

Report By:

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

**NATIONAL**

**TAB**

Comfort. Under control.

**Report: TAB REPORT**  
**Function: Test, Adjust, & Balance**  
**Date: 03/08/2023**

# PROJECT

## 03-06-23 TACO BELL - JACKSONVILLE, NC

185 FREEDOM WAY

JACKSONVILLE, NC

### Client

Flynn Restaurant Group  
6200 Oak Tree Boulevard  
Suite 250  
Independence, OH 44131

# National TAB

Project: 03-06-23 TACO BELL - JACKSONVILLE, NC

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Purpose of the visit was to address humidity concerns throughout the building.

Spoke with the general manager upon arrival. They shared a brief history of the issues which included humidity and temperature problems in the dining room, moisture on the windows, and uncomfortable temperatures in the kitchen.

Drawings were not provided for the space so target airflows were determined for the units based on nominal equipment sizes and application.

Went to the roof and found a number of issues:

- RTU-1
  - OA (outside air) damper was 100% open and the Return was closed.
  - Economizer enthalpy set point was on C (this will allow unit to economize during warmer/more humid outside air conditions)
  - Very Dirty Evaporator Filters
  - Broken apart Condensate drain.
- RTU-2
  - Extremely loose belt
  - Sheave is rusted
  - OA damper was found fully open
  - No OA filter
  - No Evaporator filter
- MUA-1
  - Rusted Fan Sheave
  - Rusted Fan Bore.
  - Corroded/dirty fan blades

The following steps were taken:

On RTU-1 airflow was measured to be just slightly low and so a small increase in speed (~10%) brought the unit into the target airflow. The OA was then set to an acceptable ratio and reduced the enthalpy setpoint.

RTU-2 the belt was really loose and was tightened. The motor sheave was rusted and spent significant time breaking it free so that airflow could be sped up. Airflow was initially around 310 CFM/ton (which is low) and it was increased to 387 CFM/ton. OA was reduced to an appropriate level.

KEF-1 serving is low for the application but according to operations only light cooking is performed on the equipment. Performed a smoke test and there was a significant amount of loss. Increased the fan speed to ensure satisfactory hood performance.

The MUA discharges in front of the hood with a linear style plenum. Inside the plenum there is a perforated grille. This style is not conducive for hood performance. Measured airflow to be around 300 CFM but based on the building pressure is probably closer to 500 CFM. While this unit is very low, did not attempt to increase it as doing so could cause capture problems or make comfort issues worse

Final building pressure was measured as +0.0148” which is slightly positive.

Spoke to the District Manager before leaving and they stated that the comfort was significantly improved and most comfortable it had been in a couple years.

Issue appears to be caused by outside air dampers on both RTU’s being fully open as well as a combination of maintenance and low airflow issues. Recommend monitoring as temperatures outside get warmer.

For any further questions contact:

Will Turnbough

National TAB

314-954-6244

[will@nationaltab.com](mailto:will@nationaltab.com)

There are several maintenance issues that remain that are recommended to be addressed. See following pages for details.



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## 03-06-23 TACO BELL - JACKSONVILLE, NC

### Project Issue Information

**Issue Name :** KEF-1 Grease trough

**Description :** Grease trough not installed for KEF-1. Grease is pooling on the roof near RTU-2. Recommend installing.

**Created By :** National TAB

**Assigned To :** National TAB - Will Turnbough

**Status :** Open

**Originated Date :** 03/08/2023 - JOASH ALBIN - National TAB

#### Project Issue File Details



greaseleaking.jpg



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### 03-06-23 TACO BELL - JACKSONVILLE, NC

#### Project Issue Information

**Issue Name :** MAU-1

**Description :** Belt is loose. Recommend installing properly sized belt. The interior of fan is dirty as well. Recommend cleaning blower wheel and inside housing.

**Created By :** National TAB

**Assigned To :** National TAB - Will Turnbough

**Status :** Open

**Originated Date :** 03/08/2023 - JOASH ALBIN - National TAB

#### Project Issue File Details



Dirty-blades.jpeg



Rusted-shiv-and-bore....



No-room-for-motor-adj...





