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ARCHITECTURE

ENGINEERING

STUDIES

PLANNING

INVESTIGATION

EXPERT WITNESS

PAUL REES
OFFICE BUILDING
2275 8TH. ST.
MANDEVILLE, LA
70471

MECHANICAL
PLAN

REV:

SCALE: AS NOTED

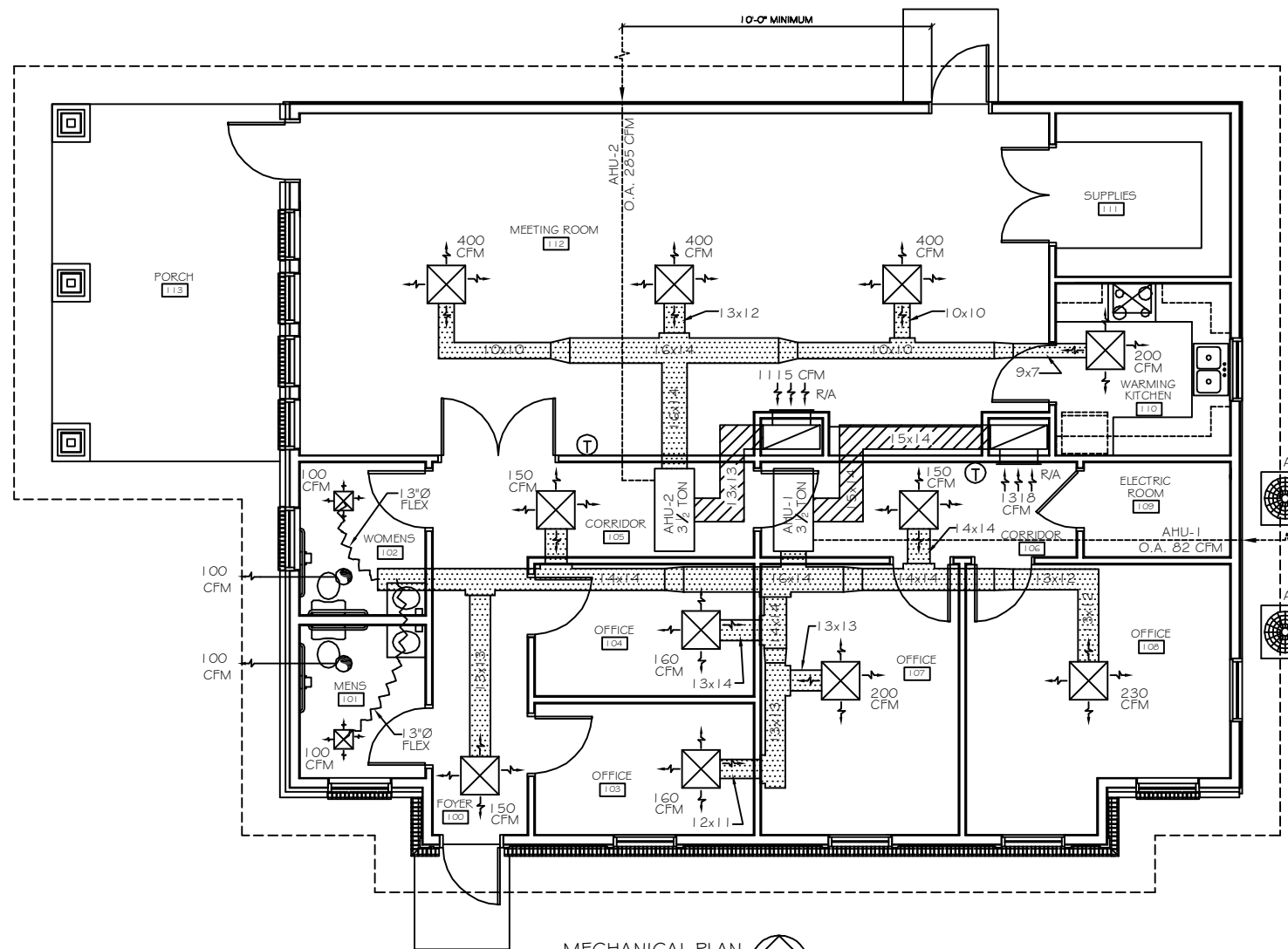
JOB#: 2104

DATE: 05-11-11

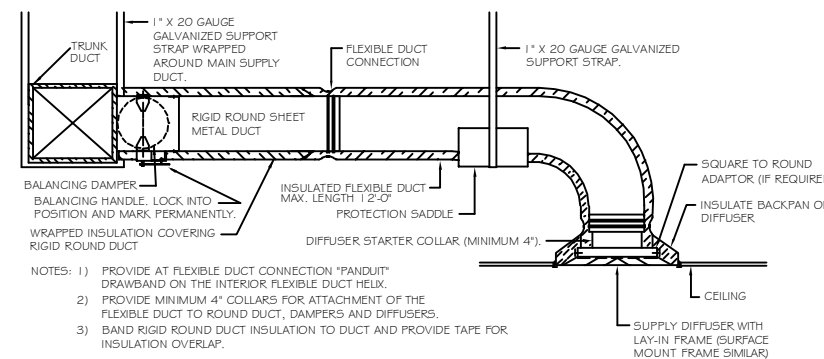
SHEET

M-1

OF



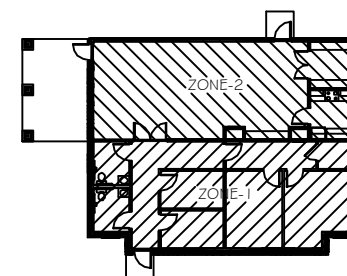
MECHANICAL PLAN
SCALE: 1/4"=1'



DIFFUSER CONNECTION DETAIL-FLEX DUCT
N.T.S.

EXHAUST FAN SCHEDULE					
NO.	LOCATION	CFM	VOLTAGE	TYPE	MANF.
EF1	RESTROOM	100	120	VENT	BROAN
EF2	RESTROOM	100	120	VENT	BROAN

FRESH AIR REQUIREMENTS PER A/C TABLE 403.3					
ROOM NAME	SQUARE FEET	O.A.	ZONE	HEAT (KW)	COMMENTS
ZONE 1: 953 SQ FT					
FOYER 100	108	82	1	-	
MENS RESTROOM 101	61	1	1	-	
WOMENS RESTROOM 102	61	1	1	-	
OFFICE 103	88	1	1	-	
OFFICE 104	87	1	1	-	
CORRIDOR 105	64	1	1	-	
CORRIDOR 106	91	1	1	-	
OFFICE 107	159	1	1	-	
OFFICE 108	190	1	1	-	
ELECTRIC ROOM 109	44	1	1	-	
ZONE 2: 914 SQ FT					
WARMING KITCHEN 110	90	285	2	-	
SUPPLIES 111	87	2	2	-	
MEETING ROOM 112	737	2	2	-	



KEY PLAN
N.T.S.

A/C UNIT SCHEDULE								
NO.	TOTAL BTU	CFM	O.A.	HEAT ELEC.	VOLTAGE	MCA	CKT BRKR	COMMENTS
A/C 1	42,000 3 1/2 TON	1,400	82	12 KW	208V, 1Ø	26.2	LPI-1,3,2,4	YORK - (VERIFY WITH OWNER)
A/C 2	42,000 3 1/2 TON	1,400	285	12 KW	208V, 1Ø	26.2	LPI-5,7,6,8,	

PAUL REES OFFICE - HVAC CALCULATIONS

Project Paul Rees Office Building - Zone 1 & 2 HVAC Calculations
Wed May 11 14:16:45 EDT 2011

