Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 12/05/2025

Completed By: National TAB

PROJECT

12-15-25 QT #1405 GILBERT, AZ

3130 E. WILLIAMS FIELD RD

GILBERT, AZ

Client

QUIKTRIP

4705 SOUTH 129TH EAST AVENUE

TULSA, OK 74134

National TAB

Project: 12-15-25 QT #1405 GILBERT, AZ

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

- EF-1 CONDUIT INSIDE DAMPERS
- HINGE ON HOOD EXHAUST INSTALLED INCORRECTLY
- RTU-3 DAMPERS INACCESSIBLE
- WARM DAMP AREA NOT BEING CONDITIONED

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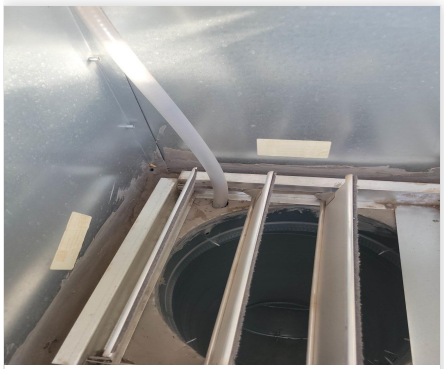
Project Issue Information

Issue Name : EF-1 CONDUIT INSIDE DAMPERS

Description : Conduit is inside backdraft dampers. Should not be installed here, dampers should be allowed to fully close to avoid backdraft coming into system.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	Low	**Asset Tag :**	EF1
Originated Date :	12/17/2025 - Christine Weale - National TAB		

Project Issue File Details



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Project Issue Information

Issue Name : HINGE ON HOOD EXHAUST INSTALLED INCORRECTLY

Description : Hinge should be installed opposite of the grease cup. Fan must be able to be tilted back completely.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	Medium	**Asset Tag :**	EF3
Originated Date :	12/16/2025 - Christine Weale - National TAB		

Project Issue File Details

12/16/2025

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Project Issue Information

Issue Name : RTU-3 DAMPERS INACCESSIBLE

Description : Dampers are inaccessible. Cannot be properly balanced. Recommend waiting to install kitchen tiles until balance is completed or making them more accessible.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	High	**Asset Tag :**	RT-3
Originated Date :	12/17/2025 - Christine Weale - National TAB		

Project Issue File Details

12/17/2025

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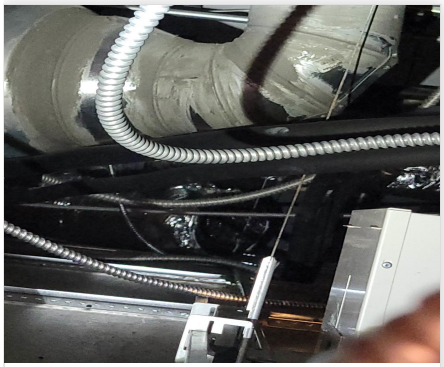
Project Issue Information

Issue Name : WARM DAMP AREA NOT BEING CONDITIONED

Description : Area behind soda machines is not being conditioned. RTU2-SGRD2 duct has been taken out and resting on top of ceiling instead of conditioning area. This area has many running machines and direct sun via windows, and therefore is very warm.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	Low	**Asset Tag :**	SGRD5
Originated Date :	12/17/2025 - Christine Weale - National TAB		

Project Issue File Details



12/17/2025

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	862	350	353				
RTU-2	SALES	800	866	350	378				
RTU-3	BOH/KITCHEN	800	880	350	374				
EF-1	RR/JANITOR					750	838	750	838
EF-3	HOOD					1350	1317	0	0
TOTALS		2400	2608	1050	1105	2100	2155	750	838

HOOD ON

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2608
TOTAL EXHAUST	2100	2155
NET AIRFLOW	300	453

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.003
SIDE	0.002
REAR	
AVERAGE	**0.0025**

HOOD OFF

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1050	1105
TOTAL EXHAUST	750	838
NET AIRFLOW	300	267

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.004
SIDE	0.003
REAR	
AVERAGE	**0.0035**

NOTES:

OA was increased and hood decreased to bring building neutral with Hood On. Rear door air curtain could not be shut off for measurement.

CheckList List

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

12-15-25 QT #1405 GILBERT, AZ

CheckList Information

Name :	01: RTU’s/AHU’s	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	12/05/2025 - Trinity Dodds - National TAB		
Completed Date :	12/16/2025 - 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 :	12/05/2025 - Trinity Dodds - National TAB		
Completed Date :	12/16/2025 - 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?	Fail
Comment: Hinge is installed on same side of grease cup, which hinders it from being tilted completely back; however, flex looks like it's long enough.	
No major leakage around the fan base	Pass
Comment:	
Unit is free of noise and vibration	Pass
Comment:	

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CheckList Information

Name :	03: Hoods	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	12/05/2025 - Trinity Dodds - National TAB		
Completed Date :	12/16/2025 - 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:	

12-15-25 QT #1405 GILBERT, AZ

CheckList Information

Name :	04: Final Tests	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	12/05/2025 - Trinity Dodds - National TAB		
Completed Date :	12/17/2025 - Christine Weale - National TAB		

CheckList Item Details

FINAL CHECKS

HOOD CAPTURE TEST

List kitchen equipment turned on for testing

Comment:

All equipment on at time of 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	12/16/2025

Comment:

Witnessed by QT EEs.

