATION

GENERAL

- DRAWINGS ARE DIAGRAMMATIC. DO NOT SCALE DRAWINGS FOR THE EXACT LOCATION OF EQUIPMENT, PIPING, DUCTWORK, ETC.
- THESE DRAWINGS DO NOT SHOW EVERY MINOR DETAIL, BUT THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED FOR A COMPLETE, ACCEPTABLE WORKING INSTALLATION.
- ALL WORK SHALL BE PERFORMED BY A LICENSED CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTANCE BY ENGINEER/ARCHITECT MUST BE A CONDITION OF THE SUB-CONTRACT.
- CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS, AND TESTS.
- CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS.
- ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROCESS OF CONSTRUCTION.
- ALL REQUIRED INSURANCE SHALL BE PROVIDED BY THIS CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- ALL WORKMANSHIP AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES, RULES, AND ORDINANCES.
- ALL MATERIALS SHALL BE NEW AND SHALL BEAR UNDERWRITERS LABEL WHERE APPLICABLE.
- 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. EQUIPMENT SHALL BE U.L. APPROVED.
- ARCHITECTURAL AND/OR ENGINEERING EXPENSES THAT ARE INCURRED DUE TO REVISIONS OR SUBSTITUTIONS REQUESTED BY THE CONTRACTOR SHALL BE PAID FOR BY THE CONTRACTOR.

INSTALLATION

- THE MECHANICAL CONTRACTOR SHALL PROVIDE HVAC EQUIPMENT AS SCHEDULED WITH THE CAPACITIES SHOWN ON THE PLAN.
- SUBMIT SHOP DRAWINGS ON ALL EQUIPMENT AND OBTAIN APPROVAL PRIOR TO INSTALLATION.
- THE MECHANICAL CONTRACTOR SHALL PROVIDE MOTOR STARTERS, RELAYS, CONTRACTORS, SMOKE DUCT DETECTORS, ETC.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SWITCHES AND INSTALL ALL CONTROL WIRING.

1. 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.
- ALL DUCTWORK SHALL CONFORM TO S.M.A.C.N.A. STANDARDS. ALL DUCTWORK SIZES ARE NET INSIDE DIMENSIONS.
- ALL A/C SUPPLY DUCT ELBOWS MUST BE FURNISHED WITH APPROVED TURNING VANES.
- BRANCH TAKEOFFS MUST BE PROVIDED WITH APPROVED, ADJUSTABLE, ACCESSIBLE AIR SPLITTER DAMPERS.
- ROUND DUCT ELBOWS SHALL HAVE AN INSIDE RADIUS NOT LESS THAN 1.5 TIMES THE WIDTH OF THE DUCT.

2. CLAMP FLEXIBLE DUCTS TO COLLARS. CLASS 1 ROUND FLEXIBLE DUCT SHALL BE USED FOR ALL FLEX RUNS.
3. ALL EXHAUST AND OUTSIDE AIR DUCTWORK SHALL BE GALVANIZED SHEET METAL OR (T-FIN) AND INSULATED.
- ANY DUCTWORK ABOVE THE ROOF TO BE SHEET METAL, WEATHERPROOFED AND PAINTED. INSULATION TO BE 2" THICK, RIGID ON INTERIOR AND INSTALLED IN AN APPROVED MANNER.
- INSTALL SMOKE DUCT DETECTORS IN THE SUPPLY DUCT OF ALL A/C UNITS EXCEEDING 2000 CFM (INTERLOCK WITH ON/OFF CONTROLS) OF AIR HANDLER.
- AIR DISTRIBUTION ACCESSORIES SHALL BE PER SCHEDULE ON PLANS. REFRIGERANT PIPING TO BE TYPE "K" COPPER WITH SOLDER FITTINGS. INSULATE ALL REFRIGERANT SUCTION LINES WITHIN BUILDING SPACES WITH 1/2" ARMAFLEX OR APPROVED EQUAL, UNLESS OTHERWISE NOTED.
- CONNECT CONDENSATE DRAIN PIPING FROM UNIT THROUGH A TRAP TO CONDENSATE DRAIN PLUMBING CONTRACTOR MAY INSTALL DRAIN WITHIN 6 FEET OF UNIT IF CONTRACTED TO DO SO.
- SET AIR CONDITIONING HANDLER AND CONDENSATE UNITS ON APPROVED BASES WITH VIBRATION ISOLATORS.
- ALL OUTDOOR AIR INTAKES SHALL BE SCREENED WITH A CORROSION-RESISTANT MATERIAL NOT LARGER THAN 1/2" MESH.
- MOUNT THERMOSTATS 5'-0" ABOVE FLOOR, UNLESS NOTED OTHERWISE.
- THERMOSTATS FOR A/C UNIT SHALL BE HEAT/OFF/COOL AND FAN/AUTO/ON SWITCHED AND SHALL BE APPROVED BY EQUIPMENT MANUFACTURER.
- FURNISH AND INSTALL ALL TEMPERATURE CONTROLS UNDER THIS CONTRACT, INCLUDING HUMIDITY CONTROLS WHEN APPLICABLE.
- FIRE DAMPERS SHALL BE INSTALLED IN ALL DUCTS PENETRATING FIRE RATED ROOFS AND CEILINGS AND WHERE REQUIRED BY CODES. PROVIDE ACCESS DOORS AT EACH FIRE DAMPER LOCATION.