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## 03-06-23 TACO BELL - JACKSONVILLE, NC

### Project Issue Information

**Issue Name :** RTU-1 dirty filters  
**Description :** RTU-1 filters are filthy and need to be replaced.  
**Created By :** National TAB                      **Assigned To :** National TAB - Will Turnbough  
**Status :** Open  
**Originated Date :** 03/08/2023 - JOASH ALBIN - National TAB

#### Project Issue File Details



Dirty-filters.jpeg



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## 03-06-23 TACO BELL - JACKSONVILLE, NC

### Project Issue Information

**Issue Name :** RTU-2

**Description :** No filters installed at the evaporator coil. Recommend installing.

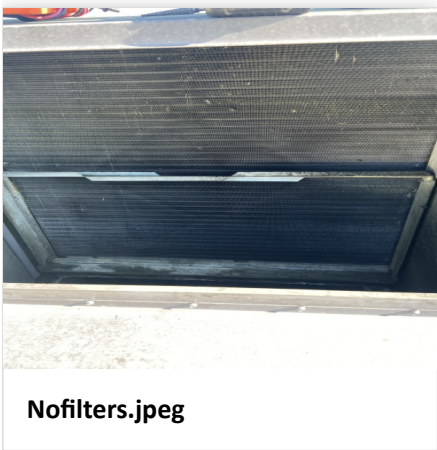
**Created By :** National TAB

**Assigned To :** National TAB - Will Turnbough

**Status :** Open

**Originated Date :** 03/08/2023 - JOASH ALBIN - National TAB

#### Project Issue File Details





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## 03-06-23 TACO BELL - JACKSONVILLE, NC

### Project Issue Information

**Issue Name :** RTU-2 gas line

**Description :** Gas line pinched. May not be an issue but recommend that a service company verify the heater is getting enough gas pressure and is functioning properly.

**Created By :** National TAB

**Assigned To :** National TAB - Will Turnbough

**Status :** Open

**Originated Date :** 03/08/2023 - JOASH ALBIN - National TAB

#### Project Issue File Details



PINCHEDtwistedgasline...



Fullgasline.jpeg

### AIR BALANCE SCHEDULE

UNIT	AREA SERVED	HVAC SUPPLY		HVAC RETURN		HVAC OUTDOOR		OA %		HOOD MAKE-UP		HOOD EXHAUST		GENERAL EXH.	
		DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
RTU-1	DINING	4000	3650	3300	2865	700	785	17.5%	21.5%						
RTU-2	KITCHEN	4000	3869	3300	3118	700	751	17.5%	19.4%						
SF-1	HOOD 1									1000	500				
EF-1	HOOD 1											2200	1745		
EF-2	RESTROOM													105	105
<b>TOTALS</b>		8000	7519	6600	5983	1400	1536			1000	500	2200	1745	105	105

#### NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2036
TOTAL EXHAUST	2305	1850
<b>NET AIRFLOW</b>	<b>95</b>	<b>186</b>

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.0075
SIDE	0.019
REAR	0.018
<b>AVERAGE</b>	<b>0.0148</b>

#### FINAL CHECKS

- ACTUAL NET AIRFLOW COINCIDES WITH DESIGN: ✓

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- MEASURED PRESSURES COINCIDES WITH ACTUAL NET AIRFLOW: ✓

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- PRESSURE FALLS WITHIN IMC TOLERANCE OF +/-0.02" W.C. ✓

NOTES:



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## 03-06-23 TACO BELL - JACKSONVILLE, NC

### CheckList Information

**Name :** TECH - SITE PICTURES **Status :** NotSubmitted  
**Assigned Organization :** National TAB **Asset :**  
**Requesting Organization :** National TAB

### CheckList Item Details

STORE FRONT



STOREFRONT.jpeg

RTU-1



RTU-1.jpeg

RTU-2



**RTU-2.jpeg**

EF-1



**KEF-1.jpeg**

EF-2



**RR-EXFAN.jpeg**

MUA



**MUA.png**

HD-2



**HOOD.jpeg**

**Notes/Comments :**



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### 03-06-23 TACO BELL - JACKSONVILLE, NC

