Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 10/28/2025

Completed By: National TAB

PROJECT

10-13-25 QT #1409 GLENDALE, AZ

8045 N 51ST AVE

GLENDALE, AZ

Client

QUIKTRIP

4705 SOUTH 129TH EAST AVENUE

TULSA, OK 74134

National TAB

Project: 10-13-25 QT #1409 GLENDALE, 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

- EF-1: Combi-oven Grille Exhaust Low

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Project Issue Information

Issue Name : EF-1: Combi-oven Grille Exhaust Low

Description : EF1-GRD4 (combi-oven) damper is over the freezer and cannot be accessed easily or safely (hatch door is very heavy, and only accessed on an 8' ladder. No way to access the freezer from the back room. Recommend making sure damper is always completely open on install. Grille exhaust low.

Created By : National TAB

Assigned To : National TAB - Dan Hertenstein

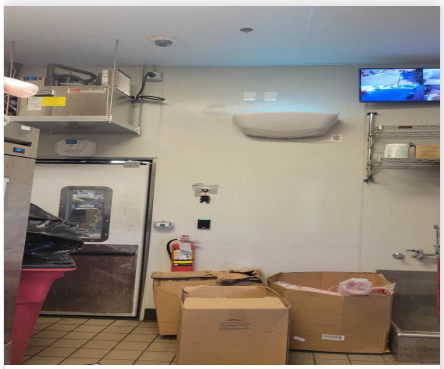
Status : Open

Priority : Low

Asset Tag : EGRD4

Originated Date : 10/16/2025 - Christine Weale - National TAB

Project Issue File Details



10/18/2025

10/18/2025

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	763	350	358				
RTU-2	SALES	800	820	350	358				
RTU-3	BOH/KITCHEN	800	825	350	344				
EF-1	RR/JANITOR					750	798	750	798
EF-3	HOOD					1350	1397	0	0
TOTALS		2400	2408	1050	1060	2100	2195	750	798

HOODS ON

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2408
TOTAL EXHAUST	2100	2195
NET AIRFLOW	300	213

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.007
SIDE	0.005
REAR	0.009
AVERAGE	**0.007**

HOODS OFF

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1050	1060
TOTAL EXHAUST	750	798
NET AIRFLOW	300	262

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.001
SIDE	0.004
REAR	0.003
AVERAGE	**0.0027**

NOTES:

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 :	09/17/2025 - Trinity Dodds - National TAB		
Completed Date :	10/17/2025 - 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:	

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CheckList Information

Name :	02: Exhaust Fans	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	09/17/2025 - Trinity Dodds - National TAB		
Completed Date :	10/17/2025 - 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:	

10-13-25 QT #1409 GLENDALE, AZ

CheckList Information

Name :	03: Hoods	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	09/17/2025 - Trinity Dodds - National TAB		
Completed Date :	10/17/2025 - 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:	

10-13-25 QT #1409 GLENDALE, AZ

CheckList Information

Name :	04: Final Tests	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	09/17/2025 - Trinity Dodds - National TAB		
Completed Date :	10/18/2025 - 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	10/17/2025

Comment:

TAB tech name / Firm

Comment:

Christine Weale, NTI

Site super name / Firm

Comment:

TBuilt

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 avg. Hood on: 0.003 & Hood off: 0.007.

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Project: 10-13-25 QT #1409 GLENDALE, AZ

System/Unit: AHU/RTU

Asset: RT-1 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202101-ANEK21595
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	4379
SF RPM	-	45 HZ
OA CFM (Hoods On)	800	763
OA CFM (Hoods Off)	350	358
RL Voltage	-	150.8
RL Amperage	-	7.20
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	-	-0.56"
Fan Suction SP	-	-0.79"
Fan Discharge SP	-	.07"
Total ESP	-	0.63"
Fan Total SP	-	0.86"

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

Completed By: Christine Weale on 10/17/2025

Unit Data - PHOTO LOG

10/17/2025

10/17/2025

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Project: 10-13-25 QT #1409 GLENDALE, AZ

System/Unit: AHU/RTU

Asset: RT-2 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202101-ANEK21596
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	4379
SF RPM	-	45 HZ
OA CFM (Hoods On)	800	820
OA CFM (Hoods Off)	350	358
RL Voltage	-	152.1
RL Amperage	-	7.30
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	-	-0.57"
Fan Suction SP	-	-0.77"
Fan Discharge SP	-	0.24"
Total ESP	-	0.81"
Fan Total SP	-	1.01"

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

Completed By: Christine Weale on 10/17/2025

Notes:
RTU2-GRD5 is installed in the incorrect place and is completely inaccessible - requiring damper closure during measure. Damper was reopened to former position after measurement, halfway. Picture attached to show.

Written By: Christine Weale on 10/16/2025

Unit Data - PHOTO LOG

10/17/2025

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Project: 10-13-25 QT #1409 GLENDALE, AZ

System/Unit: AHU/RTU

Asset: RT-3 AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	202101-ANEK21594
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	4044
SF RPM	-	45 HZ
OA CFM (Hoods On)	800	825
OA CFM (Hoods Off)	350	344
RL Voltage	-	151.8
RL Amperage	-	7.75
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	-	-0.67"
Fan Suction SP	-	-0.92"
Fan Discharge SP	-	0.26"
Total ESP	-	0.93"
Fan Total SP	-	1.18"

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

Notes:
RTU3-GRD6 almost inaccessible. Picture shows bent hood to measure diffuser which may have led to inaccurate measurement.

Written By: Christine Weale on 10/16/2025

Unit Data - PHOTO LOG

10/17/2025

10/17/2025

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Project:10-13-25 QT #1409 GLENDALE, 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	606	816	816	102.0
SGRD2	SUPPORT SERVICE	SI	12"	800	1	1009	828	828	103.5
SGRD3	SUPPORT SERVICE	SI	12"	800	1	984	836	836	104.5
SGRD4	SUPPORT SERVICE	SI	12"	800	1	735	841	841	105.1
SGRD5	WORKROOM	ES	10"	500	1	451	451	451	90.2
SGRD6	WORKROOM	ES	10"	500	1	251	272	272	54.4
Total				4200		4036	4044	4044	96.29%

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Project: 10-13-25 QT #1409 GLENDALE, AZ

System/Unit: FAN - Exhaust

Asset: EF1 AREA:RR/JANITOR

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DR50HFA
Serial Num	-	4685903
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NEMA
Frame	-	NL
Horsepower	-	0.5
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	6.3
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	750	798
Fan RPM	-	515
Fan Rotation	-	CCW
Motor RPM	-	515
System SetPt	-	32P
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.30"
Fan Inlet SP	-	-0.30"
Fan Discharge SP	-	ATMS

Completed By: Christine Weale on 10/17/2025

Unit Data - PHOTO LOG

10/17/2025

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Project:10-13-25 QT #1409 GLENDALE, AZ

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	74	74	74	49.3
Total				150		74	74	74	49.33%

Asset	Notes	Date	Written By
EGRD4	DAMPER NOT ACCESSIBLE, SEE ISSUE.	12/16/2025	Michael McDonnell

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Project: 10-13-25 QT #1409 GLENDALE, AZ

System/Unit: FAN - Exhaust

Asset: EF3 AREA:KITCHEN HD

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	7644880
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	1397
Fan RPM	-	1257
Fan Rotation	-	CCW
Motor RPM	-	1257
System SetPt	-	52.8 HZ
RL Voltage	-	112.5
RL Amperage	-	2.0
Total ESP	-	0.46"
Fan Inlet SP	-	-0.46"
Fan Discharge SP	-	ATMS

Completed By: Christine Weale on 10/17/2025

Unit Data - PHOTO LOG

10/17/2025

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Project: 10-13-25 QT #1409 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	-	7644880
Type	-	TYPE I CANOPY
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	-	107
Filter2 FPM	-	123
Filter3 FPM	-	111
Filter4 FPM	-	112
Filter5 FPM	-	117
Filter6 FPM	-	103
Filter Ave FPM(corr)	-	112
CFM	1350	1398

Cooking Equipment	
	Actual
Item 1	FRYER
Item 2	COMBIOVEN

Completed By: Christine Weale on 10/17/2025

Unit Data - PHOTO LOG

10/17/2025