Report By:

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

Report: Marshalls - Colerain (Cincinnati, OH)

Function: Test, Adjust, & Balance

Date: 10/12/2023

PROJECT

Marshalls - Colerain (Cincinnati, OH)

3861 Stone Creek Blvd.

Cincinnati, OH 45251

Client

Champion Commercial HVAC

2638 Tem Mile Rd.

Melbourne, KY 41059

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

Table Of Contents

CERTIFICATION

PROJECT: Marshalls - Colerain (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:	10/13/2023

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:	Joe Hertenstein
REGISTRATION NO:	3629
CERTIFICATION EXP:	12/31/2023

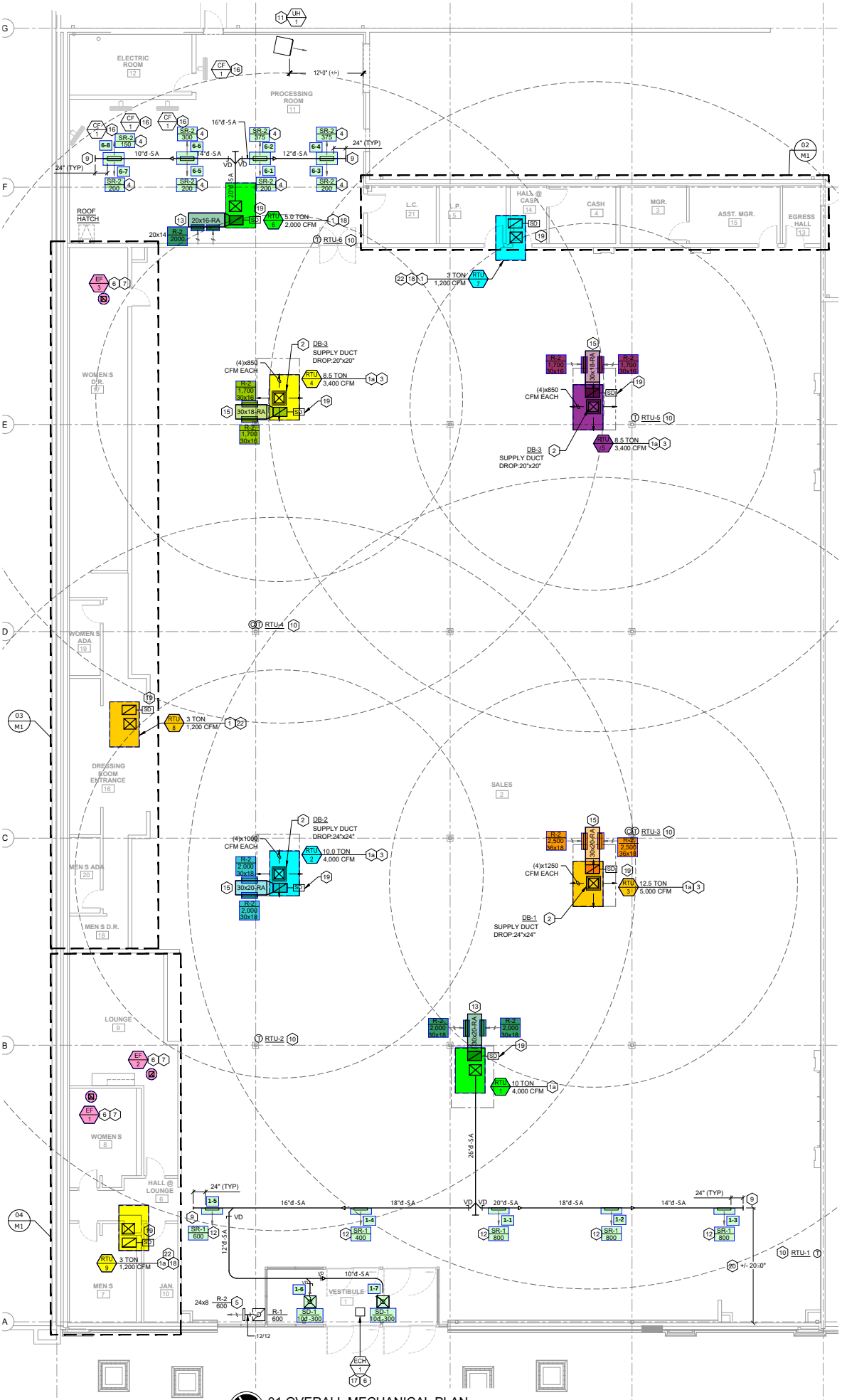
National TAB

Testing, Adjusting, and Balancing Equipment

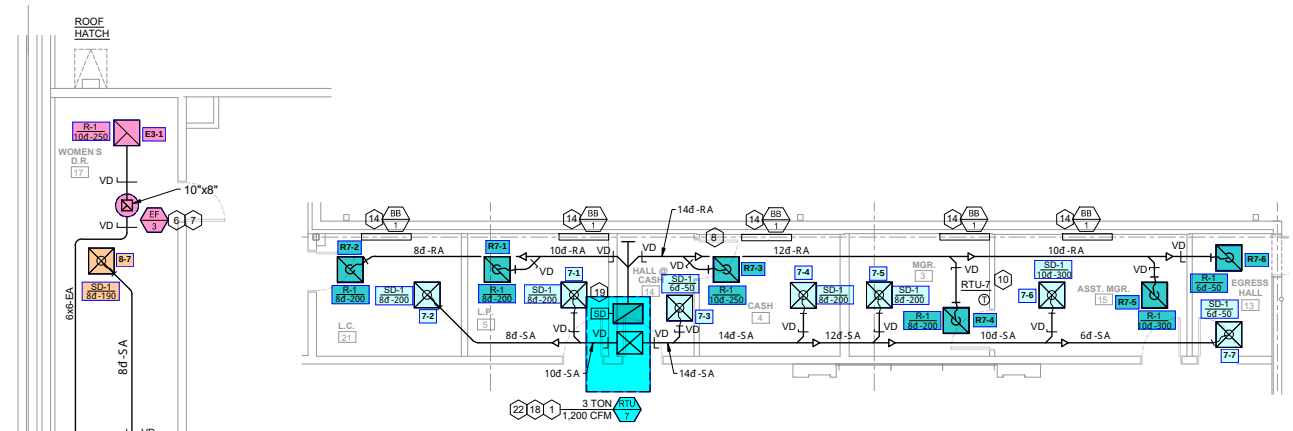
Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	TSI Alnor EBT 731 S/N EBT732044025	11/17/2022	11/17/2023
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	TSI Alnor EBT 731 S/N EBT732044025	11/17/2022	11/17/2023
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	TSI Alnor EBT 731 S/N EBT732044025	11/17/2022	11/17/2023
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

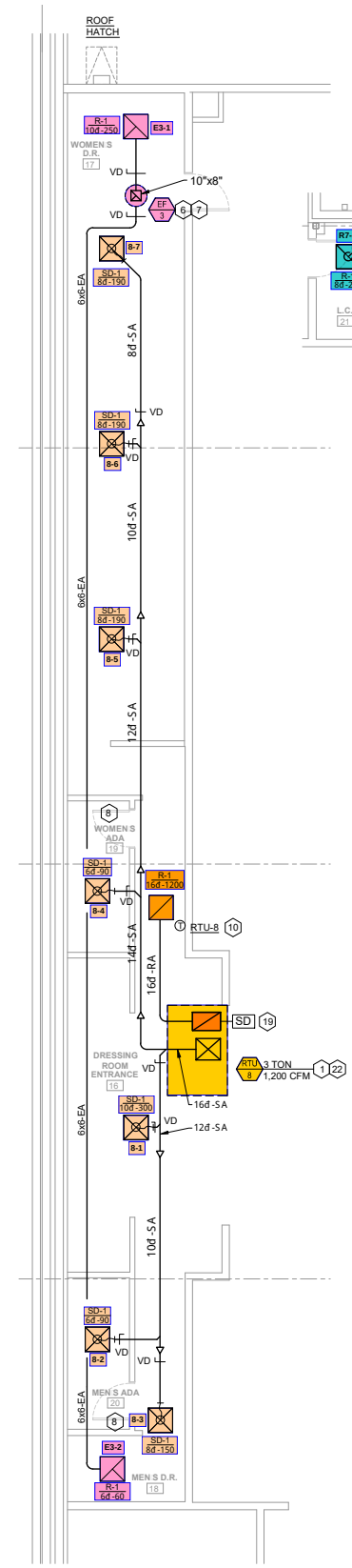
A = Area (ft^2)	S.F. = Service Factor
AHU = Air Handling Unit	SF = Supply Fan
A_k = Effective Area	SP = Static Pressure
BHP = Brake Horsepower (IP) HP	SR = Supply Register
Btu = British Thermal Unit	T = Temperature
Btu/h = Btuh = BTUH = BTU/Hour	T_{ma} = Mixed Air Temperature
CL = Center Distance (used 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



