

Report By:

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



Report: TAB Report
Function: Test, Adjust, & Balance
Date: 10/31/2025
Completed By: National TAB

PROJECT
11-17-25 QT #1178 CLINTON, SC

18985 Hwy 72 E

CLINTON, SC

Client

QUIKTRIP
4705 SOUTH 129TH EAST AVENUE
TULSA, OK 74134

National TAB

Project: 11-17-25 QT #1178 CLINTON, SC

Table Of Contents

Section	Page #
Summary	3
Issue Data	4
Balance Schedule	8
Checklist	9
RTU-1	15
RTU-2	17
RTU-3	19
RTU-4	22
EF-1 - Exhaust	24
Combi-Oven Grille	26
EF-2 - Exhaust	27
EF-3 - Hood Exhaust	29
Kitchen Hood Type I	31
GRD Layout	33



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 Low Flow
- EF-2 Low Flow
- Incorrect Kitchen Diffusers



11-17-25 QT #1178 CLINTON, SC

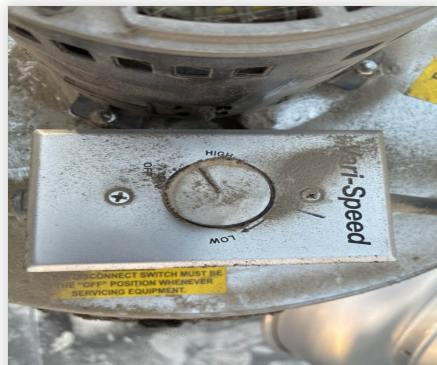
Project Issue Information

Issue Name : EF-1 Low Flow
Description : The EF-1 speed dial is set to MAX and the air being exhausted is not enough.
Created By : National TAB **Assigned To :** National TAB - Dan Hertenstein
Status : Open
Priority : Low **Asset Tag :** EF1
Originated Date : 11/20/2025 - Alex Bauer - National TAB

Project Issue File Details



11/20/2025



11/20/2025



11-17-25 QT #1178 CLINTON, SC

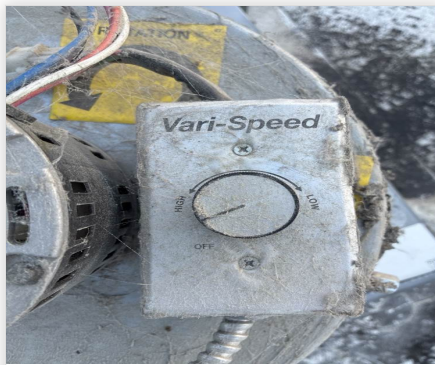
Project Issue Information

Issue Name : EF-2 Low Flow
Description : The EF-2 speed dial is set to MAX and the air being exhausted is not enough.
Created By : National TAB **Assigned To :** National TAB - Dan Hertenstein
Status : Open
Priority : Low **Asset Tag :** EF2
Originated Date : 11/20/2025 - Alex Bauer - National TAB

Project Issue File Details



11/20/2025



11/20/2025



11-17-25 QT #1178 CLINTON, SC

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 S1 diffusers with the pre-installed dampers.
Created By : National TAB **Assigned To :** National TAB - Dan Hertenstein
Status : Open
Priority : InfoOnly **Asset Tag :** RT-3
Originated Date : 11/20/2025 - Alex Bauer - National TAB

Project Issue File Details



11/20/2025

GRILLE, REGISTER, & DIFFUSER SCHEDULE

NO.	MANUFACTURER	MODEL	SERVICE	FACE SIZE	DECK SIZE	DESCRIPTION	NOTES
01	TTUS	3020	04043	18" X 18"	SEE PLAN	34" 20" BLAKE TRANSFER GRILLE AL. W/FE	02
02	TTUS	3025	04041	22" X 22"	SEE PLAN	20" BLAKE TRANSFER GRILLE AL. W/FE	03

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

11/20/2025



11/20/2025

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	865	876	415	375				
RTU-2	SALES	865	869	415	417				
RTU-3	KITCHEN/SALES	865	876	415	443				
RTU-4	DOCK/ELECTRIC	160	163	160	163				
EF-1	MEN'S RR					650	452	650	452
EF-2	WOMEN'S RR					350	172	350	172
EF-3	HOOD					1350	1373	0	0
TOTALS		2755	2784	1405	1398	2350	1997	1000	624

HOODS ON

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2755	2784
TOTAL EXHAUST	2350	1997
NET AIRFLOW	405	787

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.0065
SIDE	0.0001
REAR	0.0005
AVERAGE	0.0024

HOODS OFF

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1405	1398
TOTAL EXHAUST	1000	624
NET AIRFLOW	405	774

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.0175
SIDE	0.008
REAR	0.011
AVERAGE	0.0122

NOTES:

The left entrance doors are not sealed.