TAB tech name / Firm

Comment:

Christine Weale, NTI

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

Comment:

Building is

National TAB

Project: 12-15-25 QT #1405 GILBERT, AZ

System/Unit: AHU/RTU

Asset: RT-1 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202406-ANEK30948
Model Num	RN-013-8-0-HA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X22
Num Final Filter 1	2
Final Filter Size 1	46X19.5

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	4457
SF RPM	-	46.79 HZ
OA CFM (Hoods On)	800	862
OA CFM (Hoods Off)	350	353
RL Voltage	-	163
RL Amperage	-	8.0
VFD Max SetPt	-	78
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	-	-0.54"
Fan Suction SP	-	-0.79"
Fan Discharge SP	-	0.59"
Total ESP	-	1.13"
Fan Total SP	-	1.38"

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

Completed By: Christine Weale on 12/17/2025

National TAB

Project: 12-15-25 QT #1405 GILBERT, AZ

System/Unit: AHU/RTU

Asset: RT-2 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	202406-ANEK30950
Model Num	RN-013-8-0-HA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X22
Num Final Filter 1	2
Final Filter Size 1	46X19.5

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	4077
SF RPM	-	46.79 HZ
OA CFM (Hoods On)	800	866
OA CFM (Hoods Off)	350	378
RL Voltage	-	162.2
RL Amperage	-	7.6
VFD Max SetPt	-	78
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	-	-0.54"
Fan Suction SP	-	-0.77"
Fan Discharge SP	-	0.46"
Total ESP	-	1.00"
Fan Total SP	-	1.23"

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

Completed By: Christine Weale on 12/17/2025

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Project: 12-15-25 QT #1405 GILBERT, AZ

System/Unit: AHU/RTU

Asset: RT-3 AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	202406-ANEK30949
Model Num	RN-013-8-0-HA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X22
Num Final Filter 1	2
Final Filter Size 1	46X19.5

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	4668
SF RPM	-	50 HZ
OA CFM (Hoods On)	800	880
OA CFM (Hoods Off)	350	374
RL Voltage	-	181.3
RL Amperage	-	8.0
VFD Max SetPt	-	83.4
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	-	-0.81"
Fan Discharge SP	-	0.33"
Total ESP	-	0.89"
Fan Total SP	-	1.14"

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

Completed By: Christine Weale on 12/17/2025

National TAB

Project:12-15-25 QT #1405 GILBERT, 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	705	723	723	90.4
SGRD2	SUPPORT SERVICE	SI	12"	800	1	835	853	853	106.6
SGRD3	SUPPORT SERVICE	SI	12	800	1	789	823	823	102.9
SGRD4	SUPPORT SERVICE	SI	12"	800	1	740	757	757	94.6
SGRD5	DOCK	ES	10"	500	1	525	545	545	109.0
SGRD6	WORKROOM	ES	10"	500	1	516	617	617	123.4
SGRD7	ELECTRICAL	ER	8"	540	1	377	350	350	64.8
Total				4740		4487	4668	4668	98.48%

National TAB

Project: 12-15-25 QT #1405 GILBERT, AZ

System/Unit: FAN - Exhaust

Asset: EF1 AREA:RESTROOM/COMBI

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DR50HFA
Serial Num	-	6783229
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	838
Fan RPM	-	N/A
Fan Rotation	-	CCW
Motor RPM	-	N/A
System SetPt	-	LOW
RL Voltage	-	66
RL Amperage	-	7.4
Total ESP	-	0.18"
Fan Inlet SP	-	-0.18"
Fan Discharge SP	-	ATMS

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Unit Data - PHOTO LOG

12/17/2025

National TAB

Project:12-15-25 QT #1405 GILBERT, AZ

Diffuser Ret/Exh (GRD)

EF1/RESTROOM/COMBI

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD4	COMBI	RI	8"	150	1	303	300	300	200.0
Total				150		303	300	300	200%

National TAB

Project: 12-15-25 QT #1405 GILBERT, AZ

System/Unit: FAN - Exhaust

Asset: EF3 AREA:KITCHEN HD

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	7660158
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	1317
Fan RPM	-	1297
Fan Rotation	-	CCW
Motor RPM	-	1297
System SetPt	-	54.8 HZ - 68%
RL Voltage	-	212.2
RL Amperage	-	2.35
Total ESP	-	0.35"
Fan Inlet SP	-	-0.35"
Fan Discharge SP	-	ATMS

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Unit Data - PHOTO LOG

12/17/2025

National TAB

Project: 12-15-25 QT #1405 GILBERT, 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	-	7660158
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	-	104
Filter2 FPM	-	115
Filter3 FPM	-	115
Filter4 FPM	-	103
Filter5 FPM	-	95
Filter6 FPM	-	101
Filter Ave FPM(corr)	-	105.5
CFM	1350	1317

Cooking Equipment	
	Actual
Item 1	FRYERS
Item 2	DUAL-OVEN

Completed By: Christine Weale on 12/17/2025

Unit Data - PHOTO LOG

12/17/2025