

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

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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

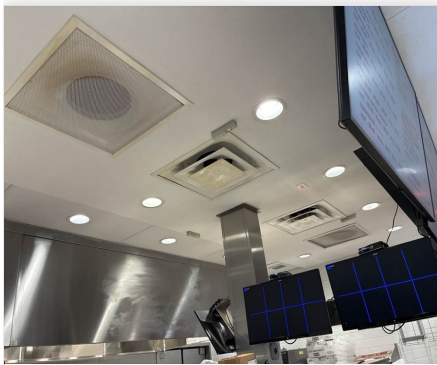


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Project Issue Information

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



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GRILLE, REGISTER, & DIFFUSER SCHEDULE

NO.	MANUFACTURER	MODEL	SERVICE	FACE SIZE	DECK SIZE	DESCRIPTION	NOTES
01	TITUS	300L	04043	18" X 18"	SEE PLAN	34" 90° BLADE TRANSFER GULCH AL. W/FE	02
02	TITUS	300FS	04041	22" X 22"	SEE PLAN	20" BLADE DEFLECTION GULCH AL. W/FE	03

NOTES:
1. PRELIMINARY SCHEDULE FOR GRILLE, REGISTER, & DIFFUSER SCHEDULE.

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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



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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



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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:



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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

Unit Data - PHOTO LOG



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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

Unit Data - PHOTO LOG



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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%

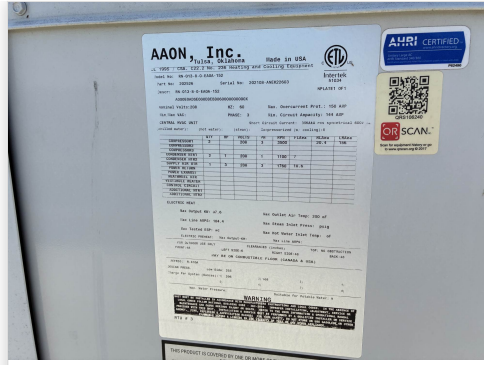
Performance Data		
	Design	Actual
MA Plenum SP	-	-0.75"
Fan Suction SP	-	-1.05"
Fan Discharge SP	-	0.55"
Total ESP	-	1.30"
Fan Total SP	-	1.60"

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

Unit Data - PHOTO LOG



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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%



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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



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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%



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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

Unit Data - PHOTO LOG



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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

