

Report By:

National TAB
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CINCINNATI, OH 45246

NATIONAL

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Comfort. Under control.

Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 11/28/2022

PROJECT

11-28 FREDDY'S BETHLEHEM, GA (WINDER)

NA

BETHLEHEM, GA

Client

Bethlehem Custard Operations LLC
503 Carl-Bethlehem Rd
Bethlehem, GA 30620

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

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Project Summary

The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report is further detail 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.

DOAS w/ Diffusers

Each of the DOAS were measured at their terminal devices or via traverse to establish a total flow for that unit. Each DOAS was adjusted to within tolerance of the engineer's design flow. Each outlet was then adjusted to within tolerance of the design flow. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. The outside air damper was adjusted until the airflow was within the design requirements. Any equipment that fell outside of that tolerance is noted throughout the report.

Kitchen Exhaust Hood & Associated Fans

Each 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. . Any EF's that fell outside of this tolerance is noted throughout the report.

General Exhaust Fans w/ Grilles

The general exhaust fans were measured by reading each air device with a flow hood. The total airflow for each fan is equivalent to the sum of these readings. Fan speed was then adjusted so that the airflow was within tolerance of design. Each terminal device was balanced to within tolerance of the design volume using the installed volume dampers. Any equipment that fell outside of this tolerance is noted throughout the report.

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 of $-0.02''$ wc to $+0.02''$ wc 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.

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CheckList Information

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

CheckList Item Details

DOAS-1



DOAS.jpeg

RTU-1



RTU-1.jpeg

KEF-1

KEF-2

KEF-3

EF-1

EF-2

HOOD-1



HD-1.jpeg

HOOD-2



HD-2.jpeg



Hd-2.jpeg

HOOD-3



HD-3.jpeg

Notes/Comments :



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CheckList Information

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

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

INITIAL SITE WALKTHROUGH

All diffusers and grilles are installed and match design?

All hood filters installed and accounted for?

Hoods are wired and have power?

Hood is free of alarms?

Thermostats have power?

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?

Notes/Comments :



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CheckList Information

Name :	TECH - STEP 2: UNIT DATA AND EVAL	Status :	NotSubmitted
Assigned Organization :	National TAB	Asset :	
Requesting Organization :	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?
- DCV Max damper opening position is set to minimum?
- Free cooling enthalpy set point set for lowest setting (Typically "D")
- Motors are all operating below the FLA rating?
- Are belts tight?
- If direct drive unit is the speed controller working.
- Is gas piping installed and valves turned on?
- Unit free of noticeable noise and vibration

EF's

- Rotation is correct?
- Belts are tight?
- Grease cup installed on hood fan?
- Hinge kit installed installed on hood fan?
- Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?

Flex conduit is long enough so that fan can be completely tilted back?

There is no major leakage around base of fan?

Is the motor operating below the motor FLA rating?

For restroom fan(s) is the back draft damper installed and can it fully open?

Unit free of noticeable noise and vibration?

MUA

Rotation is correct?

Gas piping is installed and valves are in on position?

Heater tested and is functional?

Internal motorized damper is fully opening?

Motor is operating below the FLA rating?

Unit free of noticeable noise and vibration?

HOODS

Kitchen equipment installed in proper places?

Can kitchen equipment be turned on for final smoke test?

Griddle is completely centered underneath hood?

DOCUMENTATION

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?

PICTURES TAKEN OF:

All Issues

Each Piece of equipment

Each Hood

Front of Store

Notes/Comments :



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CheckList Information

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

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?

Is space comfortable in all areas?

Is the space free of ventilation noise?

If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".

Notes/Comments :



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CheckList Information

Name : TECH - STEP 4: FINAL TESTS **Status :** NotSubmitted
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB

CheckList Item Details

FINAL TESTS

HOOD CAPTURE TEST

List equipment turned on for testing

List smoke candle type used

Smoke test capture - Perimeter of hood

Smoke test capture - Top of cooking surface

WITNESS

Date test was completed

TAB tech name / Firm

Site super name / Firm

Owner representative name / Firm (if Applicable)

Building pressure at front & back doors (All Systems On)

ADDITIONAL

Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)

Thermostats are programmed?

Thermostats Schedules: Program all thermostats to following settings:

All three thermostats have correct time/date? (if not set correctly)

Occupied Time: 8am-11:55pm

Occupied Fan ON

Occupied cooling 74

Occupied heating 68

Unoccupied Time 11:55pm-8am

Unoccupied Fan Auto

Unoccupied cooling 79

Unoccupied heating 63

Set a Partial Screen Lock for Thermostats (i.e., make sure temperature is adjustable but not schedule)

Password is set to 999 for Partial Screen Lock?

