Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246

Report: TAB REPORT

Function: Test, Adjust, & Balance

Date: 04/23/2024

PROJECT

Joseph House (Cincinnati, OH)

3304 COLERAIN AVE

CINCINNATI, OH

Client

Cincinnati Air

3239 Profit Dr

Fairfield, OH 45014

National TAB

Project: Joseph House (Cincinnati, OH)

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CERTIFICATION

PROJECT: Joseph House (Cincinnati, OH)

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB *Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.* Any variances from design quantities, which exceed NEBB tolerances, are noted in the Test-Adjust-Balance Report Project Summary.

The air distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM:	National TAB
REGISTRATION NO:	3629
CERTIFIED BY:	Joe Hertenstein
DATE:	4/23/2024

The hydronic distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM:	National TAB
REGISTRATION NO:	3629
CERTIFIED BY:	Joe Hertenstein
DATE:	

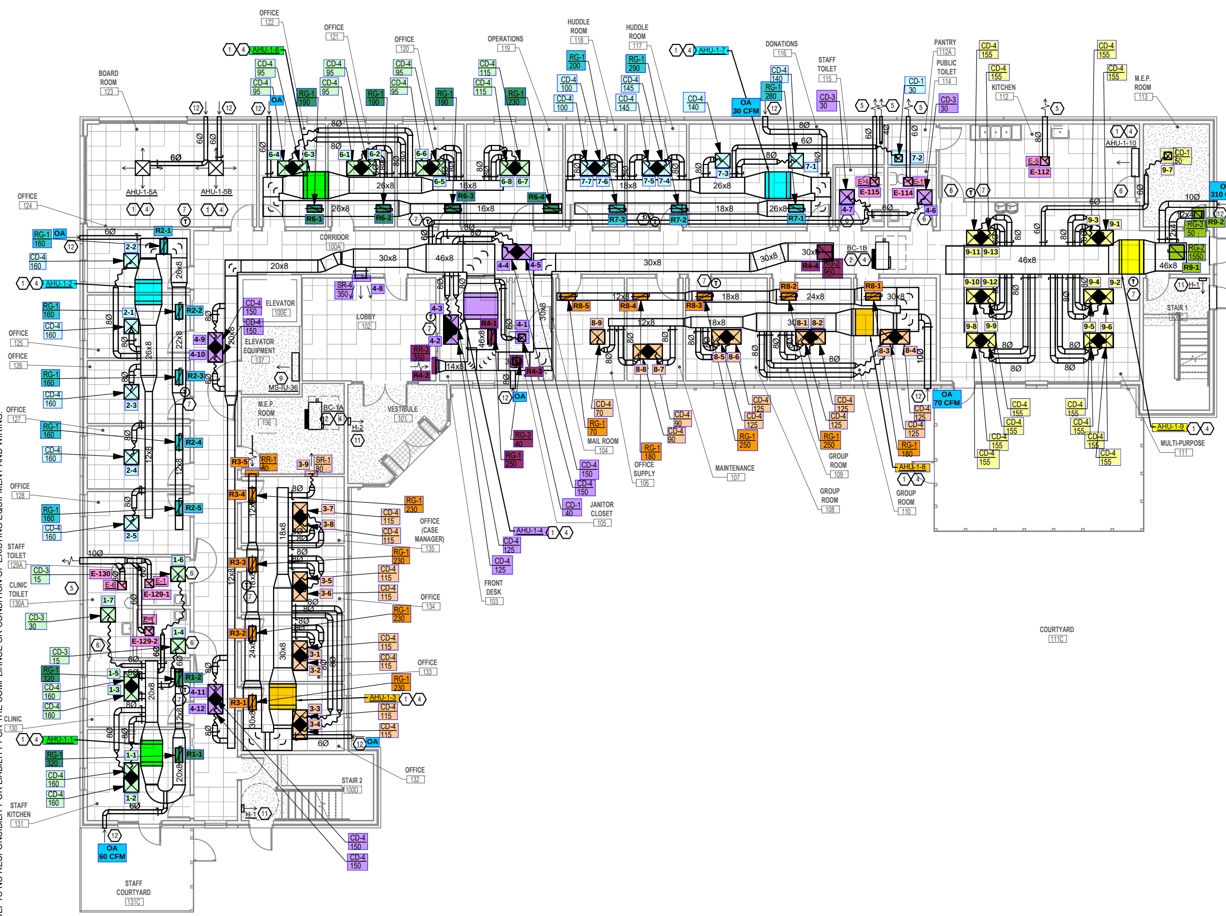
Submitted and Certified by:

NEBB TAB FIRM:	National TAB
TAB PROFESSIONAL:	Joe Hertenstein
SIGNATURE:	
REGISTRATION NO:	3629
CERTIFICATION EXP:	12/31/2024

Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	Kanomax Micromanometer 6700 S/N 30513	7/23/2023	7/27/2024
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Kanomax Micromanometer 6700 S/N 30513	7/23/2023	7/7/2024
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	Kanomax Micromanometer 6700 S/N 30513	7/23/2023	7/7/2024
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	6/6/2023	6/6/2024
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 5028	6/6/2023	6/6/2024
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	6/6/2023	6/6/2024
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 1075	6/6/2023	6/6/2024
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	6/6/2023	6/6/2024
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 4011	6/6/2023	6/6/2024
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper ATKINS - SRH77A S/N 071118034	6/6/2023	6/6/2024
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Fluke 373 True RMS, S/N: 33290686	6/1/2023	6/1/2024
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Fluke 373 True RMS, S/N: 33290686	6/1/2023	6/1/2024
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	SHIMPO DT-207LR S/N: D1530081R	6/1/2023	6/1/2024
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Alnor HM675 S/N: 72214041	5/2023	5/2024
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Alnor HM675 S/N: 72214041	5/2023	5/2024

Abbreviation List

A = Area (ft^2)	S.F. = Service Factor
AHU = Air Handling Unit	SF = Supply Fan
A_k = Effective Area	SP = Static Pressure
BHP = Brake Horsepower (IP) HP	SR = Supply Register
Btu = British Thermal Unit	T = Temperature
Btu/h = Btuh = BTUH = BTU/Hour	T_{ma} = Mixed Air Temperature
CL = Center Distance (used in belt formula)	T_{oa} = Outside Air Temperature
CD = Ceiling Diffuser	T_{ra} = Return Air Temperature
CF = Correction Factor	H = Head (in wc, ft wc, psi)
CFM = Volumetric Flow: Cubic Feet Per Minute	h = Enthalpy
CO2 = Carbon Dioxide	HP = Horsepower
CO = Carbon Monoxide	hr = Hour
C_v = Flow Constant	K_v = Flow constant (SI)
d = Diameter (in.) IP	kW = Kilowatt = 1000 Watts
Δ = Difference or Change (Final - Initial)	LAT = Leaving Air Temperature
DB = Dry Bulb	lb = Pounds
EA = Exhaust Air	LWT = Leaving Water Temperature
EAT = Entering Air Temperature	ma = Mixed Air
EF = Exhaust Fan	MIN = Minimum
Eff = Efficiency	MAX = Maximum
EG = Exhaust Grille	N/A = Not Applicable
ESP = External Static Pressure	NA = No Access
EWT = Entering Water Temperature	NL = Not Listed
°F = Degrees Fahrenheit, °F	NPSHA = Net Positive Suction Head Available
FPB = Fan Powered Box	NS = Not Specified
FLA = Full Load Amps	OA = Outside Air
fpm = Feet per Minute (fpm)	OAT = Outside Air Temperature
ft = Foot	PD = Sheave Pitch Diameter
gal = Gallons	P.D. = Pressure Drop
GPM = Gallons Per Minute (GPM)	PF = Power Factor
h = Enthalpy (BTU/lb dry air)	SG = Supply Grille
P = Pressure	SR = Supply Register
ppm = parts per million	TP = Total Pressure
psi = Pounds Per Square Inch	T_{ra} = Return Air Temperature
psid = PSI Differential	TS = Tip Speed (fpm) IP, (m/s) SI
r = Radius (in)	TSP = Total Static Pressure
$\%_{ra}$ = % of Return Air	V = Velocity
RA = Return Air	VAV = Variable Air Volume
RAT = Return Air Temperature	VD = Volume Damper
RF = Return Fan	VFD = Variable Frequency Drive
RG = Return Grille	W = Watt
RH = Relative Humidity	WB = Wet Bulb
RPM = Revolutions Per Minute	wg = wc = water gauge = water column
RTU = Roof Top Unit	WHP = Water Horsepower (IP)
SA = Supply Air	ω = Humidity Ratio



