

**Report By:**

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



**Report: RecCTRRTU-Eval**  
**Function: Test, Adjust, & Balance**  
**Date: 07/03/2025**  
**Completed By: National TAB**

# PROJECT

## Blue Ash Rec AHU1 EVAL (Blue Ash, OH)

4433 Cooper Road

Blue Ash, OH

### Client

Triton Services, Inc.  
8162 Duke Boulevard  
Mason, OH 45040

# National TAB

Project: Blue Ash Rec AHU1 EVAL (Blue Ash, OH)

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## **AHU/RTU1 EVALUATION:**

The scope of the work was to get total supply airflow & static pressure profile. Also, to set the outside air for the unit.

The unit sits on lower roof & has (3) supply duct systems that come off the discharge of the RTU unit. Each duct is exposed & runs along the roof & then drops down into their independent curbs to serve the space. The duct system is connected to VAV systems. Before taking traverse we met with the facilities team & had him drive all the VAV systems 100% open. He performed this task & stated they were open per the BMS system. We were not contracted out to balance the VAV's or verify functions of each of the boxes. We then traversed all 3 ducts at current operating point at 40 HZ. The readings for the traverses were recorded at 40 HZ. Then we increased the fan speed as much as possible up to full load amps which was reached at 49 HZ. We then used Fan laws to calculate final supply air flow rate.

Our team is going to stop by Monday afternoon to look for any system affect at duct discharge and any other quick review of how the unit is operating. I would like to get access to the BMS to see how the boxes are commanding. Future analysis may be required to physically make sure that all VAV's are opening as commanded & there are no other obstructions being caused down stream of system.

# National TAB

Project: Blue Ash Rec AHU1 EVAL (Blue Ash, OH)

System/Unit: AHU/RTU



Asset: AHU1

AREA:1ST FLR-AREA B

Unit Data		
	Design	Actual
MFG	Carrier	Carrier
Model Num	39MW Size 40W	39MW Size 40W [2]
Configuration	-	HORIZONTAL

Motor Data		
	Design	Actual
Frame	-	284T [2]
Horsepower	-	25 [2]
Motor Rpm	-	1800 [2]
Phase	-	3 [2]
Rated Voltage	-	208-230/460 [2]
Rated Amperage	-	31 [2]

Test Data		
	Design	Actual
SF CFM	-	19840
SF RPM	-	1509 motor [1]
RA CFM	-	16576
OA CFM	-	3264
RL Voltage	-	450 ave [1]
RL Amperage	-	28.0 [1]
Brake Horse Power	-	20.7 [1]

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.30"
Fan Suction SP	-	-1.37"
Fan Discharge SP	-	0.98"
Total ESP	-	1.28"
Fan Total SP	-	2.35"
Cooling Coil P.D.	-	1.07"*

Completed By: Gabe Merk on 11/05/2025

Notes:

[1] DATA TAKEN FROM VFD OUTPUT

[2] FROM SUBMITTAL DATA ONLY

VFD READ AT 51 HZ 28 AMPS 10/28

\*prefilter and cooling coil PD combined

Traverses at 48HZ :

50"x24"= 6893 cfm

30"x22"= 6140 cfm

42"x18"= 5640 cfm

Written By: Gabe Merk on 11/05/2025

## SQUARE DUCT TRAVERSE FORM

PROJECT	Blue Ash Rec. Center	SYSTEM	
LOCATION	Duct 2	SERVICE	
ALTITUDE	-	DENSITY	-
		FACTOR	-

DUCT	S.P.	TEMP	REQUIRED	ACTUAL
	0.56"	-65°F	SCFM	SCFM
SIZE	28" x 20" (internal)		FPM	1141.5 FPM AVE
AREA	3.89 Ft <sup>2</sup>		CFM	4440 CFM

DISTANCE FROM BOTTOM	POSITION	1	2	3	4	5	6	7	8	9	10	11	12
16 1/2"	1	971	1033	1040	1165	1086	1076	1186	995				
14 1/2"	2	1062	1040	1168	1162	1199	1210	1219	1153				
10"	3	1131	1275	1210	1159	1150	1230	1266	1198				
6 1/2"	4	1006	1226	1195	1227	1224	1208	1158	1143				
2 1/2"	5	849	1087	1206	1182	1218	1142	1222	984				
	6												
	7												
	8												
	9												
	10												
	11												
	12												
	13												
DISTANCE FROM DUCT EDGE		3"	6"	9"	12"	15"	18"	21"	24"				
VELOCITY SUB-TOTALS													

