Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 10/23/2025

Completed By: National TAB

PROJECT

10-27-25 QT #1180 COLUMBIA, SC

8205 TWO NOTCH ROAD

COLUMBIA, SC

Client

QUIKTRIP

4705 SOUTH 129TH EAST AVENUE

TULSA, OK 74134

National TAB

Project: 10-27-25 QT #1180 COLUMBIA, SC

Table Of Contents

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

- EF1-2 Incorrect Diffuser
- Incorrect Kitchen Diffusers

Project Issue Information

Issue Name : EF1-2 Incorrect Diffuser

Description : The diffuser for EF1-2 in the janitor's closet is the incorrect type.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	Low	**Asset Tag :**	EGRD2
Originated Date :	11/06/2025 - Alex Bauer - National TAB		

Project Issue File Details

11/06/2025

10-27-25 QT #1180 COLUMBIA, SC

Project Issue Information

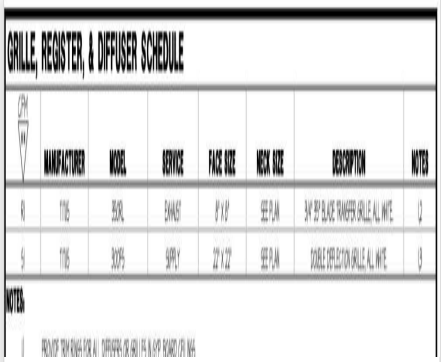
Issue Name : Incorrect Kitchen Diffusers

Description : The kitchen diffusers 3-1 through 3-4 are not the correct type. They should be the Titus S1 diffuser. The contractor is aware and they will be replaced in the near future.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	InfoOnly	**Asset Tag :**	RT-3
Originated Date :	11/06/2025 - Alex Bauer - National TAB		

Project Issue File Details

11/06/2025



11/06/2025

11/06/2025

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	844	350	352				
RTU-2	SALES	800	813	350	362				
RTU-3	BOH/KITCHEN	800	820	350	322				
EF-1	RR/JANITOR					750	711	750	711
EF-3	HOOD					1350	1373	0	0
TOTALS		2400	2477	1050	1036	2100	2084	750	711

HOODS ON

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2477
TOTAL EXHAUST	2100	2084
NET AIRFLOW	300	393

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.01
SIDE	0.0046
REAR	0.0026
AVERAGE	**0.0057**

HOODS OFF

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1050	1036
TOTAL EXHAUST	750	711
NET AIRFLOW	300	325

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.0326
SIDE	0.0292
REAR	0.0119
AVERAGE	**0.0246**

NOTES:

CheckList List

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

10-27-25 QT #1180 COLUMBIA, SC

CheckList Information

Name :	01: RTU’s/AHU’s	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	10/16/2025 - Trinity Dodds - National TAB		
Completed Date :	11/06/2025 - 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:	

10-27-25 QT #1180 COLUMBIA, SC

CheckList Information

Name :	02: Exhaust Fans	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	10/16/2025 - Trinity Dodds - National TAB		
Completed Date :	11/06/2025 - 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	Pass
Comment:	

10-27-25 QT #1180 COLUMBIA, SC

CheckList Information

Name :	03: Hoods	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	10/16/2025 - Trinity Dodds - National TAB		
Completed Date :	11/06/2025 - 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:	

10-27-25 QT #1180 COLUMBIA, SC

CheckList Information

Name :	04: Final Tests	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	10/16/2025 - Trinity Dodds - National TAB		
Completed Date :	11/07/2025 - 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:

SMOKE PELLET

Smoke test capture % - Perimeter of hood

Comment:

100%

Smoke test capture % - Top of cooking surface

Comment:

100%

WITNESS

Date test was completed	11/06/2025

Comment:

TAB tech name / Firm

Comment:

/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: 10-27-25 QT #1180 COLUMBIA, SC

System/Unit: AHU/RTU

Asset: RT-1 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202006-ANEK20579
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5 X 22.5