RTU Economizers

Note: These instructions are for Lennox units. There are similar settings for other OEMs. Call office for assistance if needed.

Enthalpy is set to "D" for all three units

"DCV Set" dials turned all the way to the left (counter clockwise)

"DCV Max" dials turned all the way to the left (counter clockwise)

Notes/Comments :

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: AHU/RTU



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Asset: DOAS1

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVE AIRE
Serial Num	-	5188729
Model Num	CASRTU3-I.300-1820TDOAS	CASRTU3-I.300-15-15T-DOAS
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16X25X2
Num Final Filter 1	-	8
Final Filter Size 1	-	20X25X2

Test Data		
	Design	Actual
SF CFM	2650	2562
SF RPM	-	1740
RA CFM	0	2562
OA CFM	2650	2562
RL Voltage	-	199 [1]
RL Amperage	-	5.3 [1]
SF Rotation	-	CCW
RA Damper Position	-	0%
Min OA Damper Position	-	100%
Min OA Damper Type	-	ECONOMIZER

Motor Data		
	Design	Actual
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	145T
Horsepower	3.0	2.0
Motor Rpm	-	1740
Phase	3	3
Rated Voltage	208	230
Rated Amperage	-	5.48

Performance Data		
	Design	Actual
MA Plenum SP	-	0.00
Fan Discharge SP	-	0.19"
Total ESP	0.5"	0.19"

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

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	60.0 HZ
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

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Project:11-28 FREDDY'S BETHLEHEM, GA (WINDER)

AHU/RTU



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Diffuser Supply (GRD)

DOAS1/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	KITCHEN	SD-3	10"	285	1.0	209	273	281	98.6
SGRD2	KITCHEN	SD-3	10"	285	1.0	211	282	280	98.2
SGRD3	KITCHEN	SD-3	10"	285	1.0	223	298	294	103.2
SGRD4	KITCHEN	SD-3	10"	285	1.0	205	283	289	101.4
SGRD5	KITCHEN	SD-3	10"	285	1.0	193	258	263	92.3
SGRD6	KITCHEN	SD-3	10"	285	1.0	185	248	264	92.6
SGRD7	KITCHEN	SD-3	10"	285	1.0	207	273	274	96.1
SGRD8	KITCHEN	SD-3	10"	280	1.0	168	231	258	92.1
SGRD9	KITCHEN	SD-4	8"	90	1.0	109	165	88	97.8
SGRD10	KITCHEN	SD-3	10"	285	1.0	198	275	271	95.1

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: AHU/RTU



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Asset: RTU1

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	
Model Num	LGH150	LGH150
Type	RTU	
Configuration	VERTICAL	
Num OA Filters 1	-	
OA Filter Size 1	-	
Num Final Filter 1	-	
Final Filter Size 1	-	
Num Final Filter 2	-	
Final Filter Size 2	-	

Test Data		
	Design	Actual
SF CFM	4850	
SF RPM	-	
RA CFM	3850	
OA CFM	1000	
RL Voltage	-	
RL Amperage	-	
SF Rotation	-	
RA Damper Position	-	
Min OA Damper Position	-	
Min OA Damper Type	-	
OA Enthalpy Setpt	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	3	
Rated Voltage	208	
Rated Amperage	-	

Performance Data		
	Design	Actual
MA Plenum SP	-	
Fan Suction SP	-	
Fan Discharge SP	-	
Total ESP	1.0	
Fan Total SP	-	

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

General		
	Design	Actual
Fan Rotation Correct	-	
Unit Filters Clean	-	
Condensate Drain Installed	-	

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Project:11-28 FREDDY'S BETHLEHEM, GA (WINDER)

AHU/RTU



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Diffuser Supply (GRD)

RTU1/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	DINING	SD-1	12"	520					-
SGRD2	DINING	SD-1	12"	520					-
SGRD3	DINING	SD-1	12"	520					-
SGRD4	DINING	SD-1	12"	520					-
SGRD5	DINING	SD-1	14"	520					-
SGRD6	DINING	SD-1	12"	500					-
SGRD7	DINING	SD-1	12"	500					-
SGRD8	DINING	SD-1	12"	500					-
SGRD9	DINING	SD-1	12"	500					-
SGRD10	RESTROOM	SD-5	10"	100					-
SGRD11	RESTROOM	SD-5	6"	100					-
SGRD12	RESTROOM	SD-5	6"	50					-

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: FAN - Exhaust



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Asset: EF1

AREA:

Unit Data		
	Design	Actual
MFG	COOK	COOK
Model Num	GC-146	GEMINI 140 SERIES
Serial Num	-	515738
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	QUEACE
Frame	-	NL
Horsepower	-	NL
Motor Rpm	900	1550
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	0.40