ZONE 1: 953 SqFt
 The Btuh Gain for 17.25 SqFt of East and West Double Pane Glass = 1638.75
 The Btuh Gain for 49.5 SqFt of South Double Pane Glass = 3465
 The Btuh Gain for 15.6 SqFt of Windows in Doors = 205.92
 The Btuh Gain for 445.875 SqFt of Wood R-11 & 1/2" Gypsum Wall Number 1 = 1159.275
 The Btuh Gain for 180.75 SqFt of Wood R-13 & 1/2" Gypsum Wall Number 2 = 415.725
 The Btuh Gain for 180.75 SqFt of Mason Above Grade R-11 Wall Number 3 = 289.2
 The Btuh Gain for 445.875 SqFt of Mason Above Grade R-11 Wall Number 4 = 713.4
 The Btuh Gain for 953 SqFt of Roof Only 8" - 9.5" R-30; Ceiling Number 1 = 3049.6
 The Btuh Gain for 5 People = 50
 The Btuh Gain for 953 SqFt of Area Lighting in an Office = 2859
 Fresh Air Vbz = RpPz + RaAz
 Vbz = (5) (5) + (0.06) (953) = 82 cfm of Fresh Air
 The Btuh Gain for Outside Fresh Air #1 = 4002.6
 The Total BTU Gain = 19652.39
 Minimum Tons of HVAC needed = 3.23

ZONE 2: 914 SqFt
 The Btuh Gain for 74.75 SqFt of East and West Double Pane Glass = 7101.25
 The Btuh Gain for 15.6 SqFt of Windows in Doors = 205.92
 The Btuh Gain for 495.4167 SqFt of Wood R-13 & 1/2" Gypsum Wall Number 1 = 1139.45841
 The Btuh Gain for 184.5833 SqFt of Wood R-13 & 1/2" Gypsum Wall Number 2 = 424.54159
 The Btuh Gain for 184.5833 SqFt of Mason Above Grade R-11 Wall Number 3 = 295.33328
 The Btuh Gain for 495.4167 SqFt of Wood R-11 & 1/2" Gypsum Wall Number 4 = 1288.08342
 The Btuh Gain for 914 SqFt of Roof Only 8" - 9.5" R-30; Ceiling Number 1 = 2924.8
 The Btuh Gain for 46 People = 460
 The Btuh Gain for 914 SqFt of Area Lighting in an Office = 2742
 The wattage for 1 Gallon Coffee Machines = 470
 Fresh Air Vbz = RpPz + RaAz
 Vbz = (5) (46) + (0.06) (914) = 285 cfm of Fresh Air
 The Btuh Gain for Outside Fresh Air #1 = 3838.8
 The Total BTU Gain = 22018.1867
 Minimum Tons of HVAC needed = 3.13