CheckList List

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



11-17-25 QT #1178 CLINTON, SC

CheckList Information

Name : 01: RTU's/AHU's **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/30/2025 - Trinity Dodds - National TAB

Completed Date : 11/20/2025 - 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	Fail
---	------

Comment:

RTU-1 (RTU-3 ON SITE), HAS CONSIDERABLE NOISE COMING FROM THE FAN FARTHEST FROM THE ECONOMIZER WHEN RUNNING.



11-17-25 QT #1178 CLINTON, SC

CheckList Information

Name : 02: Exhaust Fans **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/30/2025 - Trinity Dodds - National TAB

Completed Date : 11/20/2025 - 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:

Notes/Comments :

See issues list.

Date :11/20/2025



11-17-25 QT #1178 CLINTON, SC

CheckList Information

Name : 03: Hoods **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 10/30/2025 - Trinity Dodds - National TAB
Completed Date : 11/20/2025 - 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:



11-17-25 QT #1178 CLINTON, SC

CheckList Information

Name : 04: Final Tests **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 10/30/2025 - Trinity Dodds - National TAB
Completed Date : 11/20/2025 - 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

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:

The left side entrance doors are not sealed.



National TAB

Project: 11-17-25 QT #1178 CLINTON, SC

System/Unit: AHU/RTU

Asset: RT-1

AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202012-ANEL21435
Model Num	RN-015-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5X22.5
Num Final Filter 1	2
Final Filter Size 1	19.5X46.5

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	5
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	NA

Test Data		
	Design	Actual
SF CFM	5000	5192
SF RPM	-	DD
OA CFM (Hoods On)	865	876
OA CFM (Hoods Off)	415	375
RL Voltage	-	163 VFD
RL Amperage	-	9.75 VFD
VFD Max SetPt	-	51 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	34%

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.72"
Fan Suction SP	-	-1.00"
Fan Discharge SP	-	0.29"
Total ESP	-	1.72"
Fan Total SP	-	1.29"

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

Completed By: Alex Bauer on 11/20/2025

Notes:
RTU-1 on Facilibuild is RTU-3 in the field.

Written By: Alex Bauer on 11/20/2025



National TAB

Project: 11-17-25 QT #1178 CLINTON, SC

System/Unit: AHU/RTU

Asset: RT-2

AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202012-ANEL21436
Model Num	RN-015-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5X22.5
Num Final Filter 1	2
Final Filter Size 1	19.5X46.5

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	5
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	NA

Test Data		
	Design	Actual
SF CFM	5000	5049
SF RPM	-	DD
OA CFM (Hoods On)	865	869
OA CFM (Hoods Off)	415	417
RL Voltage	-	187 VFD
RL Amperage	-	10.6 VFD
VFD Max SetPt	-	52 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	34%

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.76"
Fan Suction SP	-	-1.07"
Fan Discharge SP	-	0.59"
Total ESP	-	1.83"
Fan Total SP	-	1.66"

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

Completed By: Alex Bauer on 11/20/2025

Notes:
RTU-2 on Facilibuild is RTU-4 in the field.

Written By: Alex Bauer on 11/20/2025

Unit Data - PHOTO LOG



11/20/2025



11/20/2025



National TAB

Project: 11-17-25 QT #1178 CLINTON, SC

System/Unit: AHU/RTU

Asset: RT-3

AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	202012-ANEK21434
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5X22.5
Num Final Filter 1	2
Final Filter Size 1	19.5X46.5

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

Test Data		
	Design	Actual
SF CFM	4200	4360
SF RPM	-	DD
OA CFM (Hoods On)	865	876
OA CFM (Hoods Off)	415	443
RL Voltage	-	121 VFD
RL Amperage	-	6.93 VFD
VFD Max SetPt	-	40 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	34%

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.45"
Fan Suction SP	-	-0.69"
Fan Discharge SP	-	0.38"
Total ESP	-	1.14"
Fan Total SP	-	1.07"

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

Completed By: Alex Bauer on 11/20/2025

Notes:

RTU-3 on Facilibuild is RTU-1 in the field.

[1] UNABLE TO ACCESS COOKLINE DIFFUSER DAMPERS.