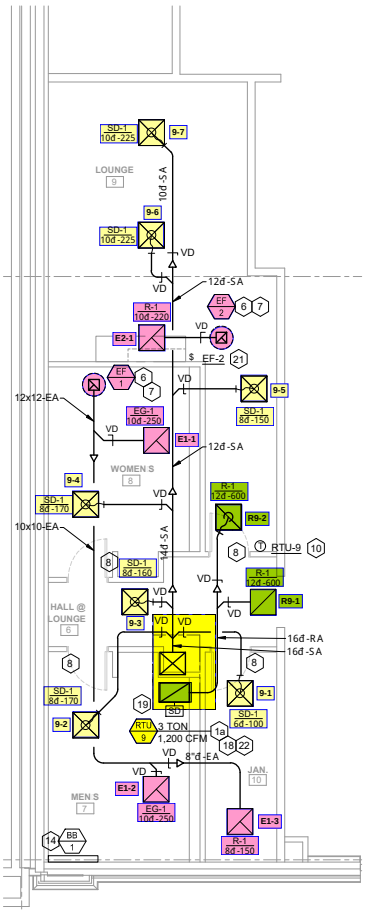
01 OVERALL MECHANICAL PLAN



02 ENLARGED MECHANICAL PLAN-MANAGER OFFICE



03 ENLARGED MECHANICAL PLAN-DRESSING ROOM



04 ENLARGED MECHANICAL PLAN-LOUNGE AREA

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-1 AREA:VESTIBULE

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2E3656609
Model Num	NA	ZJ120N24R4D5HCA1R2
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	20x30
Num PreFilter 1	-	4
PreFilter Size 1	-	24X20

Motor Data		
	Design	**Actual**
Horsepower	3.0	3.0
Phase	3	3
Rated Voltage	460	460
Rated Amperage	4.7	4.7

Test Data		
	Design	**Actual**
SF CFM	4000	4193
RA CFM	2800	2951
OA CFM	1200	1242
RL Voltage	460	472
RL Amperage	4.7	3.5
OA Damper Position	-	28%
Brake Horse Power	-	2.23

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.36
Fan Suction SP	-	-0.74
Fan Discharge SP	-	0.27
Total ESP	1.00	0.63
Fan Total SP	-	1.01

National TAB

Project:Marshalls - Colerain (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

RTU-1/VESTIBULE

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
1-1	SALES	SR-1	20X10	800	942	865	108.1
1-2	SALES	SR-1	20X10	800	916	842	105.3
1-3	SALES	SR-1	20X10	800	855	833	104.1
1-4	SALES	SR-1	20X10	400	556	431	107.8
1-5	SALES	SR-1	20X10	600	716	651	108.5
1-6	VESTIBULE	SD-1	10	300	152	278	92.7
1-7	VESTIBULE	SD-1	10	300	175	293	97.7
Total				4000	4312	4193	104.82%

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-2 AREA:SALES

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2E3656608
Model Num	NA	ZJ120N24R4D5HCA1R2
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	20x30
Num PreFilter 1	-	4
PreFilter Size 1	-	24X20

Motor Data		
	Design	**Actual**
Horsepower	3	3
Phase	3.0	3
Rated Voltage	460	460
Rated Amperage	4.7	4.7

Test Data		
	Design	**Actual**
SF CFM	4000	3885
RA CFM	2800	2697
OA CFM	1200	1188
RL Voltage	460	470
RL Amperage	4.7	3.9
OA Damper Position	-	25%
Brake Horse Power	-	2.5

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.18
Fan Suction SP	-	-0.55
Fan Discharge SP	-	0.22
Total ESP	1.00	0.4
Fan Total SP	-	0.77

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-3 AREA:SALES

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2E3652096
Model Num	NA	ZJ150N24R4D5HCA1R1
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	20x30
Num PreFilter 1	-	4
PreFilter Size 1	-	24X20

Motor Data		
	Design	**Actual**
Horsepower	5.0	5
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	6.6

Test Data		
	Design	**Actual**
SF CFM	5000	4872
RA CFM	3500	3428
OA CFM	1500	1444
RL Voltage	460	472
RL Amperage	-	5.2
OA Damper Position	-	24%
Brake Horse Power	4.58	4.33

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.29
Fan Suction SP	-	-0.48
Fan Discharge SP	-	0.35
Total ESP	1.00	0.64
Fan Total SP	-	0.83

