EXHAUST FAN DUCT SMOKE DETECTOR THERMOSTAT. MOTORIZED DAMPER REFRIGERANT LINES FIRE DAMPER DUCT (SIZE IS CLEAR EXHAUST/RETURN REGISTER CEILING DIFFUSER FLEXIBLE DUCT WORK RETURN AIR GRILLE INSIDE DIMENSION)

1 1/2" WIDE, 26GA. G.S.M DUCT SUPPORT STRAP.

2" EMBEDDED 1/4" CONCRETE ANCHOR TO STRUCTURE.

SUPPOR

- INSULATED FLEX.
(8'-0" MAXIMUM)
WITH SPIRAL STEEL
REINFORCEMENT.
1 1/2" LINED INSULATION
CLASS 1 UL 181

CWS & R LINES

于

1 1/4" CONDENSATE DRAIN LINE

FLEXIBLE CONNECTION

RETURN DUCT

ACCESS PANEL FOR SERVICE.—

1 1/2"X 1 1/2"X 1/4" - GALV. STEEL ANGLE

VIBRATION ISOLATOR

 T

MOUNTING

DETAIL

PUMP

CONNEC

TION

TAIL

HVAC

10. TRAPEZE DUCT HANGERS: MINIMUM 1"X2"X1"X 18 GAUGE CHANNELS WITH 1" X
18 GAUGE STRAPS TO STRUCTURAL SUPPORT ABOVE.
11. DUCT WRAP/ASJ INSULATION (ON ALL SUPPLY AND MAKE-UP AIR DUCTWORK):
PROVIDE 1 1/2" THICK FIBERGLASS ASJ DUCT WRAP WITH VAPOR SEAL ON ALL SUPPLY AIR AND MAKE-UP AIR DUCTWORK ABOVE THE CEILING. CONFORM TO FEDERAL SPEC. HH-1-568B (AMMEN. 3) TYPE 75, FORM B, TYPE 1, CLASS B-2.
12. RIGID ROUND GALVANIZED DUCT SHALL BE SPIRAL OR SNAP LOCK GALVANIZED SHEETMETAL COMPLYING WITH SMACNA.
13. FLEX DUCT: PROVIDE FACTORY ASSEMBLED CLASS 1 AIR DUCT (UL 181)

WITH 1 10"THINK 1 DOC FIRETON ASSEMBLED CLASS 1 AIR DUCT (UL 181) FLEX DUCT: PROVIDE FACTORY ASSEMBLED CLASS 1 AIR DUCT (UL 181)

BE WITH 1 1/2"THICK 1 PCF FIBERGLASS INSULATION R-6 AND REINFORCED OUTER PROTECTIVE COVER/VAPOR BARRIER. FLEX DUCT SHALL MEET NFPA 90A WITH FLAME SPREAD UNDER 25, SMOKE DEVELOPED UNDER 50, AND SHALL BE RATED FOR 2"

W.G. PRESSURE AND 0 TO 250 DEGREE FAHRENHEIT. PROVIDE METAL

ADJUSTABLE CLAMPING DEVICES, SCREW OPERATED. USE TWIST-LOCK

CONICAL TAP COLLARS AT CONNECTIONS INTO SHEET METAL DUCTWORK. DO

NOT EXCEED EIGHT(8) FEET IN LENGTH FOR ANY FLEX DUCT. REFER TO

DETAILS FOR ADDITIONAL REQUIREMENTS.

6. DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS AS REQUIRED. FURNISH AND INSTALL ALL DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE SYSTEM FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED. THE WORK SHALL BE IN ACCORDANCE WITH THE LOCAL BUILDING CODE LOCAL ORDINANCES AND STANDARDS AND SUBJECT TO INSPECTIONS.

DUCT DIMENSIONS: UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON DRAWING ARE INSIDE SHEET METAL DIMENSIONS ON UNLINED DUCTS. COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED OTHERS, REQUIREMENTS OF THE LANDLORD, AND WITH THE CONSTRAINTS THE EXISTING CONDITIONS OF THE PROJECT SITE.

FIBERGLASS DUCTWORK: FIBERGLASS DUCTWORK SHALL BE FABRICATED AND INSTALLED TO ASHRAE AND SMACNA STANDARDS, FOR 1" W.G. PRESSURE CLASS. 1 1/2 R-6" FIBERGLASS FOR ALL SUPPLY AND RETURN DUCTWORK.

26. INSULATE REFRIGERANT SUCTION LINE WITH 25/50 ARMAFLEX INSULATION APPROVED FOR PLENUM USE OR EQUAL.26. INSULATE CONDENSATE LINE WITH 25/50 ARMAFLEX INSULATION APPROVED FOR PLENUM USE OR EQUAL.

CONDENSER WATER PIPING SCHEDULE 40 BLACKSTEEL PIPE AS PER SPECIFICATION

CONDENSATE DRAIN TRAP AND EXPOSED PIPING IN AHU CLOSETS SHALL BE COPPER. INSULATE WITH 25/50 ARMAFLEX INSULATION APPROVED FOR PLENUM USE. THE CONTRACTOR SHALL PROVIDE ALL LABOR, NA PANELS, CONTROL SYSTEMS, DEVICES, PERMITS / FURNISHING AND INSTALLING OF COMPLETE AND SYSTEMS. CONDENSATE DRAIN TRAP AND EXPOSED PIPING IN AHU CLOSETS SHALL BE COPPER. INSULATE WITH 25/50 ARMAFLEX INSULATION APPROVED FOR PLENUM USE.

GPM / PD (FT)

TOTAL CFM

1600

1260

0.5

0.5

TOTAL HEATING BTUH

EER / COP

11.4 / 4.2

12.8 / 4.1

80.0 / 67.0

EAT DB/WB

SENS. COOLING BTUH

TOTAL COOLING BTUH

EM 048

EWT/LWT

85.0 / 95.0

85.0 / 95.0

460-3-60

16 / 17.2

13 / 17.6

COMPRESSOR RLA / LRA.

5.6 / 40

1/2

VIIN. CIRCUIT AMPACITY

DIMENSION (LXWXH)

UNITS TO INSTALLED AS

SIZE

WAX FUSE SIZE OR C.B.

BALANCING DAMPERS: FABRICATED OF SAME MATERIAL AS DUCT, TWO METAL GAUGES HEAVIER THAN DUCT. MOUNT ON 3/8" SQUARE ROD WITH SAW SLOT POSITION INDICATOR. PIVOT AND BEARING, LOCKING POSITION REGULATOR,
 ALL EQUIPMENT AND MATERIALS SHALL BE NEW, FREE FROM DEFECTS AND WITH MANUFACTURER'S WARRANTY.
 PROVIDE DOUBLE THICKNESS TURNING VANES AT ELBOWS AND EXTRACTOR DAMPERS AT ALL DUCT BRANCHES AND TAKE-OFFS.
 ALL OUTSIDE AIR AND EXHAUST DUCTWORK SHALL BE OF GALVANIZED SHEET METAL FABRICATED IN ACCORDANCE WITH S.M.A.C.N.A. STANDARD FOR LOW VELOCITY DUCT MANUAL.

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21. PROVIDE WHERE APPLICABLE, DUCT MOUNTED SUPPLY AND/OR RETURN AIR PHOTOELECTRIC TYPE UL LISTED SMOKE DETECTORS. DETECTORS SHALL BE LISTED FOR THE AIR VELOCITIES ENCOUNTERED CONNECT TO F.A. SYSTEM PROVIDE INTERLOCK WIRING AND RELAYS FOR UNIT SHUT DOWN.

ON ACTIVATION OF ANY DETECTOR, ALL HVAC UNITS FANS SHALL STOP. 18. FLEXIBLE CONNECTOR: WHERE REQUIRED PROVIDE U.L. LABELED 30oz.
 NEOPRENE COATED FIBERGLASS FABRIC DUCT CONNECTORS.
 19. CEILING DIFFUSERS/RETURNS: PROVIDE SUPPLY DIFFUSERS AND DAMPER IN SIZES, CAPACITIES, MATERIALS, AND PATTERN INDICATED ON THE DRAWINGS.

22. THE MECHANICAL CONTRACTOR SHALL PROVIDE A SCHEMATIC DIAGRAM OF THE CONTROLS AND SUBMITTAL OF THE CONTROL COMPONENTS FOR APPROVAL. 23.ROOF PENETRATIONS SHALL COMPLY AND NRCA STANDARDS.

EQUIPMENT INDICATED ON THE DRAWINGS OR AS REQUIRED FOR A COMPLETE INSTALLATION, SUCH AS , DUCTWORK, EXHAUST FANS, SUPPLY AND RETURN DIFFUSERS, ETC., SHALL BE PROVIDED WITHIN THE SCOPE OF WORK OF THIS SECTION.

TEMPERATURE CONTROL SYSTEM INCLUDING LOW VOLTAGE WIRING AND CONDUIT, PNEUMATIC TUBING, TRANSDUCERS, ACTUATORS, CONTROLLERS. DUCT, PIPING, AND EQUIPMENT WITH INSULATION.