This in accordance with the International Mechanical Code 2006

- HVAC NOTES
1. CONCEALED DUCTWORK TO BE UL-181, CLASS 1, FIBERGLASS DUCTBOARD. DUCTS SHALL BE SIZED TO LIMIT AIR DUCTS TO 1000 CFM & SECONDARY DUCTS TO 800 CFM. TO BE INSTALLED PER SMACNA STANDARDS.
 2. EXPOSED DUCTWORK TO BE GALVANIZED SHEET METAL PER SMACNA STANDARDS. LINE WITH NEOPRENE COATED 1.0" 1.5 POUNDS PER CUBIC FOOT DUCT INSULATION.
 3. ROUND FLEXIBLE DUCT TO BE UL-181, CLASS 1, AIR DUCT MATERIALS.
 4. DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS.
 5. IN ALL SYSTEMS 2000 CFM AND OVER, BUT LESS THAN 15,000 CFM, SMOKE DETECTORS SHALL BE INSTALLED, IN ACCORDANCE WITH NFPA 72E & NFPA 90A, IN THE RETURN DUCT DOWNSTREAM OF THE AIR HANDLING UNIT AND ALL FILTERS TO AUTOMATICALLY STOP THE FAN.
 6. PROVIDE U.L. LISTED 125 F° FIRESTAT IN RETURN AIR OF EACH SYSTEM UNDER 2000 CFM TO SHUT DOWN THE FAN IN THE EVENT OF FIRE.
 7. PROVIDE U.L. RATED FIRE DAMPERS WHERE REQUIRED AT ALL DUCT PENETRATIONS OF FIRE-RATED ASSEMBLIES AND WHERE REQUIRED BY CODE, INCLUDING OUTSIDE AIR INTAKES.
 8. CONDENSATE DRAINS TO BE PVC PIPE RUN TO PLUMBERS P-TRAP WITHIN FIVE FEET OF AIR HANDLING UNITS.
 9. ALL AIR HANDLING SYSTEMS TO BE BALANCED TO ASSURE PROPER AIR FLOWS PER PLANS.
 10. ALL THERMOSTATS TO BE AUTOMATIC CHANGEOVER WITH HEAT SWITCH.
 11. EXHAUST FAN EQUAL TO BROAN MODEL NO. 100 CF. OR EQUAL. FAN SHALL BE CONTROLLED BY A SWITCH ON THE WALL IN THE SAME LOCATION AS LIGHT SWITCH(S). PROVIDE BACK DRAFT DAMPER.
 12. PROVIDE AND INSTALL WATER PROOF GRILLE VENT IN PROPER ROOF LOCATION FOR PLUMBING FIXTURE EXHAUST.
 13. ALL SUPPLY AIR VENTS SHALL BE EQUIPPED WITH AIR CONTROL DAMPERS.
 14. LOCATE OUTDOOR UNITS AS SHOWN ON ARCH. DWGS.
 15. REFRIGERANT LINES SHALL BE SIZED BY UNIT MANUFACTURER AND INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
 16. FRESH AIR SHALL BE SUPPLIED TO EACH AIR HANDLER THROUGH EXTERIOR WALL DUCT SUPPLIED WITH A CONTROL DAMPER.
 17. INSTALL FIRE DAMPER WHERE S.A. & R.A. DUCTS PENETRATE 1 HOUR RATED CEILINGS.
 18. ALL ELECTRICAL, MECHANICAL, AND PLUMBING PENETRATING FIRE WALLS SHALL BE FIRE CAULKED. (PENETRATIONS THROUGH RATED CONSTRUCTION SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN TESTED IN ACCORDANCE WITH ASTM-E8-14).
 19. ALL MECHANICAL SYMBOLS ARE DRAWN DIAGRAMATICALLY. CONTRACTOR TO VERIFY WITH OWNER LOCATIONS OF VENTS, DAMPERS, REGISTERS, ETC.
 20. REFER TO STRUCTURAL DRAWINGS TO COORDINATE LOCATION(S) & MOUNTING OF MECHANICAL EQUIPMENT.
 21. FLEXIBLE DUCTWORK LENGTH NOT TO EXCEED 10'-0".
 22. REFER TO REFLECTED CEILING PLAN FOR FINAL GRILLE AND DIFFUSER LOCATIONS AND COORDINATE AS REQUIRED.
 23. FINAL LOCATION OF TEMPERATURE CONTROLS TO BE COORDINATED WITH OWNER AT JOB SITE.
 24. PROVIDE AND INSTALL SMOKE DETECTORS AS APPROVED BY LOCAL AHJ'S. PLACE NEAR R/A AND S/A OPENINGS OF AHU AND PROVIDE, WITH ACCESS PANEL, WIRING BY ELECTRICAL CONTRACTOR.
 25. FRESH AIR INTAKES ARE REQUIRED TO HAVE MOTORIZED OR GRAVITY DAMPERS TO SHUT OFF WHEN SYSTEM IS NOT RUNNING. ALL THERMOSTATS MUST BE PROGRAMMABLE. SEE SECTIONS 502.4.4 OR 503.2.4.3 OF THE 2006 INTERNATIONAL ENERGY CODE.

PRELIMINARY (NOT FOR CONSTRUCTION)

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