

**Report By:**

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



**Report: TAB Report**  
**Function: Test, Adjust, & Balance**  
**Date: 11/07/2025**  
**Completed By: National TAB**

**PROJECT**  
**11-03-25 QT #1435 GLENDALE, AZ**

3510 W HAPPY VALLEY RD

PHOENIX, AZ

**Client**

QUIKTRIP  
4705 SOUTH 129TH EAST AVENUE  
TULSA, OK 74134

# National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ

## Table Of Contents

<b>Section</b>	<b>Page #</b>
Summary	3
Remarks	4
Balance Schedule	10
Checklists	12
RTU-1	18
RTU-2	20
RTU-3	22
EF-1 - Exhaust	25
EF-3 - Hood Exhaust	27
Kitchen Hood Type I	29
GRD Layout	30



# National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ  
Function: Test, Adjust, & Balance

## 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: EXHAUST MOTOR TOO HIGH, SPEED CONTROLLER BAD
- RTU-1: CONDENSATE PIPE BROKEN
- RTU-2: BACK AREA NOT CONDITIONED
- RTU-3: DAMPERS INACCESSIBLE

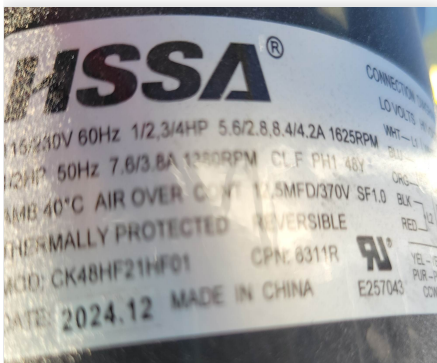


11-03-25 QT #1435 GLENDALE, AZ

**Project Issue Information**

**Issue Name :** EF-1: EXHAUST MOTOR TOO HIGH, SPEED CONTROLLER BAD  
**Description :** Exhaust fan should be 0.5HP and within 5.6A. Appears to be 0.75HP since fan current = 5.9A to 6.0A. Speed controller is not functioning correctly, barely adjusts fan speed, and doesn't turn unit off when clicked into 'off' position. Speed controller is set to lowest position and flow is twice design (1562/750cfm). Recommend service.  
**Created By :** National TAB                      **Assigned To :** National TAB - Dan Hertenstein  
**Status :** Open  
**Priority :** High                                      **Asset Tag :** EF1  
**Originated Date :** 11/06/2025 - Christine Weale - National TAB

Project Issue File Details



11/07/2025



11/07/2025

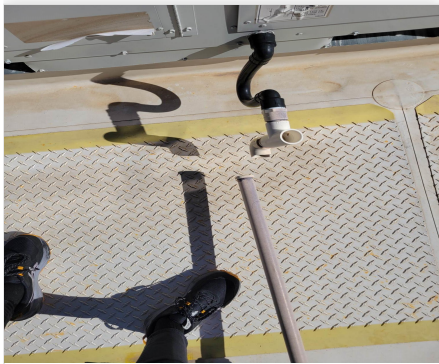


**11-03-25 QT #1435 GLENDALE, AZ**

**Project Issue Information**

**Issue Name :** RTU-1: CONDENSATE PIPE BROKEN  
**Description :** Condensate pipe is broken and will pool in front of unit.  
**Created By :** National TAB                      **Assigned To :** National TAB - Dan Hertenstein  
**Status :** Open  
**Priority :** InfoOnly                                      **Asset Tag :** RT-1  
**Originated Date :** 11/06/2025 - Christine Weale - National TAB

Project Issue File Details



11/07/2025

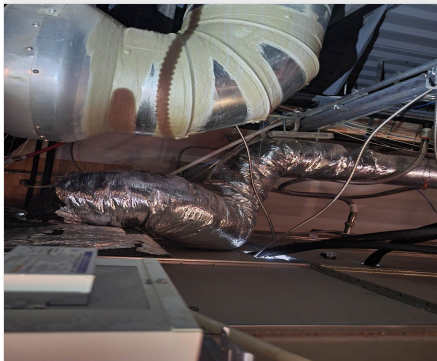


**11-03-25 QT #1435 GLENDALE, AZ**

**Project Issue Information**

**Issue Name :** RTU-2: BACK AREA NOT CONDITIONED  
**Description :** Diffuser 2-5 and duct are laying on top of the ceiling, pictures show where diffuser should be installed and another place it could be rerouted. Damper is closed, but back area is not being conditioned and may cause issues.  
**Created By :** National TAB                      **Assigned To :** National TAB - Dan Hertenstein  
**Status :** Open  
**Priority :** Medium                                      **Asset Tag :** SGRD5  
**Originated Date :** 11/06/2025 - Christine Weale - National TAB