1 MECHANICAL FIRST FLOOR PLAN
M100 SCALE: 1/8" = 1'-0"

KEYED SHEET NOTES

1. PROVIDE VRF TERMINAL UNIT AND MOUNT AS NOTED REFER TO DRAWING NOTE 4.
2. PROVIDE VRF BRANCH CIRCUIT CONTROLLER ABOVE DROP CEILING AND BELOW DECK ABOVE. REFER TO DRAWING NOTE 4
3. PROVIDE HEAT PUMP UNIT AND EQUIPMENT BASE TO ELEVATE OFF ADJACENT STRUCTURE. HEAT PUMP TO BE MOUNTED ON ROOF ABOVE CORRIDOR BELOW, WITH BIG FOOT SYSTEMS STANDS AND VIBRATION ISOLATION. PROVIDE VIBRATION ISOLATION ON ALL CONNECTIONS TO UNIT AND BASE REFER TO DRAWING NOTE 4.
4. PROVIDE COMPLETE VRF SYSTEM, PER MANUFACTURER'S INSTRUCTIONS, AND LEAVE IN OPERATING CONDITION.
   - 4.1. COORDINATE EXACT EQUIPMENT LOCATIONS WITH OWNER'S REPRESENTATIVE, MANUFACTURER'S INSTRUCTIONS, AND ALL OTHER TRADES. UNITS TO BE INSTALLED TO MAINTAIN REQUIRED SERVICE AND CODE CLEARANCES. PROVIDE ACCESS PANELS AS REQUIRED.
   - 4.2. ROUTE REFRIGERANT PIPING FROM HEAT PUMP TO BRANCH CONTROLLER, AND FROM BRANCH CONTROLLER TO EACH VRF TERMINAL UNIT. PRELIMINARY SIZES INDICATED ON THE PIPING DIAGRAMS. PIPE SIZES AND QUANTITY TO BE DETERMINED BY UNIT MANUFACTURER ONCE FINAL ROUTING IS DETERMINED. DO NOT ORDER UNITS OR MATERIALS UNTIL FINAL PIPE ROUTING IS FINALIZED WITH TOTAL FEET, FEET OF RISE, AND NUMBER OF ELBOWS, AND COORDINATED WITH THE EQUIPMENT MANUFACTURER AND OWNER'S REPRESENTATIVE. INSULATE REFRIGERATION PIPING.
   - 4.3. PROVIDE P-TRAP PER OMC 307.2.4. FOR MINI-SPLITS A P-TRAP OR CHECK VALVE EQUAL TO RECTORSEAL MODEL EZT180 CAN BE USED PER OMC 307.2.4.1. PROVIDE 3/4" CONDENSATE DRAIN LINE TO NEAREST FLOOR DRAIN OR EXTERIOR LANDSCAPING BED. COORDINATE WITH PLUMBING CONTRACTOR AND OWNER'S REPRESENTATIVE. SLOPE PIPE A MINIMUM OF 1/8" PER FOOT AWAY FROM UNIT. PROVIDE CONDENSATE PUMP HARDWIRED TO UNIT TO PROVIDE THE NECESSARY LIFT TO DRAIN CONDENSATE BY GRAVITY IF REQUIRED. CONDENSATE PUMP SHALL BE COMPLETELY CONCEALED IN UNIT CABINET, FOR UNITS LOCATED IN OCCUPIED SPACES.
   - 4.4. FOR CONCEALED UNITS, PROVIDE OVERFLOW SWITCH IN PRIMARY DRAIN LINE THAT WILL SHUT OFF THE UNIT ON HIGH WATER LEVEL.
   - 4.5. PROVIDE HOLES THRU WALLS, FLOORS AND ROOF AS REQUIRED. ROUTE ALL PIPING AND WIRES, CONCEALED WHERE FEASIBLE, TO AVOID SIGNIFICANT TRIM AND ARCHITECTURAL FEATURES WHEN INSTALLING THEM. ALL PIPING TO HAVE FIRE STOP AND BE SEALED WATERTIGHT.
   - 4.6. PROVIDE STAND ALONE CONTROL SYSTEM TO CONTROL ALL ASPECTS OF HVAC SYSTEM, WITH CAPABILITY TO CONNECT TO BUILDING AUTOMATION SYSTEM IN THE FUTURE. PROVIDE ALL INTERCONNECTING CONTROL WIRING. PROVIDE CONTROL SYSTEM TO CONTROL ALL ASPECTS OF HVAC SYSTEM, AND MONITOR SPACE TEMPERATURE, AND FAILURE OF VRF SYSTEM.
   - 4.7. PROVIDE ALL PIPING, ACCESSORIES, THERMOSTATS, AND CONTROLS, FOR A COMPLETE AND OPERATING SYSTEM.
5. ROUTE DRYER, RESIDENTIAL RANGE HOOD (<400 CFM), OR BATH EXHAUST TO EXTERIOR WALL. PROVIDE A FAMCO MODEL DWVP HOODED VENT FOR DRYER AND KITCHEN. PROVIDE A FAMCO MODEL SDWVP HOODED VENT WITH DAMPER AND SCREEN VENT FOR BATH. SEE ARCHITECT BEFORE PENETRATION, FOR EXACT LOCATION, MODEL, AND COLOR COORDINATION. PROVIDE "INSECT" SCREEN FOR BATH EXHAUST ("INSECT" SCREEN SHALL NOT BE USED ON DRYER OR KITCHEN EXHAUST). ALL EXHAUST SHALL MEET THE FOLLOWING REQUIREMENTS.
   - 5.1. 3' FROM PROPERTY LINE.
   - 5.2. 3' FROM OPERABLE OPENINGS INTO BUILDING.
   - 5.3. 10' FROM MECHANICAL AIR INTAKE.
6. UNDERCUT DOOR 1" FOR TRANSFER AIR. FOR DOORS TO CORRIDOR, PROVIDE FIRE RATED TRANSFER AIR GRILLE IN DOOR.
7. PROVIDE PROGRAMMABLE THERMOSTAT, AND INSTALL TO MEET ADA REQUIREMENTS. COORDINATE FINAL LOCATIONS WITH ARCHITECT / OWNER PRIOR TO INSTALLATION. FOR THERMOSTATS INSTALLED ON EXPOSED BRICK WALLS, PROVIDE CONDUIT FOR THERMOSTAT WIRE. FOR THERMOSTATS INSTALLED ON EXTERIOR WALLS, INSULATE BACKSIDE.
8. REFER TO DETAILS AND DIAGRAMS ON DRAWING SERIES M300 & M500, FOR WORK IN THIS AREA. PROVIDE COMPLETE SYSTEM, AND LEAVE IN OPERATING CONDITION.
9. PROVIDE INDOOR UNIT. VERIFY LOCATION WITH ALL OTHER TRADES. MECHANICAL CONTRACTOR TO PROVIDE 3/4" CONDENSATE DRAIN LINE TO NEAREST FLOOR DRAIN. COORDINATE WITH PLUMBING CONTRACTOR. SLOPE PIPE A MINIMUM OF 1/8" PER FOOT AWAY FROM UNIT. PROVIDE CONDENSATE PUMP HARDWIRED TO UNIT TO PROVIDE THE NECESSARY LIFT TO DRAIN CONDENSATE BY GRAVITY IF REQUIRED. CONDENSATE PUMP SHALL BE COMPLETELY CONCEALED IN UNIT CABINET, FOR UNITS LOCATED IN OCCUPIED SPACES. ROUTE ALL PIPING AND WIRES, CONCEALED WHERE FEASIBLE, TO AVOID SIGNIFICANT TRIM AND ARCHITECTURAL FEATURES WHEN INSTALLING THEM. FOR WALL MOUNTED MINI SPLIT SYSTEMS, PROVIDE SICCOM MODEL DEO5LUB100/110 OR APPROVED EQUAL. PROVIDE ALL REFRIGERATION PIPING, ACCESSORIES, CONTROLS, AND LEAVE UNIT IN OPERATING CONDITION.
10. COORDINATE EXACT LOCATION OF HVAC EQUIPMENT, LENGTH OF PIPE, NUMBER OF ELBOWS, AND MAXIMUM RISE BETWEEN INDOOR AND OUTDOOR UNITS; WITH ALL OTHER TRADES AND MANUFACTURE BEFORE ORDERING EQUIPMENT OR ANY MATERIALS. ROUTE REFRIGERANT PIPING FROM OUTDOOR UNIT TO INDOOR UNIT. ALL PIPING SHALL BE CONCEALED IN FINISHED AREA. SIZE PER MANUFACTURES RECOMMENDATIONS. PROVIDE SUPPORT BLOCKS FOR PIPING INSTALLED ON ROOF EQUAL TO EATON DURA-BLOK B-LINE SERIES. UNITS ON ROOF TO BE 10 FEET FROM ROOFS EDGE OR PROVIDED WITH FALL PROTECTION. MECHANICAL CONTRACTOR TO PROVIDE ALL CONTROLS AND CONTROL WIRING AND LEAVE UNITS IN OPERATING CONDITION.
    - 10.1. MINI SPLIT SYSTEMS: POWER WIRING TO HEAT PUMP BY ELECTRICAL CONTRACTOR. MECHANICAL CONTRACTOR TO FURNISH AND INSTALL METAL CLAD (MC) CABLE BETWEEN OUTDOOR UNIT (ODU) AND INDOOR UNIT (IDU), INCLUDING A DISCONNECT SWITCH NEXT TO IDU. MC CABLE TO BE 14 GA IF PROTECTED BY 15 AMP FUSES IN ODU, OR A MINIMUM GAUGE AS REQUIRED FOR FULL AMPERAGE OF ODU.
11. PROVIDE HEATER. VERIFY LOCATION WITH ALL OTHER TRADES.
12. ROUTE OUTSIDE AIR INTAKE FROM EXTERIOR WALL. TRANSITION TO CONNECTION SIZE AT UNIT AS REQUIRED. PROVIDE A FAMCO MODEL RDWV HOODED INTAKE VENT WITH REMOVABLE "INSECT" SCREEN AND REVERSIBLE BACKDRAFT DAMPER, SAME SIZE AS DUCT. SEE ARCHITECT BEFORE PENETRATION, FOR EXACT LOCATION, MODEL, AND COLOR COORDINATION. FOR OUTSIDE AIR DUCT, PROVIDE MOTOR OPERATED DAMPER TO OPEN WHEN UNIT IS ENERGIZED. ALL INTAKES SHALL MEET THE FOLLOWING REQUIREMENTS.
    - 12.1. NOT LESS THAN 10 FEET FROM LOT LINES OR BUILDINGS ON THE SAME LOT.
    - 12.2. NOT LESS THAN 10 FEET HORIZONTALLY FROM ANY HAZARDOUS OR NOXIOUS CONTAMINANT SOURCE, SUCH AS VENTS, STREETS, ALLEYS, PARKING LOTS AND LOADING DOCKS, EXCEPT AS SPECIFIED IN ITEM 3 OR SECTION "LOCATION OF EXHAUST OUTLETS". OUTDOOR AIR INTAKE OPENINGS SHALL BE PERMITTED TO BE LOCATED LESS THAN 10 FEET HORIZONTALLY FROM STREETS, ALLEYS, PARKING LOTS AND LOADING DOCKS PROVIDED THAT THE OPENINGS ARE LOCATED NOT LESS THAN 25 FEET VERTICALLY ABOVE SUCH LOCATIONS. WHERE OPENINGS FRONT ON A STREET OR PUBLIC WAY, THE DISTANCE SHALL BE MEASURED FROM THE CLOSEST EDGE OF THE STREET OR PUBLIC WAY.
    - 12.3. NOT LESS THAN 3 FEET BELOW CONTAMINANT SOURCES WHERE SUCH SOURCES ARE LOCATED WITHIN 10 FEET OF THE OPENING.
    - 12.4. INTAKE OPENINGS ON STRUCTURES IN FLOOD HAZARD AREAS SHALL BE AT OR ABOVE THE ELEVATION REQUIRED BY SECTION 1612 OF THE BUILDING CODE FOR UTILITIES AND ATTENDANT EQUIPMENT.
13. PROVIDE WALL PENETRATION PER OMC SECTION 607.5.3 EXCEPTION 4. DUCT TO BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAGE THICKNESS AND SHALL BE CONTINUOUS FROM THE AIR-HANDLING APPLIANCE OR EQUIPMENT TO THE AIR OUTLET AND INLET TERMINALS.
14. PROVIDE WALL PENETRATION PER OMC SECTION 607.5.3 EXCEPTION 1. REFER TO DETAIL 2 ON DRAWING M302.

MECHANICAL SCOPE OF WORK

PROVIDE NEW VRF HVAC SYSTEM FOR A NEW DORM FACILITY.
PROVIDE CONTROL SYSTEMS FOR ALL HVAC EQUIPMENT. FOR VRF SYSTEMS PROVIDE COMPLETE CONTROLS SYSTEM, INCLUDING BUT NOT LIMITED TO, ONE MITSUBISHI AE200 CENTRALISED AND WEB CONTROLLER FOR EACH 200 INDOOR UNITS, ONE MITSUBISHI EW-50E CENTRALIZED AND EXPANSION CONTROLLER FOR EACH 50 INDOOR UNITS, AND ONE MITSUBISHI WALL THERMOSTAT FOR EACH INDOOR UNIT. LEAVE ALL SYSTEMS IN OPERATING CONDITION.

CODES REFERENCED

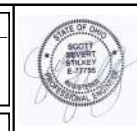
- 2017 OHIO MECHANICAL CODE
- 2017 OHIO BUILDING CODE
- ASHRAE 90.1-2010

HVAC DESIGN CONDITIONS

COOLING	HEATING
OUTDOOR: 93 DB / 75 WB	OUTDOOR: 0 DB
INDOOR: 74 (COMMON AREAS)	INDOOR: 72 (COMMON AREAS)
INDOOR: 75 (RESIDENTIAL)	INDOOR: 70 (RESIDENTIAL)

GENERAL NOTES

A. THE CONTRACT DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO COVER THE SCOPE OF THE WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE SIZE AND LOCATION OF EQUIPMENT, DUCTS, PIPES, ETC. THEY ARE NOT INTENDED TO SHOW EVERY OFFSET, FITTING, AND COMPONENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL CONDITIONS AND DIMENSIONS. DO NOT SCALE THE DRAWINGS. CONTRACTOR TO VERIFY EXISTING SUPPLY AND RETURN DUCTWORK AND PIPING, SYSTEMS, SIZE, AND DUCT AND PIPE TYPE PRIOR TO MAKING CONNECTIONS.
B. FOR FULL SCHEDULES, SPECIFICATIONS, AND COMPLETE LISTING SEE DETAIL SHEETS.
C. COORDINATE ROUTING OF ALL WORK WITH OTHER TRADES.
D. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER CONNECTIONS TO ALL MECHANICAL EQUIPMENT.
E. INSTALL ALL EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. MAINTAIN ALL CODE RECOMMENDED CLEARANCES FOR ACCESS AND MAINTENANCE.
F. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS, AND FINAL CEILING DIFFUSER LOCATIONS.
G. MAINTAIN ALL CODE REQUIRED SERVICE CLEARANCES. FOLLOW CLEARANCE TO COMBUSTIBLE DISTANCE PER MANUFACTURER'S INSTRUCTIONS.
H. PROVIDE BACKDRAFT DAMPERS FOR ALL EXHAUST SYSTEMS AND EITHER LOUVER, BRICK VENT, OR CAPS AT ALL EXTERIOR BUILDING PENETRATIONS.
I. PROVIDE AN AUXILIARY DRAIN PAN WITH OVERFLOW SWITCH UNDERNEATH HORIZONTAL UNITS, WHICH WILL SHUTOFF THE UNIT ON HIGH WATER LEVEL.
J. A WATER-LEVEL DETECTION DEVICE CONFORMING TO UL508 SHALL BE PROVIDED THAT WILL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN IS BLOCKED. THE DEVICE SHALL BE INSTALLED IN THE PRIMARY DRAIN LINE, THE OVERFLOW DRAIN LINE, OR IN THE EQUIPMENT-SUPPLIED DRAIN PAN, LOCATED AT A POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE OVERFLOW RIM OF SUCH PAN.
K. ROUTE ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK ABOVE DROP CEILING OR IN BULKHEADS. COORDINATE ROUTING WITH ARCHITECTURAL DRAWINGS. DUCTS SHALL BE RUN BELOW THE RATED FLOOR/CEILING. WHEN DUCTS ARE ROUTED UP IN JOIST POCKET. RATING SHALL BE MAINTAINED AROUND JOIST TO PREVENT FIRE DAMPER. PROVIDE FIRE, SMOKE, AND FIRE / SMOKE RATED DAMPERS ON ALL PENETRATIONS TO RATED WALLS, CEILINGS, AND FLOORS. PROVIDE RADIATION DAMPERS ON ALL AIR DEVICES, FANS, ETC., THAT PENETRATE THE MEMBRANE OF THE RATED FLOOR/CEILING ASSEMBLY. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS.
L. ROUTE ALL AIR CONDITIONER CONDENSATE TO NEARBY FLOOR DRAIN. PROVIDE MINIMUM SLOPE OF 1/8 " PER FOOT. SIZE CONDENSATE PER SECTION 307.2.2 OF THE OHIO MECHANICAL CODE.
M. PROVIDE AN APPROVED THROUGH PENETRATION FIRESTOP FOR ALL PIPING INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E814 OR UL 1479. FIRESTOP SHALL HAVE A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCHES OF WATER AND SHALL HAVE AN F RATING OF NOT LESS THAN THE REQUIRED FIRE-RESISTANCE RATING OF THE WALL OR FLOOR PENETRATED.
N. ANY EQUIPMENT THAT IS SUBSTITUTED SHALL FIT IN THE SPACE PROVIDED WITH ADEQUATE ROOM FOR SERVICING, INCLUDING SUBSTITUTE EQUIPMENT NAMED IN THE SPECIFICATIONS. SUBMIT A 1/4" SCALE DRAWING OF ALL EQUIPMENT SUBSTITUTED FOR APPROVAL PRIOR TO INSTALLATION, INCLUDING, BUT NOT LIMITED TO, STRUCTURAL AND ARCHITECTURAL IMPACT, CLEARANCE REQUIREMENTS AND UTILITY REQUIREMENTS. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE ALL NEW ELECTRICAL AND PLUMBING REQUIREMENTS WITH THE ELECTRICAL AND PLUMBING CONTRACTORS.
O. PROVIDE COMPLETE CONTROL SYSTEM, AND LEAVE UNITS IN OPERATING CONDITION.
P. MATERIALS WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL BE LISTED AND LABLED AS HAVING A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 723.
Q. THE FOLLOWING GUIDELINES MUST BE FOLLOWED FOR THE DOMESTIC DRYER EXHAUST SYSTEMS.
   - Q.A. EXHAUST DUCTS SHALL HAVE A SMOOTH INTERIOR FINISH AND BE CONSTRUCTED OF METAL A MINIMUM OF 28 GAGE.
   - Q.B. DUCT SIZE SHALL BE 4 INCHES NOMINAL DIAMETER.
   - Q.C. DUCTS SHALL BE SUPPORTED AT 4-FOOT INTERVALS AND SECURED IN PLACE. THE INSERT END OF THE DUCT SHALL EXTEND INTO THE ADJOINING DUCT OR FITTING IN THE DIRECTION OF AIRFLOW.
   - Q.D. DUCTS SHALL NOT BE JOINED WITH SCREWS OF SIMILAR FASTENERS THAT PROTRUDE MORE THAN $\frac{1}{8}$ INCH INTO THE INSIDE OF THE DUCT.
   - Q.E. PROTECTIVE SHIELD PLATES SHALL BE PLACED WHERE NAILS OR SCREWS FROM FINISH OR OTHER WORK ARE LIKELY TO PENETRATE THE CLOTHES DRYER EXHAUST DUCT.SHIELD PLATES SHALL BE PLACED ON THE FINISHED FACE OF ALL FRAMING MEMBERS WHERE THERE IS LESS THAN 1-1/4 INCHES BETWEEN THE DUCT AND THE FINISHED FACE OF THE FRAMING MEMBER. SHIELD PLATES SHALL BE CONSTRUCTED OF STEEL, HAVE A THICKNESS OF 0.062 INCHES, AND EXTEND NOT LESS THAN 2 INCHES ABOVE SOLE PLATES AND BELOW TOP PLATES.
   - Q.F. TRANSITION DUCTS USED TO CONNECT THE DRYER TO THE EXHAUST DUCT SYSTEM SHALL BE A SINGLE LENGTH THAT IS LISTED AND LABELED IN ACCORDANCE WITH UL 2158A. TRANSITION DUCTS SHALL BE NOT GREATER THAN 8 FEET IN LENGTH AND SHALL NOT BE CONCEALED WITHIN CONSTRUCTION.
   - Q.G. PROVIDE DRYER WALL BOX EQUAL TO DRYERBOX MODEL 350 NEAR DRYER. INSTALL PER MANUFACTURER'S INSTRUCTIONS, INCLUDING FIRE STOP IF INSTALLED IN A RATED WALL. CAP EXHAUST DUCT AT DRYER WALL BOX FOR FUTURE CONNECTION.
   - Q.H. PROVIDE A PERMANENT LABEL OR TAG (EQUAL TO DRYERPLACARD) INDICATING ACTUAL EQUIVALENT LENGTH OF EXHAUST DUCT. LENGTH SHALL INCLUDE 5' FOR 90 . LABEL/TAG MUST BE WITHIN 6' OF DRYER EXHAUST CONNECTION. DRYER EXHAUST DUCT FITTING EQUIVALENT LENGTH SHALL BE 2'-6" FOR A RADIUS MITERED 45-DEGREE ELBOW AND 5 FEET FOR A RADIUS MITERED 90-DEGREE ELBOW.
   - Q.I. IF LENGTH OF DRYER VENT EQUIVALENT LENGTH IS GREATER THAN 35', AND DRYER TO BE INSTALLED IS NOT RATED FOR OVER 35'; OR IF DRYER VENT EQUIVALENT LENGTH IS GREATER THAN THAT OF INSTALLED DRYERS INSTALLATION DIRECTIONS; PROVIDE NEW SECONDARY LINT TRAP, DRYER EXHAUST FAN BF-1, SENSORS, AND CONTROLS. FAN TO BE FANTECH MODEL DEDPV-705 OR EQUAL. FAN TO BE LISTED AND LABELED TO UL705 FOR USE IN DRYER EXHAUST DUCT SYSTEMS. LINT TRAP TO BE FANTECH MODEL DBLT4W OR EQUAL. COORDINATE FINAL DRYER VENT ROUTING LENGTH AND ELBOWS WITH FAN MANUFACTURER, BEFORE ORDERING FAN, AND PROVIDE FAN FOR FINAL DRYER VENT ROUTING. INSTALL PER MANUFACTURER'S INSTRUCTIONS, AND AUTHORITY HAVING JURISDICTION.
R. INSTALL ALL EQUIPMENT WITH PROPER CODE REQUIRED SERVICE/ ACCESS CLEARANCES, AND ACCESS PANELS. EQUIPMENT SHALL BE COMPLETELY REPLACEABLE WITHOUT REMOVING PERMANENT BUILDING COMPONENTS.



ISSUANCES		
DATE	NO.	DESCRIPTION
08-05-2022	-	PERMIT SET

JOSEPH HOUSE

3304 Colerain Avenue
Cincinnati, Ohio 45225

PR-09656
ENGINEERED BUILDING SYSTEMS INC.
Shared Success Through Collaboration and Efficiency
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Newport, KY 41071 (859) 261-0585
MEP Consulting Services, Inc. in OH

DRAWN BY	CHECKED BY
SRB	SSS

PROJECT NO.: 9656

SCALE:AS NOTED

DATE: 08-05-2022

DRAWING TITLE
MECHANICAL FIRST FLOOR PLAN

SHEET NO.
M100

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: AHU-1-1 AREA:130A

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	32R0270530P90Y
Model Num	NA	TPEFYP018MA144A
Configuration	HORIZONTAL	HORIZONTAL
Num PreFilter 1	-	1
PreFilter Size 1	-	8”X19”X1”

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	-	0.162
Motor Rpm	-	NA
Phase	1	1
Rated Voltage	208	208
Rated Amperage	-	1.54
Service Factor	-	NA

Test Data		
	Design	**Actual**
SF CFM	600	580
RA CFM	524	518
OA CFM	76	62
RL Voltage	208	214.6
RL Amperage	-	0.70
SF System SetPt	-	4/4
OA Damper Position	-	SET MANUALLY

Performance Data		
	Design	**Actual**
Fan Suction SP	-	-0.36"
Fan Discharge SP	-	0.022"
Total ESP	0.6	0.382"

Completed By: Jordan Best on 04/18/2024

Notes:
Returns below design, balanced proportionately.

Written By: Jordan Best on 04/18/2024

National TAB

Project:Joseph House (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

AHU-1-1/130A

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
1-1	131	CD-4	8	160	85	148	92.5
1-2	131	CD-4	8	160	75	137	85.6
1-3	130	CD-4	8	110	69	109	99.1
1-4	129B	CD-3	6	15	59	19	126.7
1-5	130	CD-4	8	110	93	111	100.9
1-6	129A	CD-3	6	15	50	21	140.0
1-7	130A	CD-3	6	30	82	35	116.7
Total				600	513	580	96.67%

Diffuser Ret/Exh (GRD)

AHU-1-1/130A

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
R1-1	RG-1	22X10	320	1	173	175	175	54.7
R1-2	RG-1	22X10	320	1	163	161	161	50.3
Total			640		336	336	336	52.5%

Completed By: Jordan Best on 04/12/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: AHU-1-2 AREA:128

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	35R0368430P90Z
Model Num	NA	TPEFYP024MA144A
Configuration	HORIZONTAL	HORIZONTAL
Num PreFilter 1	-	1
PreFilter Size 1	-	8”X19”X1”

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	-	0.162
Motor Rpm	-	NA
Phase	1	1
Rated Voltage	208	208
Rated Amperage	-	2.88

Test Data		
	Design	**Actual**
SF CFM	800	769
RA CFM	740	714
OA CFM	60	55
RL Voltage	208	213.2
RL Amperage	-	1.94
SF System SetPt	-	4/4
OA Damper Position	-	SET MANUALLY

Performance Data		
	Design	**Actual**
Fan Suction SP	-	-0.50"
Fan Discharge SP	-	0.195"
Total ESP	0.6	0.695"

Completed By: Jordan Best on 04/18/2024

Notes:
Diffuser 5 below design, attempted to push air from other diffusers but unable to raise flow.
Returns below design, balanced proportionately.

Written By: Jordan Best on 04/18/2024

National TAB

Project:Joseph House (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

AHU-1-2/128

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
2-1	125	CD-4	8	160	52	146	91.3
2-2	124	CD-4	8	160	138	168	105.0
2-3	126	CD-4	8	160	156	144	90.0
2-4	127	CD-4	8	160	133	166	103.8
2-5	128	CD-4	8	160	125	145	90.6
Total				800	604	769	96.12%

Diffuser Ret/Exh (GRD)

AHU-1-2/128

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
R2-1	RG-1	22X10	148	1	187	128	122	82.4
R2-2	RG-1	22X10	148	1	158	131	115	77.7
R2-3	RG-1	22X10	148	1	116	122	132	89.2
R2-4	RG-1	22X10	148	1	73	109	117	79.1
R2-5	RG-1	22X10	148	1	71	114	114	77.0
Total			740		605	604	600	81.08%

Completed By: Jordan Best on 04/18/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: AHU-1-3 AREA:136

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	34R01886
Model Num	NA	PEFY-P30NMAU-E4
Configuration	HORIZONTAL	HORIZONTAL
Num PreFilter 1	-	1
PreFilter Size 1	-	8”X19”X1”

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	-	0.162
Motor Rpm	-	NA
Phase	1	1
Rated Voltage	208	208
Rated Amperage	-	2.88

Test Data		
	Design	**Actual**
SF CFM	1000	994
RA CFM	940	936
OA CFM	60	58
RL Voltage	208	214.1
RL Amperage	-	2.48
SF System SetPt	-	4/4
OA Damper Position	-	SET MANUALLY

Performance Data		
	Design	**Actual**
Fan Suction SP	-	-0.49"
Fan Discharge SP	-	NA
Total ESP	0.6	0.49"

Completed By: Jordan Best on 04/18/2024

Notes:
Returns below design, balanced proportionately.

Written By: Jordan Best on 04/18/2024

National TAB

Project:Joseph House (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

AHU-1-3/136

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
3-1	133	CD-4	8	115	184	119	103.5
3-2	133	CD-4	8	115	155	119	103.5
3-3	132	CD-4	8	115	20	98	85.2
3-4	132	CD-4	8	115	139	111	96.5
3-5	134	CD-4	8	115	90	123	107.0
3-6	134	CD-4	8	115	127	116	100.9
3-7	135	CD-4	8	115	135	116	100.9
3-8	135	CD-4	8	115	109	116	100.9
3-9	136	SR-1	6X6	80	76	76	95.0
Total				1000	1035	994	99.4%

Diffuser Ret/Exh (GRD)

AHU-1-3/136

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
R3-1	RG-1	22X10	225	1	206	187	143	63.6
R3-2	RG-1	22X10	225	1	173	185	142	63.1
R3-3	RG-1	22X10	225	1	89	142	130	57.8
R3-4	RG-1	22X10	225	1	63	148	126	56.0
R3-5	RR-1	6X6	40	1	185	53	64	160.0
Total			940		716	715	605	64.36%

Completed By: Jordan Best on 04/18/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: AHU-1-4 AREA:100A

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	32R02019
Model Num	NA	PEFY-P48NMAU-E4
Configuration	HORIZONTAL	HORIZONTAL
Num PreFilter 1	-	1
PreFilter Size 1	-	8”X19”X1”

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	-	0.402
Motor Rpm	-	NA
Phase	1	1
Rated Voltage	208	208
Rated Amperage	-	3.09
Service Factor	-	NA

Test Data		
	Design	**Actual**
SF CFM	1600	1478
RA CFM	1490	1372
OA CFM	110	106
RL Voltage	208	215
RL Amperage	-	2.33
SF System SetPt	-	4/4
OA Damper Position	-	SET MANUALLY

Performance Data		
	Design	**Actual**
Fan Suction SP	-	-0.10”
Fan Discharge SP	-	0.065”
Total ESP	0.6	0.162"

Notes:
Unit below design CFM operating at highest set point.
Returns below design, balanced proportionately.

Written By: Jordan Best on 04/18/2024

National TAB

Project:Joseph House (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

AHU-1-4/100A

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
4-1	105	CD-1	6	40	127	41	102.5
4-2	103	CD-4	8	250	175	192	76.8
4-3	100A	CD-4	8	150	148	155	103.3
4-4	100A	CD-4	8	150	144	160	106.7
4-5	114	CD-3	6	30	32	33	110.0
4-6	115	CD-3	6	30	42	32	106.7
4-7	102	SR-4	8	350	261	260	74.3
4-8	100A	CD-4	8	150	151	150	100.0
4-9	100A	CD-4	8	150	163	151	100.7
4-10	100A	CD-4	8	150	127	133	88.7
4-11	100A	CD-4	8	150	103	95	63.3
4-12	106	CD-4	8	70	81	76	108.6
Total				1670	1554	1478	88.5%

Diffuser Ret/Exh (GRD)

AHU-1-4/100A

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
R4-1	RG-1	22X10	175	1	350	170	170	97.1
R4-2	RR-3	20X6	275	1	317	270	270	98.2
R4-3	RG-3	10X10	80	1	117	72	72	90.0
R4-4	RG-2	22X22	860	1	222	322	322	37.4
Total			1390		1006	834	834	60%

Completed By: Jordan Best on 04/18/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: AHU-1-6 AREA:119

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	35R0368530P90Z
Model Num	NA	TPEFYP024MA144A
Configuration	HORIZONTAL	HORIZONTAL
Num PreFilter 1	-	1
PreFilter Size 1	-	8”X19”X1”

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	-	0.162
Motor Rpm	-	NA
Phase	1	1
Rated Voltage	208	208
Rated Amperage	-	2.88

Test Data		
	Design	**Actual**
SF CFM	800	771
RA CFM	740	707
OA CFM	60	64
RL Voltage	208	214.5
RL Amperage	-	1.19
SF System SetPt	-	4/4
OA Damper Position	-	SET MANUALLY

Performance Data		
	Design	**Actual**
Fan Suction SP	-	-0.39"
Fan Discharge SP	-	0.024"
Total ESP	0.6	0.414"

Completed By: Jordan Best on 04/18/2024

Notes:
Returns below design, balanced proportionately.

Written By: Jordan Best on 04/18/2024

National TAB

Project:Joseph House (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

AHU-1-6/119

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
6-1	121	CD-4	8	95	102	92	96.8
6-2	121	CD-4	8	95	101	95	100.0
6-3	122	CD-4	8	95	97	93	97.9
6-4	122	CD-4	8	95	105	99	104.2
6-5	120	CD-4	8	95	119	87	91.6
6-6	120	CD-4	8	95	106	86	90.5
6-7	119	CD-4	8	115	119	111	96.5
6-8	119	CD-4	8	115	111	108	93.9
Total				800	860	771	96.38%

Diffuser Ret/Exh (GRD)

AHU-1-6/119

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
R6-1	RG-1	22X10	185	1	202	202	139	75.1
R6-2	RG-1	22X10	185	1	131	131	128	69.2
R6-3	RG-1	22X10	185	1	108	108	144	77.8
R6-4	RG-1	22X10	185	1	98	98	136	73.5
Total			740		539	539	547	73.92%

Completed By: Jordan Best on 04/12/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: AHU-1-7 AREA:118

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	35R0369530P90Z
Model Num	NA	TPEFYP024MA144A
Configuration	HORIZONTAL	HORIZONTAL
Num PreFilter 1	-	1
PreFilter Size 1	-	8"X25"X1"

Motor Data		
	Design	**Actual**
Horsepower	-	0.162
Phase	1	1
Rated Voltage	208	208
Rated Amperage	-	2.03

Test Data		
	Design	**Actual**
SF CFM	800	832
RA CFM	695	568
OA CFM	105	116
RL Voltage	208	214
RL Amperage	-	1.8
SF System SetPt	-	4/4
OA Damper Position	-	SET MANUALLY

Performance Data		
	Design	**Actual**
Fan Suction SP	-	-0.69"
Fan Discharge SP	-	0.05"
Total ESP	0.6	0.74"

Completed By: Jordan Best on 04/18/2024

Notes:
Returns below design, balanced proportionately.

Written By: Jordan Best on 04/18/2024

National TAB

Project:Joseph House (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

AHU-1-7/118

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
7-1	116	CD-4	8	140	106	145	103.6
7-2	112A	CD-1	6	30	40	34	113.3
7-3	116	CD-4	8	140	121	153	109.3
7-4	117	CD-4	8	145	101	148	102.1
7-5	117	CD-4	8	145	93	142	97.9
7-6	118	CD-4	8	100	107	108	108.0
7-7	118	CD-4	8	100	116	102	102.0
Total				800	684	832	104%

Diffuser Ret/Exh (GRD)

AHU-1-7/118

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
R7-1	RG-1	22X10	280	1	249	206	222	79.3
R7-2	RG-1	22X10	290	1	166	186	209	72.1
R7-3	RG-1	22X10	200	1	155	179	137	68.5
Total			770		570	571	568	73.77%

Completed By: Jordan Best on 04/18/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: AHU-1-8 AREA:106

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	34R01875
Model Num	NA	PEFY-P30NMAU-E4
Configuration	HORIZONTAL	HORIZONTAL
Num PreFilter 1	-	1
PreFilter Size 1	-	8"X28"X1"

Motor Data		
	Design	**Actual**
Horsepower	-	0.162
Phase	1	1
Rated Voltage	208	208
Rated Amperage	-	2.03

Test Data		
	Design	**Actual**
SF CFM	1000	1004
RA CFM	800	588
OA CFM	200	204
RL Voltage	208	215
RL Amperage	-	2.0
SF System SetPt	-	4/4
OA Damper Position	-	MANUALLY SET

Performance Data		
	Design	**Actual**
Fan Suction SP	-	-0.56"
Fan Discharge SP	-	0.02"
Total ESP	0.6	0.58"

Completed By: Jordan Best on 04/18/2024

Notes:
Returns below design, balanced proportionately.

Written By: Jordan Best on 04/18/2024

National TAB

Project:Joseph House (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

AHU-1-8/106

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
8-1	109	CD-4	8	125	138	133	106.4
8-2	109	CD-4	8	125	140	118	94.4
8-3	110	CD-4	8	125	107	121	96.8
8-4	110	CD-4	8	125	116	128	102.4
8-5	108	CD-4	8	125	128	135	108.0
8-6	108	CD-4	8	125	114	129	103.2
8-7	107	CD-4	8	90	95	92	102.2
8-8	107	CD-4	8	90	90	85	94.4
Total				930	928	941	101.18%

Diffuser Ret/Exh (GRD)

AHU-1-8/106

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
R8-1	RG-1	22X10	200	1	185	205	205	102.5
R8-2	RG-1	22X10	200	1	280	231	231	115.5
R8-3	RG-1	22X10	200	1	110	120	120	60.0
R8-4	RG-1	22X10	165	1	74	120	134	81.2
R8-5	RG-1	22X10	35	1	86	32	32	91.4
Total			800		735	708	722	90.25%

Completed By: Jordan Best on 04/18/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: AHU-1-9 AREA:111

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	32R02027
Model Num	NA	PEFY-P48NMAU-E4
Configuration	HORIZONTAL	HORIZONTAL
Num PreFilter 1	-	1
PreFilter Size 1	-	8"X45"X1"

Motor Data		
	Design	**Actual**
Horsepower	-	0.402
Phase	1	1
Rated Voltage	208	208
Rated Amperage	-	3.09

Test Data		
	Design	**Actual**
SF CFM	1910	1492
RA CFM	1340	913
OA CFM	260	270
RL Voltage	208	215
RL Amperage	-	2.9
SF System SetPt	-	4/4
OA Damper Position	-	SET MANUALLY

Performance Data		
	Design	**Actual**
Fan Suction SP	-	-0.58"
Fan Discharge SP	-	0.03"
Total ESP	0.6	0.61"

Completed By: Jordan Best on 04/18/2024

Notes:
Unit below design CFM operating at highest set point.
Returns below design, balanced proportionately.

Written By: Jordan Best on 04/18/2024

National TAB

Project:Joseph House (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

AHU-1-9/111

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
9-1	111	CD-4	8	155	103	124	80.0
9-2	111	CD-4	8	155	71	118	76.1
9-3	111	CD-4	8	155	48	67	43.2
9-4	111	CD-4	8	155	98	129	83.2
9-5	111	CD-4	8	155	96	117	75.5
9-6	111	CD-4	8	155	96	118	76.1
9-7	113	CD-1	6	50	90	74	148.0
9-8	111	CD-4	8	155	104	124	80.0
9-9	111	CD-4	8	155	91	114	73.5
9-10	111	CD-4	8	155	118	132	85.2
9-11	111	CD-4	8	155	125	122	78.7
9-12	111	CD-4	8	155	144	125	80.6
9-13	111	CD-4	8	155	114	128	82.6
Total				1910	1298	1492	78.12%

Diffuser Ret/Exh (GRD)

AHU-1-9/111

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
R9-1	RG-2	22X9	1315	1	528	528	528	40.2
R9-2	RG-3	10X4	25	0.33333	385	385	385	1540.0
Total			1340		913	913	913	68.13%

Completed By: Jordan Best on 04/18/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF131 AREA:

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SP-A250-QD	SP-A250-QD
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	-	264

Completed By: Jordan Best on 04/18/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF132 AREA:

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SP-A250-QD	SP-A250-QD
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	-	253

Completed By: Jordan Best on 04/18/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-112 AREA:112

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	SP-A200-QD
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	195	220

Completed By: Jordan Best on 04/09/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-114 AREA:114

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	SP-B90-QD
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	70	84

Completed By: Jordan Best on 04/09/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-115 AREA:115

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	SP-B90-QD
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	70	92

Completed By: Jordan Best on 04/09/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-130 AREA:130A

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	SP-A200-QD
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	140	205

Completed By: Jordan Best on 04/09/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-129-1 AREA:129A

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	SP-B90-QD
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	70	81

Completed By: Jordan Best on 04/09/2024

National TAB

Project: Joseph House (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-129-2 AREA:129B

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	SP-B90-QD
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	70	85

Completed By: Jordan Best on 04/09/2024