#### CheckList Information

**Name :** TECH - STEP 1: INITIAL WALKTHROUGH **Status :** Submitted

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

**Requesting Organization :** National TAB

#### CheckList Item Details

##### INITIAL SITE WALKTHROUGH

All diffusers and grilles are installed and match design?	Yes
All hood filters installed and accounted for?	Yes
Hoods are wired and have power?	Yes
Hood is free of alarms?	Yes
Thermostats have power?	Yes
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	Yes

##### Notes/Comments :



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## 03-06-23 TACO BELL - JACKSONVILLE, NC

### CheckList Information

<b>Name :</b>	TECH - STEP 2: UNIT DATA AND EVAL	<b>Status :</b>	Submitted
<b>Assigned Organization :</b>	National TAB	<b>Asset :</b>	
<b>Requesting Organization :</b>	National TAB		

### CheckList Item Details

#### UNIT DATA AND EVALUATION WHILE GATHERING UNIT DATA CHECK THE FOLLOWING:

##### RTU's/AHU's

Economizers are assembled and functional?	RTU-2 does not have Economizer, just a slide for OA that has to be manually set RTU-1 is now working properly
DCV Max damper opening position is set to minimum?	Yes, on RTU-1
Free cooling enthalpy set point set for lowest setting (Typically "D")	Yes, on RTU-1
Motors are all operating below the FLA rating?	YES
Are belts tight?	YES
If direct drive unit is the speed controller working.	Yes
Is gas piping installed and valves turned on?	Yes
Unit free of noticeable noise and vibration	Yes

##### EF's

Rotation is correct?	Yes
Belts are tight?	Yes
Grease cup installed on hood fan?	No
Hinge kit installed installed on hood fan?	No, but fan is secured to curb
Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	Yes

Flex conduit is long enough so that fan can be completely tilted back?	Yes
There is no major leakage around base of fan?	No
Is the motor operating below the motor FLA rating?	Yes
For restroom fan(s) is the back draft damper installed and can it fully open?	Yes
Unit free of noticeable noise and vibration?	Yes

**MUA**

Rotation is correct?	Yes
Gas piping is installed and valves are in on position?	N/A
Heater tested and is functional?	N/A
Internal motorized damper is fully opening?	N/A
Motor is operating below the FLA rating?	Yes
Unit free of noticeable noise and vibration?	Yes

**HOODS**

Kitchen equipment installed in proper places?	Yes
Can kitchen equipment be turned on for final smoke test?	Yes

**DOCUMENTATION**

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	Yes
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**Notes/Comments :**

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### 03-06-23 TACO BELL - JACKSONVILLE, NC

#### CheckList Information

**Name :** TECH - STEP 3: TEST, ADJUST AND BALANCE **Status :** Submitted

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

**Requesting Organization :** National TAB

#### CheckList Item Details

##### TEST, ADJUST, AND BALANCE ALL EQUIPMENT:

##### DURING TESTING MAKE NOTE OF THE FOLLOWING:

Is space free of drafting?	Yes
Is space comfortable in all areas?	Yes
Is the space free of ventilation noise?	Yes
If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".	NA

##### Notes/Comments :



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### 03-06-23 TACO BELL - JACKSONVILLE, NC

#### CheckList Information

<b>Name :</b>	TECH - STEP 4: FINAL TESTS	<b>Status :</b>	Submitted
<b>Assigned Organization :</b>	National TAB	<b>Asset :</b>	
<b>Requesting Organization :</b>	National TAB		

#### CheckList Item Details

##### FINAL TESTS

##### HOOD CAPTURE TEST

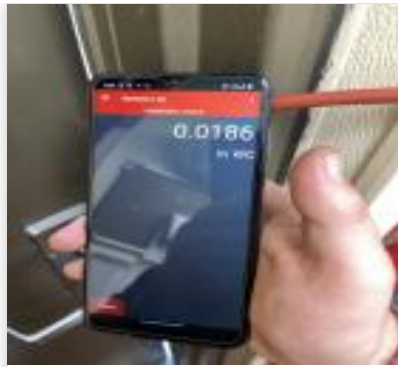
List equipment turned on for testing	FRYER/ FRYER
List smoke candle type used	S-102
Smoke test capture - Perimeter of hood	Yes 100%
Smoke test capture - Top of cooking surface	Yes,100%