ROOF CURBS, ROOFING AND FLASHING OF ROOF PENETRATIONS FOR EQUIPMENT NOTED.

THE WORK INCLUDES PROVIDING THE HVAC SYSTEMS, INCLUDING DUCTWORK, DIFFUSERS AND GRILLES, INSULATION, CONTROLS, AND EQUIPMENT NECESSARY FOR A COMPLETE FUNCTIONING SYSTEM. HVAC SYSTEM INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING: SUPPLY, RETURN, AND EXHAUST DUCTWORK SYSTEMS WITH GRILLES, DIFFUSERS, FILTERS, AND DAMPERS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EQUIPMENT DESIGN REQUIREMENTS (I.E. VOLTAGE, WATER, DRAINS,GAS CONNECTIONS, ETC.) WHEN REQUIRED FOR THE CORRECT/APPROVED OPERATION, THE EQUIPMENT SHALL BE FURNISHED WITH ALL NECESSARY ACCESSORIES WHETHER CONSIDERED OPTIONAL OR STANDARD BY THE MANUFACTURER. EQUIPMENT SHALL NOT BE ORDERED BASE ON MANUFACTURERS' MIODEL NUMBERS.

THE SCOPE OF WORK IS TO PROVIDE A COMPLETE INSTALLATION OF MECHANICAL SYSTEMS IN COMPLIANCE WITH THE FLORIDA BUILDING CODE, NFPA— ALL APPLICABLE STANDARDS AND GOVERNING AUTHORITIES.

24. TEST AND ADJUST EACH PIECE OF EQUIPMENT AND EACH SYSTEM AS REQUIRED TO ASSURE PROPER BALANCE AND OPERATION, FOLLOW NEBB AND ASHRAE STANDARDS. ELIMINATE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF ALL CONTROLS, MAINTENANCE OF TEMPERATURE, AND OPERATION. BALANCE MECHANICAL SYSTEM, AND SUBMIT COMPLETED TEST REPORT TO CONSTRUCTION MANAGER, PRIOR TO REQUEST FOR FINAL PAYMENT. BALANCING CONTRACTOR SHALL BE AN INDEPENDENT CONTRACTOR FROM HVAC INSTALLING CONTRACTOR. ALL SYSTEMS SHALL BE BALANCED TO WITHIN 10% OF AIR VOLUMES INDICATED. ANY DISCREPANCY SHALL BE REPORTED TO HVAC INSTALLER FOR DUCT CORRECTION, PRIOR TO FINAL REPORT. AFTER FINAL DUCT ADJUSTMENTS HAVE BEEN MADE, FINAL BALANCING SHALL BE PREFORMED AND THE RESULTS REPORTED IN A CERTIFIED BALANCE REPORT. FINAL BALANCED POSITIONS SHALL BE MARKED ON THE DAMPER WITH A PERMANENT MARKER. NOTE ALL AIR QUANTITIES OUTSIDE OF TOLERANCE IN REPORT.

	SMOKE CONTROL	FIRE STOPPING	CEILING ASSEMBLÝ	FIRE RATED ROOF/FLOOR	FIRE RATED ENCLOSURE	SMOKE DAMPER(S)	FIRE DAMPER(S)	DUCT SMOKE DETECTOR	
	<		<	_	<u> </u>				
Ĺロフ!!!	<	<	<	\	<	<	<u> </u>	<	
'									

	HD3	HP-19	
<u> </u>	CHEDUL	UNIT S	HEAT PUMP UNIT SCHEDULE
	<	_	SMOKE CONTROL

DESIGN REQUIRES:	YES	NO
SMOKE DETECTOR		\nearrow
AMPER(S)		
DAMPER(S)		<
ATED ENCLOSURE	<	<
ATED ROOF/FLOOR 3 ASSEMBLY	<	<
TOPPING		\nearrow
CONTROL	\nearrow	<u> </u>

0.06 CFM/QSFT X 750 SQFT = 45 CFM TOTAL = 295 CFM PROVIDE 300 CFM O.A. TO HP-3	<u>HP-3</u> 5 CFM/P X 50 P = 250 CFM	PROVIDE 405 CFM O.A. TO HP-1 TO HP-2 (EACH)	TOTAL = 807 CFM	0.06 CFM/QSFT X 2,370 SQFT = 142.2 CFM	5	HP-1 AND HP-2	ASHRAE 62.1-04 OA. CALCULATIONS

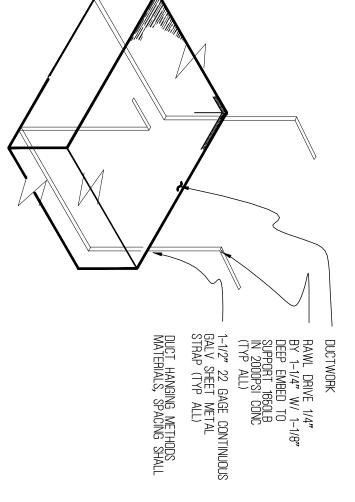
ASHRAE 62.1-04 OA. CALCULATIONS
HP-1 AND HP-2 5 CFM/P X 133 P 0 OB CEM/OSET X 2 370 SOET = 1422 CEM
TOTAL = 807 CFM PROVIDE 405 CFM O.A. TO HP-1 TO HP-2 (EACH)
<u>HP-3</u> 5 CFM/P X 50 P 0.06 CFM/QSFT X 750 SQFT <u>= 250 CFM</u>
TOTAL = 295 CFM PROVIDE 300 CFM 0.A. TO HP-3

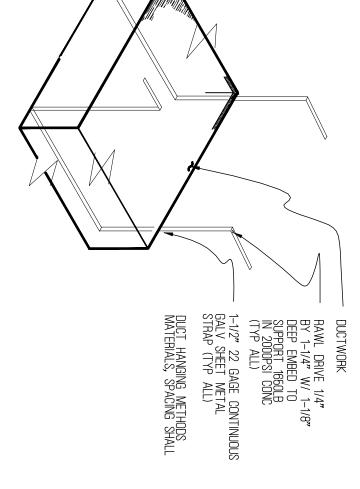
VENTILATION FAN SCHE	ON FAI	N SCHE	PULE
MARK NO.	EF-1	EF-2	F-3
APPLICATION	TOILET EXHAUST	TOILET/JAN {	JANITOR ROOM
FAN TYPE	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL
DRIVE TYPE	DIRECT	DIRECT <	DIRECT
AIR FLOW (CFM)	88	106	50
STATIC PRESSURE(IN.W.G.)	0.25	0.25	0.25
FAN SPEED (RPM)	036	950	1500
MOTOR H.P.	49 WATTS	> 52 WATTS <	40 WATTS
ELECTRIC SERVICE	120/1/60	20/1/60	120/1/60
DESIGN MFG.	GREENHECK	GREENHECK	GREENHECK
MODEL NO.	SP-210	> SP-A110-QD <	SP-6
ACCESSORIES	(1)	(1)	(1)
(1) SPEED CONTROLS SWITCH, BACKDRAFT DAMPER	CH BACKDBAFT D	AMPER	

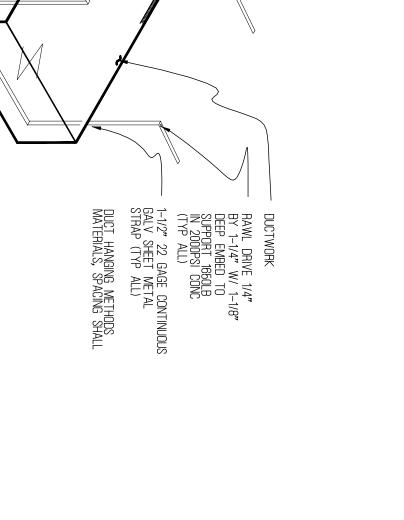
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EQUIPMENT TO BE PROVIDED WITH MANUFACTURER CERTIFIED ANCHORING FOR WIND VELOCITY COMPLIANCE AS PER FBC.	SPEED CONTROLS SWITCH, BACKDRAFT DAMPER

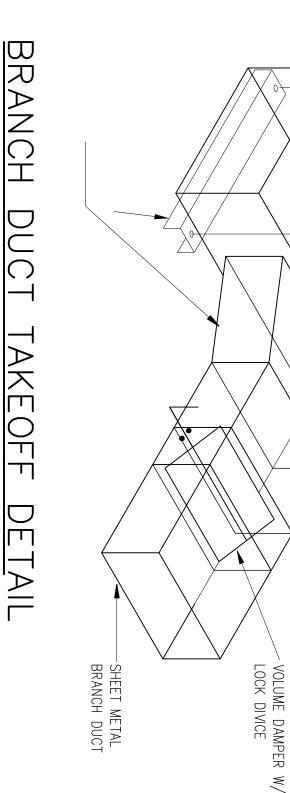
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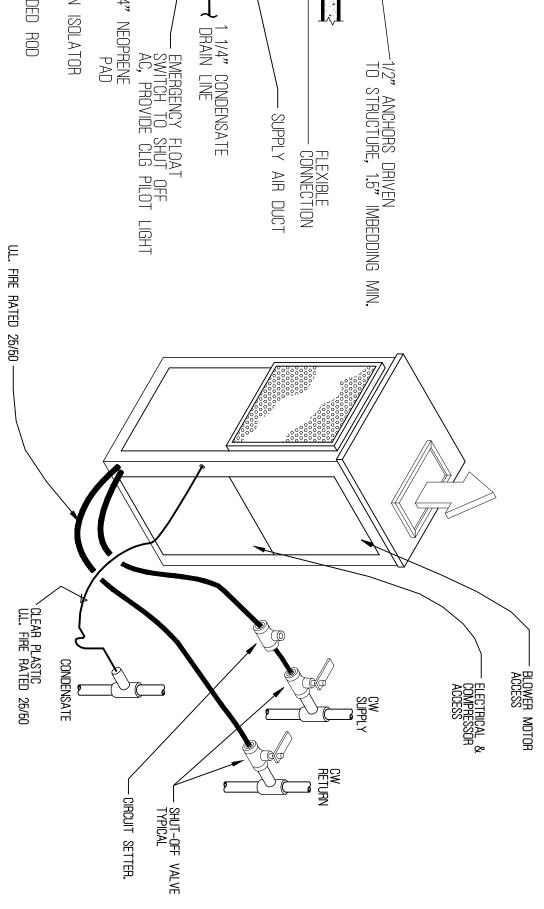
DUCTWORK RAWL DRIVE 1/4" BY 1-1/4" W/ 1-1/8" DEEP EMBED TO SUPPORT 1650LB IN 2000PSI CONC (TYP ALL) 1-1/2" 22 GAGE CONTIN GALV SHEET METAL STRAP (TYP ALL) DUCT HANGING METHOD MATERIALS, SPACING SI	
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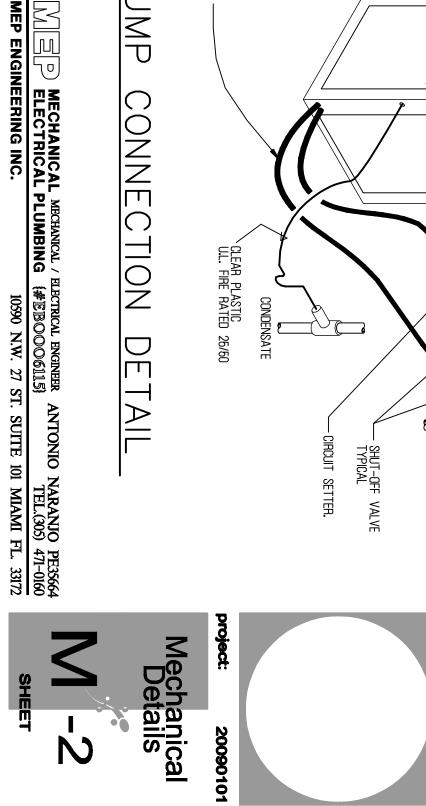


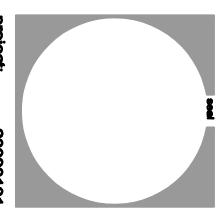


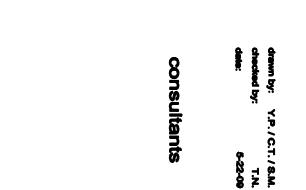


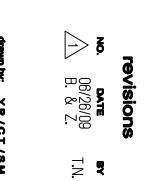


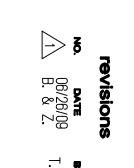


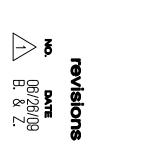


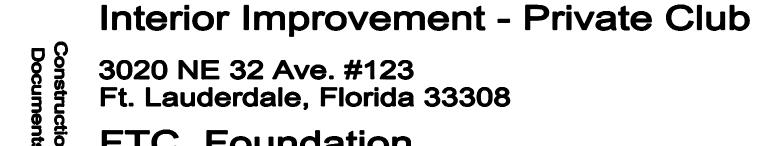






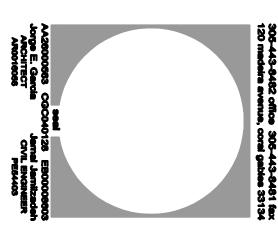




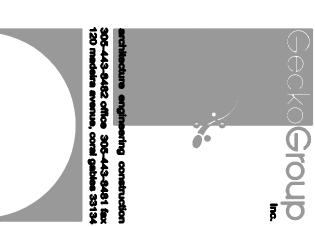








TYPICAL TRANSITION MAX. 20° ANGLE



STEEL HANGERS OR TRAP TO STRUCTURE