Written By: Michael McDonnell on 12/15/2025



National TAB

Project:11-17-25 QT #1178 CLINTON, 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	SALES	ES	12"	700	1	335	469	600	85.7
SGRD2	SUPPORT SERVICE	SI	14"	875	1	481	669	837	95.7
SGRD3	SUPPORT SERVICE	SI	14"	875	1	559	777	979	111.9
SGRD4	SUPPORT SERVICE	SI	14"	875	1	601	835	1124	128.5
SGRD5	SUPPORT SERVICE	SI	14"	875	1	454	631	820	93.7
Total				4200		2430	3381	4360	103.81%



National TAB

Project: 11-17-25 QT #1178 CLINTON, SC

System/Unit: AHU/RTU

Asset: RT-4

AREA:DOCK/ELECTRICAL

Unit Data	
	Actual
MFG	AAON
Serial Num	202012-AYEF04676
Model Num	RQ-006-8-V-EA09-132
Num OA Filters 1	1
OA Filter Size 1	
Num Final Filter 1	1
Final Filter Size 1	19.5X46.5

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	2
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	NA

Test Data		
	Design	Actual
SF CFM	1800	1853
SF RPM	-	DD
OA CFM (Hoods On)	160	163
OA CFM (Hoods Off)	160	163
RL Voltage	-	166 VFD
RL Amperage	-	4.35 VFD
VFD Max SetPt	-	48 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	46%

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.68"
Fan Suction SP	-	-0.94"
Fan Discharge SP	-	0.47"
Total ESP	-	1.72"
Fan Total SP	-	1.41"

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

Completed By: Alex Bauer on 11/20/2025

Notes:
RTU-4 on Facilibuild is RTU-2 in the field.

Written By: Alex Bauer on 11/20/2025



National TAB

Project: 11-17-25 QT #1178 CLINTON, SC

System/Unit: FAN - Exhaust

Asset: EF1

AREA: MEN'S RR/Combi-Oven

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Model Num	NA	DR33HFA
Serial Num	-	4660049
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	HSSA
Frame	-	48Y
Horsepower	-	0.333
Motor Rpm	-	1625
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	3.8
Service Factor	-	1

Test Data		
	Design	Actual
CFM	650	452
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	MAX
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.16"
Fan Inlet SP	-	-0.16"
Fan Discharge SP	-	ATMO

Completed By: Alex Bauer on 11/20/2025

Unit Data - PHOTO LOG



11/20/2025



National TAB

Project:11-17-25 QT #1178 CLINTON, SC

Diffuser Ret/Exh (GRD)

EF1/MEN'S RR/Combi-Oven

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	COMBI-OVEN	RI	8"	150	1		134	144	96.0
Total				150		0	134	144	96%



National TAB

Project: 11-17-25 QT #1178 CLINTON, SC

System/Unit: FAN - Exhaust

Asset: EF2

AREA:WOMEN'S RR

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Model Num	NA	DR12HFA
Serial Num	-	4660049
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	HSSA
Frame	-	42Y
Horsepower	-	1/6
Motor Rpm	-	1625
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	2.4
Service Factor	-	1

Test Data		
	Design	Actual
CFM	350	172
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	MAX
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.11"
Fan Inlet SP	-	-0.11"
Fan Discharge SP	-	ATMO

Completed By: Alex Bauer on 11/20/2025

Unit Data - PHOTO LOG



11/20/2025



National TAB

Project: 11-17-25 QT #1178 CLINTON, SC

System/Unit: FAN - Exhaust

Asset: EF3

AREA:KITCHEN HD

Unit Data		
	Design	Actual
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	8189402
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	HSSA
Frame	-	48
Horsepower	1/2	0.5
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	6.2
Service Factor	-	1

Test Data		
	Design	Actual
CFM	1350	1373
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	60.8 Hz
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.81"
Fan Inlet SP	-	-0.81"
Fan Discharge SP	-	ATMO

Completed By: Alex Bauer on 11/20/2025

Unit Data - PHOTO LOG



11/20/2025



National TAB

Project: 11-17-25 QT #1178 CLINTON, 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	-	8189402
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	-	113
Filter2 FPM	-	111
Filter3 FPM	-	105
Filter4 FPM	-	113
Filter5 FPM	-	114
Filter6 FPM	-	108
Filter Ave FPM(corr)	-	110
CFM	1350	1373

Cooking Equipment	
	Actual
Item 1	OVEN
Item 2	FRYER

Completed By: Alex Bauer on 11/20/2025

Unit Data - PHOTO LOG



11/20/2025



11/20/2025

1. [Open](#) IMG_0321.mp4