**REMARKS:**

Above velocity measurements @ 40Hz fan speed. Approximate CFM at 49Hz: 5439  
 RTU Pressures: Mixed Air: -0.23", Prefilter P.D.: 0.10", CHW. coil P.D.: 1.24"  
 Fan Suction: -1.59", Fan Discharge: 0.63"  
 Total Exp.: 0.86", Fan total: 2.22"

Electrical Data  
On PG 2

TEST DATE: 6/26/2025

READINGS BY: Gabe M. NTi

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## SQUARE DUCT TRAVERSE FORM

PROJECT <u>Blue Ash Rec Center</u>	SYSTEM _____
LOCATION <u>Duct 2</u>	SERVICE _____
ALTITUDE - _____	DENSITY - _____
	FACTOR - _____

DUCT	REQUIRED	ACTUAL
S.P. <u>0.56"</u>	TEMP <u>-65°F</u>	SCFM - _____
SIZE <u>48" X 22" (external)</u>	FPM _____	FPM <u>620.6 FPM</u>
AREA <u>7.33 FT<sup>2</sup></u>	CFM _____	CFM <u>4549.0 CFM</u>

DISTANCE FROM BOTTOM	POSITION	1	2	3	4	5	6	7	8	9	10	11	12
19"	1	503	509	472	533	654	646	761	771	726	693	812	
15"	2	439	506	470	581	650	707	698	749	733	801	804	
11"	3	316	501	604	609	635	696	711	747	754	606	740	
7"	4	524	459	375	445	516	544	681	623	702	703	698	
3"	5	374	380	435	562	602	639	685	692	750	730	816	
	6												
	7												
	8												
	9												
	10												
	11												
	12												
	13												
DISTANCE FROM DUCT EDGE		4"	8"	12"	16"	20"	24"	28"	32"	36"	40"	44"	
VELOCITY SUB-TOTALS													

**REMARKS:**

Above velocity measurements @ 40Hz Fan Speed. Approximate CFM at 49Hz: 5573

Motor RPM: 1449 (via VFD)      UNIT Total Flow: 15499 CFM  
 Motor Amps: 28.9 (via VFD)      OA Manually set: 2361 CFM  
 Voltage: 439 (via VFD)  
 Power: 20.9 HP

TEST DATE: 6/26/2025

READINGS BY: Gabe M. NTi

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## SQUARE DUCT TRAVERSE FORM

PROJECT	Blue Ash Rec Center	SYSTEM	
LOCATION	Duct 3	SERVICE	
ALTITUDE	-	DENSITY	-
		FACTOR	-

<b>DUCT</b>	S.P.	0.56"	TEMP	- 65°F	<b>REQUIRED</b>		<b>ACTUAL</b>	
	SIZE	16" x 40" (Internal)			SCFM	-	SCFM	-
	AREA	4.44 FT <sup>2</sup>			FPM		FPM	825.4 FPM Ave
					CFM		CFM	3663 CFM

DISTANCE FROM BOTTOM	POSITION	1	2	3	4	5	6	7	8	9	10	11	12
14"	1	784	882	1031	969	493	473	446					
12"	2	687	1040	1032	890	854	726	606					
9½"	3	763	996	1140	967	847	729	701					
7"	4	541	781	1103	1017	968	785	766					
4½"	5	638	840	1004	1090	950	828	707					
2"	6	682	671	742	930	953	855	727					
	7												
	8												
	9												
	10												
	11												
	12												
	13												
DISTANCE FROM DUCT EDGE		5"	10"	15"	20"	25"	30"	35"					
VELOCITY SUB - TOTALS													

**REMARKS:**

Above velocity measurements @ 40Hz fanspeed. Approximate CFM @ 49Hz: 4487

TEST DATE: 6/26/2025

READINGS BY: Case M. NTi

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