##### WITNESS

Date test was completed	03/08/2023
TAB tech name / Firm	JOASH N ALBIN/ NTAB
Site super name / Firm	Video capture
Owner representative name / Firm (if Applicable)	Video capture
Building pressure at front & back doors (All Systems On)	Yes



Side.jpeg



Rear.jpeg



Front.jpeg

**ADDITIONAL**

Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative) No

Thermostats are programmed? Yes

**Notes/Comments :**

# National TAB

Project: 03-06-23 TACO BELL - JACKSONVILLE, NC

System/Unit: AHU/RTU



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Asset: RTU1

AREA:DINING

Unit Data		
	Design	Actual
MFG	NA	TRANE
Serial Num	-	211110977L
Model Num	NA	YHC120F3RHA25FOC1
Type	-	AC/DD
Configuration	-	RTU
Num OA Filters 1	-	1
OA Filter Size 1	-	14X32"
Num Final Filter 1	-	6
Final Filter Size 1	-	20X30X2

Motor Data		
	Design	Actual
Motor MFG	-	SELF CONTAINED
Frame	-	SELF CONTAINED
Horsepower	-	2.75 OFF LABEL
Motor Rpm	-	NL
Phase	-	3
Rated Voltage	-	208
Rated Amperage	-	7.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

Test Data		
	Design	Actual
SF CFM	-	3650
SF RPM	-	1289
RA CFM	-	2865
OA CFM	-	785
RL Voltage	-	213/214/211
RL Amperage	-	5.6/5.8/5.9
SF Rotation	-	CCW
RA Damper Position	-	80%
Min OA Damper Position	-	20%
Min OA Damper Type	-	SINGLEDB
OA Enthalpy Setpt	-	E

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.55"
Fan Suction SP	-	-0.87"
Fan Discharge SP	-	0.38"
Total ESP	-	0.93"
Fan Total SP	-	1.25"

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

Completed By: JOASH ALBIN

Notes:

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Project: 03-06-23 TACO BELL - JACKSONVILLE, NC

## System/Unit: AHU/RTU



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Asset: RTU2

AREA: KITCHEN

Unit Data		
	Design	Actual
MFG	NA	CARRIER
Serial Num	-	2716P33359
Model Num	NA	48TCDD12A2A5A0A0A0A0
Type	-	BELT
Configuration	-	HORIZONTAL

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	-	NL
Motor Rpm	-	1725
Phase	-	3
Rated Voltage	-	213/214/215
Rated Amperage	-	11.4

Drive Data		
	Design	Actual
Motor Sheave Size	-	5"
Motor Bore Size	-	0.875
Motor Sheave SetPt	-	1 OPEN
Fan Sheave Size	-	7.75"
Fan Sheave Bore	-	1.125
Belt CL Distance	-	17"
Num of Belts	-	1
Belt Size	-	AX49
Belt Alignment	-	LOOSE

Test Data		
	Design	Actual
SF CFM	-	3869
SF RPM	-	1115
RA CFM	-	3224
OA CFM	-	751
RL Voltage	-	213/214/215
RL Amperage	-	8.9/8.7/9.1
SF Rotation	-	CCW
RA Damper Position	-	85%
Min OA Damper Position	-	2" OPEN
Min OA Damper Type	-	SLIDE

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.85"
Fan Suction SP	-	-1.25"
Fan Discharge SP	-	0.58"
Total ESP	-	1.43"
Fan Total SP	-	1.83

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

Completed By: JOASH ALBIN

Notes:

# National TAB

Project: 03-06-23 TACO BELL - JACKSONVILLE, NC

System/Unit: FAN - Exhaust



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Asset: EF1

AREA:HOOD 1

Unit Data		
	Design	Actual
MFG	NA	KEF-1
Model Num	NA	NL
Serial Num	-	NL
Type	-	VERTICAL
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	LEESON
Frame	-	NL
Horsepower	-	1
Motor Rpm	-	1725
Phase	-	3
Voltage (rated)	-	230
Amperage (rated)	-	3.4
Service Factor	-	1.15