Project Issue File Details



11/07/2025



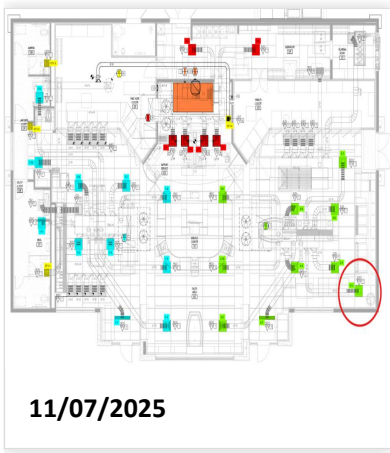
11/07/2025



11/07/2025

Project Issue Response Details

- **11/07/2025 National TAB - Michael McDonnell**
  - Location of Diffuser 2-5 and unconditioned space.



**11/07/2025**

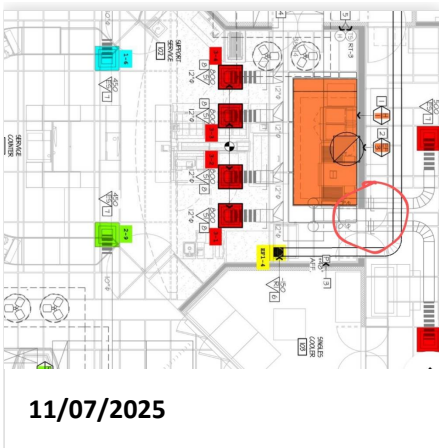


**11-03-25 QT #1435 GLENDALE, AZ**

**Project Issue Information**

**Issue Name :** RTU-3: DAMPERS INACCESSIBLE  
**Description :** Dampers for Diffusers 3-5 and 3-6, which serve the BOH, are inaccessible. 3-5 is above design and 3-6 is below design as a result. Total airflow for BOH area is within design. Recommend moving to a more accessible location in future stores so diffusers can be properly balanced.  
**Created By :** National TAB                      **Assigned To :** National TAB - Dan Hertenstein  
**Status :** Open  
**Priority :** Low                                      **Asset Tag :** SGRD6  
**Originated Date :** 11/06/2025 - Christine Weale - National TAB

**Project Issue File Details**



### 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	853	350	371				
RTU-2	SALES	800	846	350	316				
RTU-3	BOH/KITCHEN	800	880	350	385				
EF-1	RR/JANITOR					750	1562	750	1562
EF-3	HOOD					1350	1441	0	0
<b>TOTALS</b>		<b>2400</b>	<b>2579</b>	<b>1050</b>	<b>1072</b>	<b>2100</b>	<b>3003</b>	<b>750</b>	<b>1562</b>

### HOODS ON

#### NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2579
TOTAL EXHAUST	2100	3003
<b>NET AIRFLOW</b>	<b>300</b>	<b>-424</b>

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.002
SIDE	0.002
REAR	0.006
<b>AVERAGE</b>	<b>0.0033</b>

### HOODS OFF

#### NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1050	1072
TOTAL EXHAUST	750	1562
<b>NET AIRFLOW</b>	<b>300</b>	<b>-490</b>

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.002
SIDE	0.002
REAR	0.002
<b>AVERAGE</b>	<b>0.002</b>

NOTES:

National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ

- [Open QT\\_1435\\_BalSched.xlsx](#)

## CheckList List

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



**11-03-25 QT #1435 GLENDALE, AZ**

**CheckList Information**

**Name :** 01: RTU's/AHU's **Status :** Completed  
**Assigned Organization :** National TAB **Asset :**  
**Requesting Organization :** National TAB  
**Created Date :** 10/24/2025 - Trinity Dodds - National TAB  
**Completed Date :** 11/07/2025 - Christine Weale - 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? Pass

Comment:

---

Unit free of noticeable noise and vibration Pass

Comment:

---



11-03-25 QT #1435 GLENDALE, AZ

**CheckList Information**

**Name :** 02: Exhaust Fans **Status :** Completed  
**Assigned Organization :** National TAB **Asset :**  
**Requesting Organization :** National TAB  
**Created Date :** 10/24/2025 - Trinity Dodds - National TAB  
**Completed Date :** 11/07/2025 - Christine Weale - 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:

---



**11-03-25 QT #1435 GLENDALE, AZ**

**CheckList Information**

**Name :** 03: Hoods **Status :** Completed  
**Assigned Organization :** National TAB **Asset :**  
**Requesting Organization :** National TAB  
**Created Date :** 10/24/2025 - Trinity Dodds - National TAB  
**Completed Date :** 11/07/2025 - Christine Weale - 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?** Pass