WARRANTIES

- CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENTS OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THEREBY.
- CONTRACTOR SHALL ADJUST, TEST AND BALANCE ALL SYSTEMS. BALANCED AIR FLOWS WITHIN 10 PERCENT OF THE DESIGN VALUES. SUBMIT COPY OF WORKSHEET TO ENGINEER/ARCHITECT.

NOTES

1. RIGID DUCTWORK TO BE CERTAINTEED 'TOUGHGARD' IN KITCHEN AREA.
2. FLEXIBLE DUCT WORK OVER 10 FT. SHALL BE SEMI-RIGID ROUND FIBERGLASS DUCT.
3. INSULATE O/A AND EXHAUST DUCT WHEN THEY ARE IN AIR CONDITIONING SPACE.

VENTILATION PER F.B.C. 403.3

VENTILATION PER TABLE 403.3
OCCUPANCY: OFFICE
OF PEOPLE: 14
CFM/PERSON: 5

O/A REQUIRED: 14 x 5 = 70 CFM

SQ. FT. 1361 SQ. FT.
CFM/SQ.FT.: 0.06

O/A REQUIRED: 1361 x 0.06 = 81.66 CFM

TOTAL O/A REQUIRED: 70 + 81.66 = 151.66 CFM

VENTILATION PER F.B.C. 403.3

VENTILATION PER TABLE 403.3
OCCUPANCY: STORAGE
OF PEOPLE: -
CFM/PERSON: -

O/A REQUIRED: -

SQ. FT. 1123 SQ. FT.
CFM/SQ.FT.: 0.12

TOTAL O/A REQUIRED: 1123 x 0.12 = 134.76 CFM

AIR CHANGE/HOUR: 3

FLEX SCHEDULE

4ø"	20-34 CFM
5ø"	35-60 CFM
6ø"	61-100 CFM
7ø"	101-145 CFM
8ø"	146-200 CFM
9ø"	201-280 CFM
10ø"	281-379 CFM
12ø"	380-600 CFM
14ø"	601-900 CFM
16ø"	901-1300 CFM
18ø"	1301-1800 CFM

EXHAUST FAN DATA

FAN #	EF-1	EF-2
MANUFACTURER	BROAN QTXE050	DAYTON 10E039
CFM	50	1311
E.S.P. IN. WG.	0.100	0.100
RPM - ROOF CURB TYPE	-	-
RPM - DIRECT DRIVE	1200	1750
ELECTRIC V/ø/HZ	120/1/60 0.3 AMPS	120/1/60 0.4 AMPS
OPERATING WEIGHT	13.2 LBS	-
ACCESS. - ROOF CURB TYPE	-	-
ACCESS. - FIRESTAT	-	-
ACCESS. - BACKDRAFT DAMPER	X	-
ACCESS. - DISCONNECT SWITCH	-	-
ACCESS. - SPEED CONTROL	-	-
REMARKS	x 6"ø SHEET METAL DUCT. x SEE PLANS FOR TERMINATION. x TIE TO LTS.	x PROVIDE WIRE INTAKE GUARD. x PROVIDE GRAVITY CONTROL SHUTTER MODEL 1C743.

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1. DRAWINGS ARE NOT TO BE SCALED. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER ALL SCALED DIMENSIONS. 2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ADVISE ARCHITECT OF ANY DISCREPANCIES.CONSTRUCTION SHALL NOT PROCEED UNTIL SAID DISCREPANCIES HAVE BEEN RESOLVED.
3. NO MATERIALS OR SYSTEMS ARE TO BE FABRICATED UNTIL: A) ALL DIMENSIONS HAVE BEEN VERIFIED BY CONTRACTOR B) SHOP DRAWINGS HAVE BEEN REVIEWED AND ACCEPTED BY THE ARCHITECT

RICK BRAUTIGAN ARCHITECTURE
10255 Dixie Highway
Delray Beach, FL 33483
Ph: 561.272.9086
Fx: 561.272.5636
AAC002029

PRELIMINARY SET: 06/02/15

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.

FORMICA & ASSOCIATES Inc.
Consulting Engineers
3500 N.W. Boca Raton Blvd.
Suite #711
Boca Raton, FL. 33431
TEL: (561) 368-3611 FAX: (561) 368-4733
Certificate #00006818
Robert F. Formica, P.E. License #19733
E-mail: bob@formicaengineering.com

Kelly Building for:
Schmidt Investment Properties, LLC
1302 Wallace Drive
Delray Beach, FL 33444

RBA. PN. 13714.09

REVISIONS

© PAUL RICHARD BRAUTIGAN, ARCHITECT AR0011073

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MECHANICAL PLAN

SC. 1/4"