Drive Data		
	Design	Actual
Motor Sheave Size	-	3"
Motor Bore Size	-	0.625
Motor Sheave SetPt	-	1 OPEN
Fan Sheave Size	-	7"
Fan Sheave Bore	-	0.875
Belt CL Distance	-	11
Num of Belts	-	1
Belt Size	-	AX 28

Test Data		
	Design	Actual
CFM	-	1745
Fan RPM	-	756
Fan Rotation	-	CCW
Motor RPM	-	1735
RL Voltage	-	210/212/213
RL Amperage	-	2.8/3.2/2.9
Suction ESP	-	-0.78"
Discharge ESP	-	ATM
Total ESP	-	0.78"

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Notes:

# National TAB

Project: 03-06-23 TACO BELL - JACKSONVILLE, NC

## System/Unit: FAN - Exhaust



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Asset: EF2

AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	NA	INTERLINK
Model Num	NA	DDAR10BDD
Serial Num	-	2102750
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	CENTRY
Frame	-	NL
Horsepower	-	1/30
Motor Rpm	-	1550
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	1.1
Service Factor	-	1

Test Data		
	Design	Actual
CFM	-	105
Fan Rotation	-	CCW
Motor RPM	-	1550
System SetPt	-	MAX
RL Voltage	-	119
RL Amperage	-	0.95
Total ESP	-	0.05
Fan Inlet SP	-	-0.05
Fan Discharge SP	-	ATM

Completed By: JOASH ALBIN

Notes:

# National TAB

Project: 03-06-23 TACO BELL - JACKSONVILLE, NC

System/Unit: FAN - Supply



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Asset: SF1

AREA:HOOD 1

Unit Data		
	Design	Actual
MFG	NA	NL
Model Num	NA	NL
Serial Num	-	NL
Type	-	PSP
Configuration	-	VERTICAL

Test Data		
	Design	Actual
CFM	-	500
SF RPM	-	821
Motor RPM	-	1731
RL Voltage	-	211/212/213
RL Amperage	-	2.8/2.9/3.0
Total ESP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	143T
Horsepower	-	1
Motor Rpm	-	1730
Phase	-	3
Voltage (rated)	-	230
Amperage (rated)	-	3.4
Service Factor	-	1.15

General		
	Design	Actual
Fan Rotation Correct	-	YES

Drive Data		
	Design	Actual
Motor Sheave Size	-	4"
Motor Bore Size	-	0.625"
Fan Sheave Size	-	7"
Fan Sheave Bore	-	0.825"
Belt CL Distance	-	16"
Num of Belts	-	1
Belt Size	-	AX47
Belt Alignment Verified	-	GOOD

Gas Heat		
	Design	Actual
Heater Operates (y/n)	-	NO HEAT
Flame Status (pass/fail)	-	NO HEAT
Inlet Air Temp SetPt	-	ATM

Completed By: JOASH ALBIN

Notes: AIRFLOW MEASURED AS 300 CFM. BASED ON BUILDING PRESSURE HOWEVER IT IS LIKELY CLOSER TO 500 CFM. DIFFICULT TO ACCURATELY MEASURE AIRFLOW

# National TAB

Project: 03-06-23 TACO BELL - JACKSONVILLE, NC

System/Unit: Kitchen Hood Type I



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Asset: HD1

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	NA	NA
Model Num	NA	NA
Job / Serial Num	-	NA
Type	-	TYPE 1 W/PSP
Hood length	-	132
Hood Width	-	52

Test Data Exhaust		
	Design	Actual
Filter Type	-	BAFFLE
Filter Size 1	-	16X20
Filter Size 2	-	16X16
Filter Qty 1	-	5
Filter Qty 2	-	2
Filter Total AK Area	-	13.64
Filter1 FPM	-	121
Filter2 FPM	-	135
Filter3 FPM	-	135
Filter4 FPM	-	137
Filter5 FPM	-	124
Filter6 FPM	-	129
Filter7 FPM	-	118
Filter Ave FPM(corr)	-	128
CFM	-	1745

Cooking Equipment		
	Design	Actual
Item 1	-	FRYER
Item 2	-	FRYER

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Notes: