Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 12/12/2025

Completed By: National TAB

PROJECT

02-22-26 QT #1191 COLUMBIA, SC

771 ST. ANDREWS RD

COLUMBIA, SC

Client

QUIKTRIP

4705 SOUTH 129TH EAST AVENUE

TULSA, OK 74134

National TAB

Project: 02-22-26 QT #1191 COLUMBIA, SC

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Project Summary

Project Summary
The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report are further details about your building performance including recommendations, asset data, and pictures. Our focus is to work with the trades to remedy any issues or deficiencies during the actual field balancing and not after the balancing has occurred to achieve a positive environment and outcome. The level of success is determined by the availability of the trades, possible parts needed, or time constraints.

RTU's (Roof Top Units)
Each of the RTU's was measured with a flow hood to establish total flow. The total flow was then adjusted via the VFD so that airflow fell within design tolerances. All diffusers on the kitchen RTU were balanced to the engineer's design flow. The diffusers on the sales floor were only adjusted when there were noticeable issues present like drafting or dampers that were found completely closed. The Hoods On outside air rate was set by first establishing the typical QT set point at the Emerson controller and then making manually adjustments on the roof. The hoods off airflow setpoint was found by adjusting the damper position at the Emerson controller until the design airflow was achieved. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. After completion of TAB all overrides were released.

Kitchen Exhaust Hood & Associated Fans
The kitchen exhaust fan was measured at the hood filter bay utilizing a velocity matrix and a manufacturer's correction factor. Each filter velocity is multiplied by the manufacturer's corrected area. The sum of these readings equals the total flow of the exhaust fans. The total flow of the exhaust was then adjusted to within tolerance of the design flow.

Restroom Exhaust Fans
The restroom exhaust fans were measured with a flow hood. The total flow was balanced for the fan with the exception of the new grille over the combi-oven, which was balanced to the listed design.

Final Building Tests
After completing the test and balance the final building pressure was measured. It was confirmed that the building pressure fell within acceptable tolerances and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report. The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat on to ensure satisfactory hood capture and containment.

Issue List

- EF-1 Not Operational
- Incorrect Kitchen Diffusers
- RTU-3 Dampers

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Project Issue Information

Issue Name : EF-1 Not Operational

Description : EF-1 is not running. The speed controller does not turn the fan on as it should. An electrician should check the wiring of the fan.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	Urgent	**Asset Tag :**	EF1
Originated Date :	03/10/2026 - Alex Bauer - National TAB		

Project Issue File Details

1. Open IMG_1137.mp4
   03/10/2026

03/10/2026

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Project Issue Information

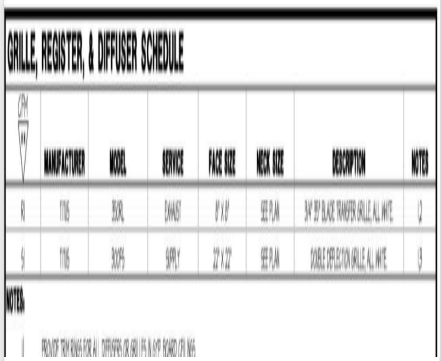
Issue Name : Incorrect Kitchen Diffusers

Description : The kitchen diffusers 3-1 through 3-4 are the incorrect type. They need to be the TITUS 300FS diffuser with the installed deflection blades.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	High	**Asset Tag :**	RT-3
Originated Date :	03/10/2026 - Alex Bauer - National TAB		

Project Issue File Details

03/10/2026



03/10/2026

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02-22-26 QT #1191 COLUMBIA, SC

Project Issue Information

Issue Name : RTU-3 Dampers

Description : The dampers for diffusers 3-5 through 3-7 are inaccessible. They are located behind a wall and solid ceiling where they cannot be reached and adjusted. It would be better if the dampers were in an accessible location so they can be reached and adjusted.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	High	**Asset Tag :**	RT-3
Originated Date :	03/10/2026 - Alex Bauer - National TAB		

Project Issue File Details

03/10/2026

03/10/2026

NATIONAL TAB

AIR BALANCE SCHEDULE

UNIT	AREA SERVED	HOOD ON OA		HOOD OFF OA		HOOD ON EXHAUST		HOOD OFF EXHAUST	
		DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
RTU 1	SALES	800	814	350	369				
RTU-2	SALES	800	800	350	355				
RTU-3	BOH/KITCHEN	800	807	350	341				
EF-1	RR/JANITOR					750	0	750	0
EF-3	HOOD					1350	1298	0	0
TOTALS		2400	2421	1050	1065	2100	1298	750	0

HOODS ON

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2421
TOTAL EXHAUST	2100	1298
NET AIRFLOW	300	1123

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.0079
SIDE	0.0084
REAR	0.0081
AVERAGE	**0.0081**

HOODS OFF

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1050	1065
TOTAL EXHAUST	750	0
NET AIRFLOW	300	1065

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.0125
SIDE	0.0109
REAR	0.0207
AVERAGE	**0.0147**

NOTES:

See issues list about EF-1.

CheckList List

- 01: RTU’s/AHU’s
- 02: Exhaust Fans
- 03: Hoods
- 04: Final Tests

02-22-26 QT #1191 COLUMBIA, SC

CheckList Information

Name :	01: RTU’s/AHU’s	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	12/12/2025 - Trinity Dodds - National TAB		
Completed Date :	03/10/2026 - Alex Bauer - National TAB		

CheckList Item Details

RTU's/AHU's

Evaporator coils are clean?	Pass
Comment:	
Condenser coils are clean?	Pass
Comment:	
Gas piping is installed and valves are turned on?	N/A
Comment:	
Unit free of noticeable noise and vibration	Pass
Comment:	

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CheckList Information

Name :	02: Exhaust Fans	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	12/12/2025 - Trinity Dodds - National TAB		
Completed Date :	03/10/2026 - Alex Bauer - National TAB		

CheckList Item Details

EF's

Hinge kit installed installed on hood fan?	Pass
Comment:	
Flex conduit is long enough so that fan can be completely tilted back?	Pass
Comment:	
No major leakage around the fan base	Pass
Comment:	
Unit is free of noise and vibration	N/A
Comment:	

As EF-1 is not operational, the unit being free of noise and vibration cannot be verified.

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CheckList Information

Name :	03: Hoods	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	12/12/2025 - Trinity Dodds - National TAB		
Completed Date :	03/10/2026 - Alex Bauer - National TAB		

CheckList Item Details

HOODS

Hood is free of alarms?	Pass
Comment:	
Hood is free of damage?	Pass
Comment:	
End panels are installed per prototype?	N/A
Comment:	

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CheckList Information

Name :	04: Final Tests	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	12/12/2025 - Trinity Dodds - National TAB		
Completed Date :	03/10/2026 - Alex Bauer - National TAB		

CheckList Item Details

FINAL CHECKS

HOOD CAPTURE TEST

List kitchen equipment turned on for testing

Comment:

OVEN, FRYER.

List smoke candle type used

Comment:

45 SECOND SMOKE CANDLE

Smoke test capture % - Perimeter of hood

Comment:

100%

Smoke test capture % - Top of cooking surface

Comment:

100%

WITNESS

Date test was completed	03/09/2026

Comment:

TAB tech name / Firm

Comment:

ALEX BAUER/NTAB

Site super name / Firm

Comment:

NA

Owner representative name / Firm (if Applicable)

Comment:

NA

BUILDING PRESSURE

Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)	Pass

Comment:

National TAB

Project: 02-22-26 QT #1191 COLUMBIA, SC

System/Unit: AHU/RTU

Asset: RT-1 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202108-ANEK22601
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	22.5X44.5
Num Final Filter 1	2
Final Filter Size 1	19.5X46.5X2

