

Report By:

National TAB
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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

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Project: Marshalls - Colerain (Cincinnati, OH)

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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

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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%

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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

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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

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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

Test Data		
	Design	Actual
SF CFM	3400	
SF RPM	995	
RA CFM	2380	
OA CFM	1020	0
RL Voltage	460	
RL Amperage	-	
OA Damper Position	-	Error
Brake Horse Power	-	

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

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

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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	-	
Fan Suction SP	-	
Fan Discharge SP	-	
Total ESP	1.20	
Fan Total SP	-	

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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%

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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

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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

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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%

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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

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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%

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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

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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%

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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%