

**Report By:**

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**Report: TAB Report**  
**Function: Test, Adjust, & Balance**  
**Date: 03/12/2026**  
**Completed By: National TAB**

**PROJECT**  
**03-02-26 QT #0419 MESA, AZ**

2026 W BROADWAY RD

MESA, AZ

**Client**

QUIKTRIP  
4705 SOUTH 129TH EAST AVENUE  
TULSA, OK 74134

# National TAB

Project: 03-02-26 QT #0419 MESA, AZ

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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

- EXHAUST FANS TOO LOW @MAX



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**Project Issue Information**

**Issue Name :** EXHAUST FANS TOO LOW @MAX  
**Description :** Both EF1 & EF2: Knob and inner potentiometer were turned both ways to make sure fans at max capability. Still not enough flow. VFD did not seem to change EF1 much, if at all, possibly wired incorrectly. High SP on EF1 and pic show backdraft damper not functioning - stuck shut blocking flow.  
**Created By :** National TAB                      **Assigned To :** National TAB - Dan Hertenstein  
**Status :** Open  
**Priority :** High                                      **Asset Tag :**  
**Originated Date :** 03/04/2026 - Christine Weale - National TAB

Project Issue File Details



03/12/2026

### 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	832	350	351				
RTU-2	SALES	800	832	350	358				
RTU-3	BOH/KITCHEN	800	839	350	364				
EF-1	WOMEN'S RR					225	126	225	126
EF-2	MEN'S RR					525	232	525	232
EF-3	HOOD					1350	1356	0	0
<b>TOTALS</b>		<b>2400</b>	<b>2503</b>	<b>1050</b>	<b>1073</b>	<b>2100</b>	<b>1714</b>	<b>750</b>	<b>358</b>

#### HOOD ON

##### NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2503
TOTAL EXHAUST	2100	1714
<b>NET AIRFLOW</b>	<b>300</b>	<b>789</b>

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.002
SIDE	0.003
REAR	0.004
<b>AVERAGE</b>	<b>0.003</b>

#### HOOD OFF

##### NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1050	1073
TOTAL EXHAUST	750	358
<b>NET AIRFLOW</b>	<b>300</b>	<b>715</b>

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

**NOTES:**

COULDN'T GET HOOD 'OFF' BP DUE TO KITCHEN BEING IN USE, SHOULDN'T BE ANY ISSUES PER BAL SCHEDULE.

## 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 :** 01/19/2026 - Trinity Dodds - National TAB  
**Completed Date :** 03/12/2026 - 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:



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CheckList Information

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

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

**Requesting Organization :** National TAB

**Created Date :** 01/19/2026 - Trinity Dodds - National TAB

**Completed Date :** 03/12/2026 - 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:



**03-02-26 QT #0419 MESA, AZ**

**CheckList Information**

**Name :** 03: Hoods **Status :** Completed  
**Assigned Organization :** National TAB **Asset :**  
**Requesting Organization :** National TAB  
**Created Date :** 01/19/2026 - Trinity Dodds - National TAB  
**Completed Date :** 03/12/2026 - 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:**

---



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**CheckList Information**

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

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

**Requesting Organization :** National TAB

**Created Date :** 01/19/2026 - Trinity Dodds - National TAB

**Completed Date :** 03/12/2026 - Christine Weale - National TAB

**CheckList Item Details**

**FINAL CHECKS**

**HOOD CAPTURE TEST**

**List kitchen equipment turned on for testing**

**Comment:**

All equipment on during testing.

**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**

03/03/2026

**Comment:**

---

**TAB tech name / Firm**

---

**Comment:**

---

**Site super name / Firm**

---

**Comment:**

---

**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

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**Comment:**

BP avg 0.003" w.c. w/ Hood ON. Due to kitchen being in use, fan not turned off for Hood OFF BP, but no issues anticipated per balance schedule.

---



# National TAB

Project: 03-02-26 QT #0419 MESA, AZ

System/Unit: AHU/RTU

Asset: RT-1

AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	201510-ANEL13123
Model Num	RN-015-8-0-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	
	Actual
Motor MFG	NL
Frame	NL
Horsepower	5.0
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	16.7

Test Data		
	Design	Actual
SF CFM	4200	4542
SF RPM	-	30 HZ
OA CFM (Hoods On)	800	832
OA CFM (Hoods Off)	350	351
RL Voltage	-	55.0
RL Amperage	-	7.97
VFD Max SetPt	-	50.0
VFD Min SetPt	-	24.0
OA Damper Position (Hoods On)	-	40.0
OA Damper Position (Hoods Off)	-	10.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.29"
Fan Suction SP	-	-0.46"
Fan Discharge SP	-	0.30"
Total ESP	-	.59"
Fan Total SP	-	0.76"

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

Completed By: Christine Weale on 03/12/2026



# National TAB

Project: 03-02-26 QT #0419 MESA, AZ

System/Unit: AHU/RTU

Asset: RT-2

AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	201510-ANEL13124
Model Num	RN-015-8-0-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	
	Actual
Motor MFG	NL
Frame	NL
Horsepower	5.0
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	16.7

Test Data		
	Design	Actual
SF CFM	4200	4357
SF RPM	-	27 HZ
OA CFM (Hoods On)	800	832
OA CFM (Hoods Off)	350	358
RL Voltage	-	49.4
RL Amperage	-	6.76
VFD Max SetPt	-	45.0
VFD Min SetPt	-	24.0
OA Damper Position (Hoods On)	-	40.0
OA Damper Position (Hoods Off)	-	10.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.26"
Fan Suction SP	-	-0.38"
Fan Discharge SP	-	0.17"
Total ESP	-	0.43"
Fan Total SP	-	0.55"

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

Completed By: Christine Weale on 03/12/2026



# National TAB

Project: 03-02-26 QT #0419 MESA, AZ

System/Unit: AHU/RTU

Asset: RT-3

AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	201510-ANEK13125
Model Num	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	
	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	4242
SF RPM	-	40.5 HZ
OA CFM (Hoods On)	800	839
OA CFM (Hoods Off)	350	364
RL Voltage	-	118.2
RL Amperage	-	8.55
VFD Max SetPt	-	67.5
VFD Min SetPt	-	24.0
OA Damper Position (Hoods On)	-	40.0
OA Damper Position (Hoods Off)	-	10.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.65"
Fan Suction SP	-	-0.87"
Fan Discharge SP	-	0.62"
Total ESP	-	1.27"
Fan Total SP	-	1.49"

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

Completed By: Christine Weale on 03/12/2026



# National TAB

Project:03-02-26 QT #0419 MESA, AZ

## 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	1151	1000	855	106.9
SGRD2	SUPPORT SERVICE	SI	12"	800	1	651	550	775	96.9
SGRD3	SUPPORT SERVICE	SI	12"	800	1	661	550	798	99.8
SGRD4	SUPPORT SERVICE	SI	12"	800	1	1046	865	806	100.8
SGRD5	DOCK	ES	12"	800	1	1209	1083	802	100.3
SGRD6	WORKROOM	ES	8"	200	1	209	212	206	103.0
Total				4200		4927	4260	4242	101%



# National TAB

Project: 03-02-26 QT #0419 MESA, AZ

## System/Unit: FAN - Exhaust

Asset: EF1

AREA:WOMEN'S RR

Unit Data		
	Design	Actual
MFG	NA	COOK
Model Num	NA	90ACEH-90C15DH
Serial Num	-	346SG10534
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	US MOTORS
Frame	-	48Y
Horsepower	-	0.125
Motor Rpm	-	1600
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	1.7
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	225	126
Fan RPM	-	N/A
Fan Rotation	-	CCW
Motor RPM	-	N/A
System SetPt	-	HIGH
RL Voltage	-	N/A
RL Amperage	-	0.98
Total ESP	-	0.58"
Fan Inlet SP	-	-0.58"
Fan Discharge SP	-	ATMS

Completed By: Christine Weale on 03/12/2026

Notes:  
LOW DUE TO DAMPER STUCK SHUT, SEE 'REMARKS'.

Written By: Christine Weale on 03/12/2026



# National TAB

Project: 03-02-26 QT #0419 MESA, AZ

## System/Unit: FAN - Exhaust

Asset: EF2

AREA: MEN'S RR/COMBI

Unit Data		
	Design	Actual
MFG	NA	COOK
Model Num	NA	101ACE-101C15D
Serial Num	-	346SG10534
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	US MOTORS
Frame	-	48Y
Horsepower	-	0.125
Motor Rpm	-	1600
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	1.7
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	525	232
Fan RPM	-	N/A
Fan Rotation	-	CCW
Motor RPM	-	N/Z
System SetPt	-	HIGH
RL Voltage	-	N/A
RL Amperage	-	0.98
Total ESP	-	0.14"
Fan Inlet SP	-	-0.14"
Fan Discharge SP	-	ATMS

Completed By: Christine Weale on 03/12/2026



# National TAB

Project:03-02-26 QT #0419 MESA, AZ

Diffuser Ret/Exh (GRD)

## EF2/MEN'S RR/COMBI

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	SUPPORT SERVICE	RI	8"	150	1	69	69	69	46.0
Total				150		69	69	69	46%



# National TAB

Project: 03-02-26 QT #0419 MESA, AZ

## System/Unit: FAN - Exhaust

Asset: EF3

AREA: KITCHEN HD

Unit Data		
	Design	Actual
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	8196369
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	NEMA (TELCO)
Frame	-	48
Horsepower	0.50	0.5
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	208	208
Amperage (rated)	-	3.8
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	1350	1356
Fan RPM	-	1194
Fan Rotation	-	CCW
Motor RPM	-	1194
System SetPt	-	52.8 HZ
RL Voltage	-	207.7
RL Amperage	-	2.25
Total ESP	0.75"	0.7"
Fan Inlet SP	-	-0.7"
Fan Discharge SP	-	ATMS

Completed By: Christine Weale on 03/05/2026



# National TAB

Project: 03-02-26 QT #0419 MESA, AZ

## System/Unit: Kitchen Hood Type I

Asset: HD1

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	6030ND-2-F	6030ND-2-F
Job / Serial Num	-	8196369
Type	TYPE I CANOPY	TYPE I CANOPY
Hood length	108"	108"
Hood Width	60"	60"

Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE SOLO FILTER	CAPTRATE SOLO
Filter Size 1	20X16	16X20
Filter Qty 1	6	6
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	12.48	12.48
Filter1 FPM	-	102
Filter2 FPM	-	104
Filter3 FPM	-	113
Filter4 FPM	-	116
Filter5 FPM	-	115
Filter6 FPM	-	102
Filter Ave FPM(corr)	-	108.67
CFM	1350	1356

Cooking Equipment	
	Actual
Item 1	FRYERS
Item 2	DUAL-OVEN

Completed By: Christine Weale on 03/05/2026