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	3
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	10.6

Test Data		
	Design	**Actual**
SF CFM	4200	4098
SF RPM	-	1291
OA CFM (Hoods On)	800	814
OA CFM (Hoods Off)	350	369
RL Voltage	-	145 VFD
RL Amperage	-	7.45 VFD
VFD Max SetPt	-	44 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	32%

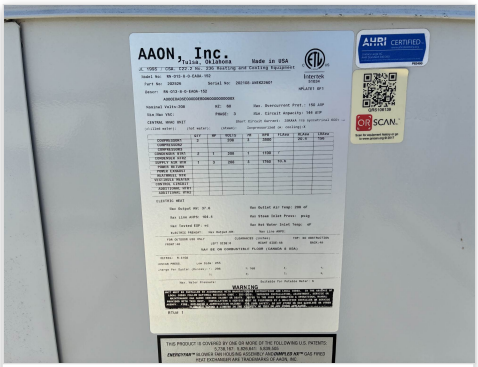
Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.48”
Fan Suction SP	-	-0.73”
Fan Discharge SP	-	0.42”
Total ESP	-	0.90"
Fan Total SP	-	1.15"

General	
	Actual
Fan Rotation Correct	YES
Unit Filters Clean	YES
Condensate Drain Installed	YES

Completed By: Alex Bauer on 03/10/2026

Unit Data - PHOTO LOG

03/10/2026



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National TAB

Project: 02-22-26 QT #1191 COLUMBIA, SC

System/Unit: AHU/RTU

Asset: RT-2 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202108-ANEK22602
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	22.5X44.5
Num Final Filter 1	2
Final Filter Size 1	19.5X46.5X2

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	3
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	10.6

Test Data		
	Design	**Actual**
SF CFM	4200	4397
SF RPM	-	1261
OA CFM (Hoods On)	800	800
OA CFM (Hoods Off)	350	355
RL Voltage	-	139 VFD
RL Amperage	-	7.50 VFD
VFD Max SetPt	-	43 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	32%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.51”
Fan Suction SP	-	-0.77”
Fan Discharge SP	-	0.47”
Total ESP	-	0.98"
Fan Total SP	-	1.24"

General	
	Actual
Fan Rotation Correct	YES
Unit Filters Clean	YES
Condensate Drain Installed	YES

Completed By: Alex Bauer on 03/10/2026

Unit Data - PHOTO LOG

03/10/2026

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National TAB

Project: 02-22-26 QT #1191 COLUMBIA, SC

System/Unit: AHU/RTU

Asset: RT-3 AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	202108-ANEK22603
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	22.5X44.5
Num Final Filter 1	2
Final Filter Size 1	19.5X46.5X2

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	3
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	10.6

Test Data		
	Design	**Actual**
SF CFM	4200	4349
SF RPM	-	1467
OA CFM (Hoods On)	800	807
OA CFM (Hoods Off)	350	341
RL Voltage	-	184 VFD
RL Amperage	-	9.04 VFD
VFD Max SetPt	-	50 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	32%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.75”
Fan Suction SP	-	-1.05”
Fan Discharge SP	-	0.55”
Total ESP	-	1.30"
Fan Total SP	-	1.60"

General	
	Actual
Fan Rotation Correct	YES
Unit Filters Clean	YES
Condensate Drain Installed	YES

Completed By: Alex Bauer on 03/10/2026

Unit Data - PHOTO LOG

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National TAB

Project:02-22-26 QT #1191 COLUMBIA, SC

AHU/RTU

Diffuser Supply (GRD)