Motor Data	
	Actual
Motor MFG	NL
Horsepower	3.0
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	10.6

Test Data		
	Design	**Actual**
SF CFM	4200	4163
SF RPM	-	DD/48 Hz
OA CFM (Hoods On)	800	844
OA CFM (Hoods Off)	350	352
RL Voltage	-	169 VFD
RL Amperage	-	8.90 VFD
VFD Max SetPt	-	48 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	24%

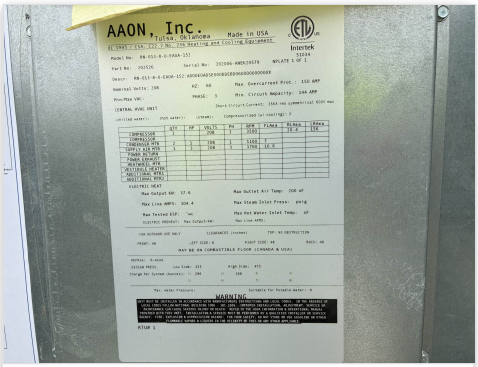
Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.49”
Fan Suction SP	-	-0.73”
Fan Discharge SP	-	0.16”
Total ESP	-	1.22”
Fan Total SP	-	0.89”

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

Completed By: Alex Bauer on 10/29/2025

Unit Data - PHOTO LOG

10/28/2025



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National TAB

Project: 10-27-25 QT #1180 COLUMBIA, SC

System/Unit: AHU/RTU

Asset: RT-2 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202006-ANEK20581
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5 X 22.5

Motor Data	
	Actual
Motor MFG	NL
Horsepower	3.0
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	NA

Test Data		
	Design	**Actual**
SF CFM	4200	4499
SF RPM	-	DD/53 Hz
OA CFM (Hoods On)	800	813
OA CFM (Hoods Off)	350	362
RL Voltage	-	202 VFD
RL Amperage	-	11.1 VFD
VFD Max SetPt	-	53 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	34%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.77”
Fan Suction SP	-	-1.05”
Fan Discharge SP	-	0.24”
Total ESP	-	1.82”
Fan Total SP	-	1.29”

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

Completed By: Alex Bauer on 10/29/2025

Unit Data - PHOTO LOG

10/28/2025

10/28/2025

National TAB

Project: 10-27-25 QT #1180 COLUMBIA, SC

System/Unit: AHU/RTU

Asset: RT-3 AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	202006-ANEK20580
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5X22.5

Motor Data	
	Actual
Motor MFG	NL
Horsepower	3.0
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	NA

Test Data		
	Design	**Actual**
SF CFM	4200	4033
SF RPM	-	DD/37 Hz
OA CFM (Hoods On)	800	820
OA CFM (Hoods Off)	350	322
RL Voltage	-	101 VFD
RL Amperage	-	6.84 VFD
VFD Max SetPt	-	37 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	26%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.364”
Fan Suction SP	-	-0.600”
Fan Discharge SP	-	0.198”
Total ESP	-	0.964”
Fan Total SP	-	0.798”

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

Completed By: Alex Bauer on 11/05/2025

Unit Data - PHOTO LOG

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National TAB

Project:10-27-25 QT #1180 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	1061	1061	816	102.0
SGRD2	SUPPORT SERVICE	SI	12"	800	1	810	810	764	95.5
SGRD3	SUPPORT SERVICE	SI	12"	800	1	956	956	868	108.5
SGRD4	SUPPORT SERVICE	SI	12"	800	1	961	961	911	113.9
SGRD5	WORKROOM	ES	10"	500	1	294	297	259	51.8
SGRD6	WORKROOM	ES	8"	250	1	214	214	194	77.6
SGRD7	WORKROOM	ER	8"	250	1	249	249	221	88.4
Total				4200		4545	4548	4033	96.02%

Completed By: Alex Bauer on 11/05/2025

National TAB

Project: 10-27-25 QT #1180 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	-	4449947
Type	-	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	48Y
Horsepower	-	0.50
Motor Rpm	-	1625
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	2.8
Service Factor	-	1

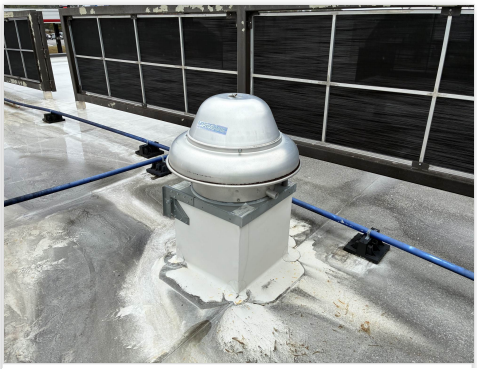
Test Data		
	Design	**Actual**
CFM	750	711
Fan RPM	-	90%
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	90%
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.160”
Fan Inlet SP	-	-0.160”
Fan Discharge SP	-	ATMO

Completed By: Alex Bauer on 11/05/2025

Notes:
Speed dial set to 90% of maximum.

Written By: Alex Bauer on 11/05/2025

Unit Data - PHOTO LOG



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National TAB

Project:10-27-25 QT #1180 COLUMBIA, SC

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	SUPPORT SERVICE	RI	8"	150	1	70	80	80	53.3
Total				150		70	80	80	53.33%

National TAB

Project: 10-27-25 QT #1180 COLUMBIA, SC

System/Unit: FAN - Exhaust

Asset: EF3 AREA:KITCHEN HD

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	4449947
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	NL
Horsepower	1/2	0.333
Motor Rpm	-	1725
Phase	-	3
Voltage (rated)	-	208
Amperage (rated)	-	1.35
Service Factor	-	1.25

Test Data		
	Design	**Actual**
CFM	1350	1373
Fan RPM	-	DD/57.8 Hz
Fan Rotation	-	CCW
Motor RPM	-	DD/57.8 Hz
System SetPt	-	57.8 Hz
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.46”
Fan Inlet SP	-	-0.46”
Fan Discharge SP	-	ATMO

Completed By: Alex Bauer on 11/06/2025

Unit Data - PHOTO LOG

10/28/2025

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National TAB

Project: 10-27-25 QT #1180 COLUMBIA, SC

System/Unit: Kitchen Hood Type I

Asset: HD1 AREA:GRIDDLE

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	6030ND-2-F	6030 ND-2
Job / Serial Num	-	7619810
Type	TYPE I CANOPY	TYPE I CANOPY
Hood length	-	108”
Hood Width	-	60”

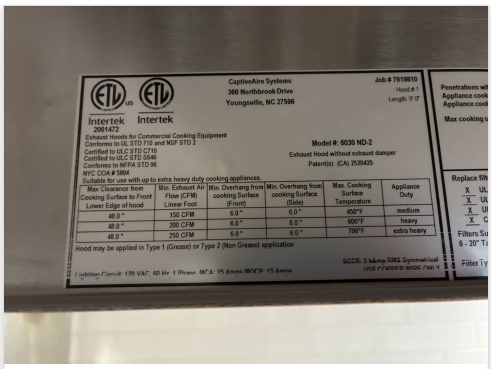
Test Data Exhaust		
	Design	**Actual**
Filter Type	-	BAFFLE FILTERS
Filter Size 1	-	16X20
Filter Qty 1	-	6
Filter AK factor size 1	-	2.08
Filter Total AK Area	-	12.48
Filter1 FPM	-	98
Filter2 FPM	-	114
Filter3 FPM	-	109
Filter4 FPM	-	129
Filter5 FPM	-	106
Filter6 FPM	-	109
Filter Ave FPM(corr)	-	111
CFM	1350	1373

Cooking Equipment	
	Actual
Item 1	FRYER
Item 2	PIZZA OVEN

Completed By: Alex Bauer on 11/06/2025

Unit Data - PHOTO LOG

11/06/2025



11/06/2025

1. Open IMG_0235.mp4