**Comment:**

---



11-03-25 QT #1435 GLENDALE, AZ

**CheckList Information**

**Name :** 04: Final Tests **Status :** Completed

**Assigned Organization :** National TAB **Asset :**

**Requesting Organization :** National TAB

**Created Date :** 10/24/2025 - Trinity Dodds - National TAB

**Completed Date :** 11/07/2025 - Christine Weale - National TAB

**CheckList Item Details**

**FINAL CHECKS**

**HOOD CAPTURE TEST**

**List kitchen equipment turned on for testing**

**Comment:**

N/A

**List smoke candle type used**

**Comment:**

45s S102

**Smoke test capture % - Perimeter of hood**

**Comment:**

100

**Smoke test capture % - Top of cooking surface**

**Comment:**

100

**WITNESS**

**Date test was completed**

11/05/2025

**Comment:**

---

**TAB tech name / Firm**

**Comment:**

Christine Weale, NTI

---

**Site super name / Firm**

**Comment:**

T-Built

---

**Owner representative name / Firm (if Applicable)**

**Comment:**

---

**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:**

Building pressure w/ Hood on & off ~0.002 to 0.003"



# National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ

## System/Unit: AHU/RTU

Asset: RT-1

AREA:SALES FLOOR

Unit Data		
	Design	Actual
MFG	NA	AAON
Serial Num	-	202011-ANEK21198
Model Num	NA	RN-013-8-0-EA0A-152
Num OA Filters 1	-	1
OA Filter Size 1	-	45X22
Num Final Filter 1	-	2
Final Filter Size 1	-	46X19.5X2

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

Test Data		
	Design	Actual
SF CFM	4200	4315
SF RPM	-	45 HZ
OA CFM (Hoods On)	800	853
OA CFM (Hoods Off)	350	371
RL Voltage	-	150.3
RL Amperage	-	8.0
VFD Max SetPt	-	75.0
VFD Min SetPt	-	24.0
OA Damper Position (Hoods On)	-	46.0
OA Damper Position (Hoods Off)	-	0.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.55"
Fan Suction SP	-	-0.88"
Fan Discharge SP	-	0.20"
Total ESP	-	0.75"
Fan Total SP	-	1.08"

General	
	Actual
Fan Rotation Correct	YES
Unit Filters Clean	NO
Condensate Drain Installed	YES

Completed By: Christine Weale on 11/06/2025

**Notes:**

Unit 1 final filters are dirty and expired, condensate pipe is broken and does not lead to drain, will pool in front of unit.

Written By: Christine Weale on 11/06/2025

## Unit Data - PHOTO LOG



11/07/2025



11/07/2025



# National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ

## System/Unit: AHU/RTU

Asset: RT-2

AREA:SALES FLOOR

Unit Data		
	Design	Actual
MFG	NA	AAON
Serial Num	-	202011-ANEK21199
Model Num	NA	RN-013-8-0-EA0A-152
Num OA Filters 1	-	1
OA Filter Size 1	-	45X22
Num Final Filter 1	-	2
Final Filter Size 1	-	46X19.5X2

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

Test Data		
	Design	Actual
SF CFM	4200	4221
SF RPM	-	45 HZ
OA CFM (Hoods On)	800	846
OA CFM (Hoods Off)	350	316
RL Voltage	-	150.3
RL Amperage	-	8.0
VFD Max SetPt	-	75.0
VFD Min SetPt	-	24.0
OA Damper Position (Hoods On)	-	46.0
OA Damper Position (Hoods Off)	-	0.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.66"
Fan Suction SP	-	-0.91"
Fan Discharge SP	-	0.16"
Total ESP	-	0.82"
Fan Total SP	-	1.07"

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

Completed By: Christine Weale on 11/06/2025

**Notes:**

SGRD-5 is laying on top of the ceiling, no opening available due to not being installed in the correct spot. See Remarks.

Written By: Christine Weale on 11/06/2025

**Unit Data - PHOTO LOG**



11/07/2025



11/07/2025



# National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ

## System/Unit: AHU/RTU

Asset: RT-3

AREA:BOH/KITCHEN

Unit Data		
	Design	Actual
MFG	NA	AAON
Serial Num	-	202011-ANEK21199
Model Num	NA	RN-013-8-0-EA0A-152
Num OA Filters 1	-	1
OA Filter Size 1	-	45X22
Num Final Filter 1	-	2
Final Filter Size 1	-	46X19.5X2

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

Test Data		
	Design	Actual
SF CFM	4200	4247
SF RPM	-	47.4 HZ
OA CFM (Hoods On)	800	880
OA CFM (Hoods Off)	350	385
RL Voltage	-	166.3
RL Amperage	-	8.95
VFD Max SetPt	-	79
VFD Min SetPt	-	24
OA Damper Position (Hoods On)	-	46.0
OA Damper Position (Hoods Off)	-	0.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.72"
Fan Suction SP	-	-1.11"
Fan Discharge SP	-	0.14"
Total ESP	-	0.86"
Fan Total SP	-	1.25"

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

Completed By: Christine Weale on 11/06/2025

Notes:

OA left a bit high to make up for higher exhaust. Not out of design.