RT-3/BOH/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	SUPPORT SERVICE	SI	12"	800	1	764	600	764	95.5
SGRD2	SUPPORT SERVICE	SI	12"	800	1	755	583	755	94.4
SGRD3	SUPPORT SERVICE	SI	12"	800	1	790	597	790	98.8
SGRD4	SUPPORT SERVICE	SI	12"	800	1	818	668	818	102.3
SGRD5	DOCK	ES	100"	500	1	514	345	514	102.8
SGRD6	WORKROOM	ES	8"	250	1	335	243	335	134.0
SGRD7	PLUMBING	ES	8"	250	1	373	290	373	149.2
Total				4200		4349	3326	4349	103.55%

National TAB

Project: 02-22-26 QT #1191 COLUMBIA, SC

System/Unit: FAN - Exhaust

Asset: EF1 AREA:RR/JANITOR

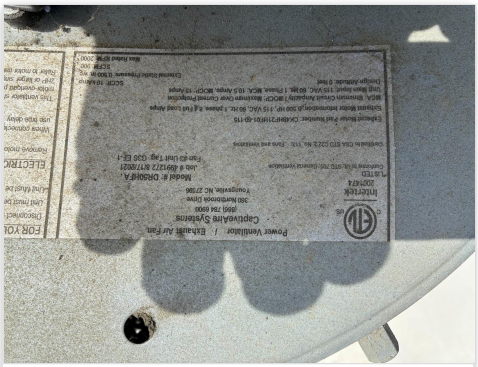
Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVE AIRE
Model Num	NA	DR50HFA
Serial Num	-	4991272
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	CAPTIVE AIRE
Frame	-	NA
Horsepower	-	0.5
Motor Rpm	-	1625
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	6.8
Service Factor	-	NA

Test Data		
	Design	**Actual**
CFM	750	0
Fan RPM	-	0
Fan Rotation	-	NA
Motor RPM	-	0
System SetPt	-	NA
RL Voltage	-	0
RL Amperage	-	0
Total ESP	-	0
Fan Inlet SP	-	0
Fan Discharge SP	-	ATM

Unit Data - PHOTO LOG

03/10/2026



03/10/2026

Diffuser Ret/Exh (GRD)

EF1/RR/JANITOR

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD4	COMBI-OVEN	RI	8"	150					-
Total				150		0	0	0	0%

National TAB

Project: 02-22-26 QT #1191 COLUMBIA, SC

System/Unit: FAN - Exhaust

Asset: EF3 AREA:KITCHEN HD

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	8262106
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TELCO GREEN
Frame	-	NA
Horsepower	1/2	0.5
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	208
Amperage (rated)	-	NA
Service Factor	-	NA

Test Data		
	Design	**Actual**
CFM	1350	1298
Fan RPM	-	1302
Fan Rotation	-	CCW
Motor RPM	-	1302
System SetPt	-	68.8 Hz
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.29"
Fan Inlet SP	-	-0.29"
Fan Discharge SP	-	ATM

Completed By: Alex Bauer on 03/10/2026

Unit Data - PHOTO LOG

03/10/2026

03/10/2026

National TAB

Project: 02-22-26 QT #1191 COLUMBIA, SC

System/Unit: Kitchen Hood Type I

Asset: HD1 AREA:GRIDDLE

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	6030ND-2-F	6030ND-2
Job / Serial Num	-	8262106
Type	-	TYPE I CANOPY
Hood length	-	108"
Hood Width	-	60"

Test Data Exhaust		
	Design	**Actual**
Filter Type	-	BAFFLE FILTERS
Filter Size 1	-	16X20
Filter Qty 1	-	6
Filter AK factor size 1	-	2.08
Filter Total AK Area	-	12.48
Filter1 FPM	-	105
Filter2 FPM	-	105
Filter3 FPM	-	99
Filter4 FPM	-	105
Filter5 FPM	-	106
Filter Ave FPM(corr)	-	104
CFM	1350	1298

Cooking Equipment	
	Actual
Item 1	OVEN
Item 2	FRYER

Completed By: Alex Bauer on 03/10/2026

Unit Data - PHOTO LOG

03/10/2026

03/10/2026