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-4 AREA:SALES

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2F3705494
Model Num	NA	ZJ102N18R4D5HCA1R2
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	20x30
Num PreFilter 1	-	4
PreFilter Size 1	-	20x24

Motor Data		
	Design	**Actual**
Horsepower	3.0	3
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	4.7

Test Data		
	Design	**Actual**
SF CFM	3400	3566
RA CFM	2380	2600
OA CFM	1020	966
RL Voltage	460	474
RL Amperage	-	4.4
OA Damper Position	-	18%
Brake Horse Power	-	2.8

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.25
Fan Suction SP	-	-0.46
Fan Discharge SP	-	0.27
Total ESP	1.0	0.52
Fan Total SP	-	0.73

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-5 AREA:SALES

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2F3705495
Model Num	NA	ZJ102N18R4D5HCA1R2
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	30x20
Num PreFilter 1	-	4
PreFilter Size 1	-	24x20

Motor Data		
	Design	**Actual**
Horsepower	5.0	5
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	4.7

Test Data		
	Design	**Actual**
SF CFM	3400	3487
RA CFM	2380	3487
OA CFM	1020	0
RL Voltage	460	474
RL Amperage	-	4.0
OA Damper Position	-	Error
Brake Horse Power	-	4.26

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.31
Fan Suction SP	-	-0.58
Fan Discharge SP	-	0.32
Total ESP	1.0	0.63
Fan Total SP	-	0.9

Notes:
Outside air is not set up. When adjusting position, an error was given and damper remains closed.

Written By: Nick Payne on 10/12/2023

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-6 AREA:PROCESSING

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2E3653864
Model Num	NA	ZT061N16P4B5HCA1R1
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	30x20
Num PreFilter 1	-	4
PreFilter Size 1	-	16x24

Motor Data		
	Design	**Actual**
Horsepower	1.50	1.5
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	2.1

Test Data		
	Design	**Actual**
SF CFM	2000	1982
RA CFM	1700	1671
OA CFM	300	311
RL Voltage	460	467
RL Amperage	-	1.5
OA Damper Position	-	20%
Brake Horse Power	-	1.08

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.30
Fan Suction SP	-	-0.56
Fan Discharge SP	-	0.23
Total ESP	1.20	0.53
Fan Total SP	-	0.79

National TAB

Project:Marshalls - Colerain (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

RTU-6/PROCESSING

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
6-1	PROCESSING	SR-2	20X10	200	275	217	108.5
6-2	PROCESSING	SR-2	20X10	375	216	385	102.7
6-3	PROCESSING	SR-2	20X10	200	285	206	103.0
6-4	PROCESSING	SR-2	20X10	375	289	362	96.5
6-5	PROCESSING	SR-2	20X10	200	292	209	104.5
6-6	PROCESSING	SR-2	20X10	300	0	277	92.3
6-7	PROCESSING	SR-2	20X10	200	36	184	92.0
6-8	PROCESSING	SR-2	20X10	150	294	142	94.7
Total				2000	1687	1982	99.1%

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-7 AREA:13

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2E3656529
Model Num	NA	ZT037N08P4B5HCA1R2
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	30x20
Num PreFilter 1	-	4
PreFilter Size 1	-	16x24

Motor Data		
	Design	**Actual**
Horsepower	1.50	1.5
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	2.1

Test Data		
	Design	**Actual**
SF CFM	1200	1226
RA CFM	1020	1038
OA CFM	180	188
RL Voltage	460	473
RL Amperage	-	1.6
OA Damper Position	-	15%
Brake Horse Power	-	1.14

Performance Data		
	Design	**Actual**
MA Plenum SP	-	0.22
Fan Suction SP	-	0.48
Fan Discharge SP	-	0.31
Total ESP	0.80	0.53
Fan Total SP	-	0.79

National TAB

Project:Marshalls - Colerain (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

RTU-7/13

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
7-1	5	SD-1	8	200	216	208	104.0
7-2	21	SD-1	8	200	233	205	102.5
7-3	14	SD-1	6	50	77	52	104.0
7-4	4	SD-1	8	200	311	210	105.0
7-5	3	SD-1	8	200	275	215	107.5
7-6	15	SD-1	10	300	208	288	96.0
7-7	13	SD-1	6	50	10	48	96.0
Total				1200	1330	1226	102.17%

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-8 AREA:17

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2E3656518
Model Num	NA	ZT037N08P4B5HCA1R2
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	30x20
Num PreFilter 1	-	4
PreFilter Size 1	-	16x24x2

Motor Data		
	Design	**Actual**
Horsepower	1.50	1.5
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	2.1

Test Data		
	Design	**Actual**
SF CFM	1200	1225
RA CFM	1080	1103
OA CFM	120	122
RL Voltage	460	470
RL Amperage	-	1.9
OA Damper Position	-	12%
Brake Horse Power	-	1.35

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.18
Fan Suction SP	-	-0.33
Fan Discharge SP	-	0.2
Total ESP	0.80	0.38
Fan Total SP	-	0.53

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Project:Marshalls - Colerain (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

RTU-8/17

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
8-1	15	SD-1	10	300	226	311	103.7
8-2	20	SD-1	6	90	185	92	102.2
8-3	18	SD-1	8	150	204	154	102.7
8-4	19	SD-1	6	90	118	88	97.8
8-5	17	SD-1	8	190	105	186	97.9
8-6	17	SD-1	8	190	175	195	102.6
8-7	17	SD-1	8	190	216	199	104.7
Total				1200	1229	1225	102.08%

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU

Asset: RTU-9 AREA:9

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2E3656516
Model Num	NA	ZT037N08P4B5HCA1R2
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	20x30
Num PreFilter 1	-	4
PreFilter Size 1	-	16x24x2

Motor Data		
	Design	**Actual**
Horsepower	1.5	1.5
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	2.1

Test Data		
	Design	**Actual**
SF CFM	1200	1218
RA CFM	960	989
OA CFM	240	229
RL Voltage	460	469
RL Amperage	-	1.7
OA Damper Position	-	19%
Brake Horse Power	-	1.21

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.21
Fan Suction SP	-	-0.42
Fan Discharge SP	-	0.25
Total ESP	0.80	0.46
Fan Total SP	-	0.67

National TAB

Project:Marshalls - Colerain (Cincinnati, OH)

AHU/RTU

Diffuser Supply (GRD)

RTU-9/9

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
9-1	10	SD-1	6	100	126	105	105.0
9-2	7	SD-1	8	170	155	162	95.3
9-3	6	SD-1	8	160	148	169	105.6
9-4	8	SD-1	8	170	122	180	105.9
9-5	HALL	SD-1	8	150	191	154	102.7
9-6	9	SD-1	10	225	238	217	96.4
9-7	9	SD-1	10	225	267	231	102.7
Total				1200	1247	1218	101.5%

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-1 AREA:10

Unit Data		
	Design	**Actual**
MFG	NA	York
Model Num	NA	EVD13
Serial Num	-	H23UZ56338
Type	CRE DNBLAST	CRE

Test Data		
	Design	**Actual**
CFM	650	674
RL Voltage	-	115
RL Amperage	-	1.4
Total ESP	0.62	0.58

Motor Data		
	Design	**Actual**
Horsepower	0.167	0.167
Motor Rpm	1550	1550
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	2.1
Service Factor	-	1

National TAB

Project:Marshalls - Colerain (Cincinnati, OH)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF-1/10

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E1-1	EG-1	10	250		312		262	104.8
E1-2	EG-1	10	250		328		270	108.0
E1-3	R-1	8	150		58		142	94.7
Total			650		698	0	674	103.69%

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-2 AREA:9

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Model Num	NA	EVD10R
Serial Num	-	H23UZ56339
Type	CRE DNBLAST	CRE

Test Data		
	Design	**Actual**
CFM	220	208
RL Voltage	-	115
RL Amperage	-	0.8
Total ESP	0.5	0.22

Motor Data		
	Design	**Actual**
Horsepower	0.167	0.08
Motor Rpm	1550	1550
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1

National TAB

Project:Marshalls - Colerain (Cincinnati, OH)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF-2/9

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E2-1	R-1	10	220		208		208	94.5
Total			220		208	0	208	94.55%

National TAB

Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-3 AREA:18

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Model Num	NA	EVD11
Serial Num	-	H23UZ56340
Type	CRE DNBLAST	CRE

Test Data		
	Design	**Actual**
CFM	310	317
RL Voltage	-	115
RL Amperage	-	2.2
Total ESP	0.5	0.44

Motor Data		
	Design	**Actual**
Horsepower	0.20	0.2
Motor Rpm	1725	1750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	3.0

National TAB

Project:Marshalls - Colerain (Cincinnati, OH)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF-3/18

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E3-1	R-1	10	250			333	252	100.8
E3-2	R-1	6	60			100	65	108.3
Total			310		0	433	317	102.26%