Written By: Christine Weale on 11/07/2025

## Unit Data - PHOTO LOG



11/07/2025



11/07/2025



**National TAB**  
 Project: 11-03-25 QT #1435 GLENDALE, AZ  
**AHU/RTU**

**Diffuser Supply (GRD)**

**RT-3/BOH/KITCHEN**

<b>Asset</b>									
<b>Asset Name</b>	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>	<b>FINAL CFM</b>	<b>% to design</b>
SGRD1	SUPPORT SERVICE	SI	12"	800	1	926	870	870	108.8
SGRD2	SUPPORT SERVICE	SI	12"	800	1	859	829	829	103.6
SGRD3	SUPPORT SERVICE	SI	12"	800	1	860	845	845	105.6
SGRD4	SUPPORT SERVICE	SI	12"	800	1	813	799	799	99.9
SGRD5	WORKROOM	ES	10"	500	1	673	632	632	126.4
SGRD6	WORKROOM	ES	10"	500	1	306	272	272	54.4
<b>Total</b>				4200		4437	4247	4247	101.12%

Completed By: Christine Weale on 11/06/2025

<b>Asset</b>	<b>Notes</b>	<b>Date</b>	<b>Written By</b>
SGRD6	Damper inaccessible.	11/06/2025	Christine Weale



# National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ

System/Unit: FAN - Exhaust

Asset: EF1

AREA:RR/JANITOR

Unit Data		
	Design	Actual
MFG	NA	CAPTIVEAIRE
Model Num	NA	DR50HFA
Serial Num	-	4639205
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	HSSA
Frame	-	48Y
Horsepower	-	0.75
Motor Rpm	-	1625
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	8.4
Service Factor	-	1.0

Test Data		
	Design	Actual
CFM	750	1562
Fan RPM	-	N/A
Fan Rotation	-	CCW
Motor RPM	-	N/A
System SetPt	-	LOW
RL Voltage	-	N/A
RL Amperage	-	5.9
Total ESP	-	1.29"
Fan Inlet SP	-	-1.29"
Fan Discharge SP	-	ATMS

Completed By: Christine Weale on 11/06/2025

Notes:  
UNABLE TO REDUCE FAN SPEED. SPEED CONTROLLER APPEARS BAD, NEEDS SERVICE.

Written By: Michael McDonnell on 11/07/2025

**Unit Data - PHOTO LOG**



**11/06/2025**



# National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ

System/Unit: FAN - Exhaust

Asset: EF3

AREA: KITCHEN HD

Unit Data		
	Design	Actual
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	7619811
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	NEMA
Frame	-	NL
Horsepower	1/2	0.5
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	208
Amperage (rated)	-	3.8
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	1350	1441
Fan RPM	-	1104
Fan Rotation	-	CCW
Motor RPM	-	1104
System SetPt	-	59%
RL Voltage	-	210.0
RL Amperage	-	2.34
Total ESP	-	0.52"
Fan Inlet SP	-	-0.52"
Fan Discharge SP	-	ATMS

Completed By: Christine Weale on 11/06/2025

**Unit Data - PHOTO LOG**



**11/06/2025**



# National TAB

Project: 11-03-25 QT #1435 GLENDALE, AZ

## System/Unit: Kitchen Hood Type I

Asset: HD1

AREA:GRIDDLE

### Unit Data

	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	6030ND-2-F	6030ND-2-F
Job / Serial Num	-	7619811
Type	-	UPBLAST
Hood length	-	108"
Hood Width	-	60"

### Test Data Exhaust

	Design	Actual
Filter Type	-	CAPTRATE SOLO
Filter Size 1	-	16X20
Filter Qty 1	-	6
Filter AK factor size 1	-	2.08
Filter Total AK Area	-	12.48
Filter1 FPM	-	116
Filter2 FPM	-	111
Filter3 FPM	-	116
Filter4 FPM	-	118
Filter5 FPM	-	120
Filter6 FPM	-	112
Filter Ave FPM(corr)	-	116
CFM	1350	1441

### Cooking Equipment

	Actual
Item 1	FRYERS
Item 2	COMBIOVEN

Completed By: Christine Weale on 11/06/2025

### Unit Data - PHOTO LOG