Test Data		
	Design	Actual
CFM	75	78
Fan RPM	-	DD
Fan Rotation	-	CW
Motor RPM	-	DD
System SetPt	-	SPEED CONTROLLER MARKED
RL Voltage	-	120
RL Amperage	-	0.30
Total ESP	0.25"	NA [1]
Fan Inlet SP	-	NA [1]
Fan Discharge SP	-	NA [1]

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: FAN - Exhaust



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Asset: EF2

AREA:

Unit Data		
	Design	Actual
MFG	COOK	COOK
Model Num	GC-186	GEMINI 180 SERIES
Serial Num	-	615740
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	QUEACE
Frame	-	NL
Horsepower	-	NL
Motor Rpm	820	1350
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	1.0

Test Data		
	Design	Actual
CFM	150	158
Fan RPM	-	DD
Fan Rotation	-	CW
Motor RPM	-	DD
System SetPt	-	SPEED CONTROLLER MARKED
RL Voltage	-	120
RL Amperage	-	0.80
Total ESP	0.25"	NA [1]
Fan Inlet SP	-	NA [1]
Fan Discharge SP	-	NA [1]

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Notes: [1] COULD NOT ACCESS DUE TO HARD CEILING.

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: FAN - Exhaust



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Asset: KEF1

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVAIRE	CAPTIVAIRE
Model Num	CASRE18DD	DU85HFA
Serial Num	-	5188729
Type	UTILITY	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	1.0	0.75
Motor Rpm	1105	1800
Phase	3	1
Voltage (rated)	208	208
Amperage (rated)	-	5.2

Test Data		
	Design	Actual
CFM	1600	1701
Fan RPM	-	1404
Fan Rotation	-	CCW
Motor RPM	-	1404
System SetPt	-	78%
RL Voltage	-	
RL Amperage	-	
Total ESP	1.4"	
Fan Inlet SP	-	
Fan Discharge SP	-	

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: FAN - Exhaust



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Asset: KEF2

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU50HFA	DU50HFA
Serial Num	-	5188729
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	-	0.5
Motor Rpm	1532	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	6.3

Test Data		
	Design	Actual
CFM	775	826
Fan RPM	-	1260
Fan Rotation	-	CCW
Motor RPM	-	1260
System SetPt	-	70%
RL Voltage	-	
RL Amperage	-	
Total ESP	1.25"	
Fan Inlet SP	-	
Fan Discharge SP	-	

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: FAN - Exhaust



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Asset: KEF3

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU33HFA	DU33HFA
Serial Num	-	
Type	UPBLAST	
Configuration	VERTICAL	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.333	
Motor Rpm	1487	
Phase	1	
Voltage (rated)	115	
Amperage (rated)	-	
Service Factor	-	

Test Data		
	Design	Actual
CFM	525	
Fan RPM	-	
Fan Rotation	-	
Motor RPM	-	
System SetPt	-	
RL Voltage	-	
RL Amperage	-	
Total ESP	0.8"	
Fan Inlet SP	-	
Fan Discharge SP	-	

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: Kitchen Hood Type I



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Asset: HD1

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424ND-2	5424 ND-2
Job / Serial Num	-	5188729
Type	TYPE I LOW PROXIMITY	TYPE I LOW PROXIMITY
Hood length	96	96
Hood Width	54	54

Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE SOLO FILTER	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	6	6
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	9.72	9.72
Filter1 FPM	-	167
Filter2 FPM	-	168
Filter3 FPM	-	184
Filter4 FPM	-	190
Filter5 FPM	-	176
Filter6 FPM	-	166
Filter Ave FPM(corr)	-	175
CFM	1600	1701

Cooking Equipment		
	Design	Actual
Item 1	-	GRIDDLE

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: Kitchen Hood Type I



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Asset: HD2

AREA:

Unit Data

	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424 ND-2	5424 ND-2
Job / Serial Num	-	5188729
Type	TYPE I LOW PROXIMITY	TYPE I LOW PROXIMITY
Hood length	60	60
Hood Width	54	54

Test Data Exhaust

	Design	Actual
Filter Type	CAPTRATE SOLO FILTER	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	3	3
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	4.86	4.86
Filter1 FPM	-	167
Filter2 FPM	-	174
Filter3 FPM	-	170
Filter Ave FPM(corr)	-	170
CFM	775	826

Cooking Equipment

	Design	Actual
Item 1	-	FRYER

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Project: 11-28 FREDDY'S BETHLEHEM, GA (WINDER)

System/Unit: Kitchen Hood Type II



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Asset: HD3

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	4224 VHB-G	4224 VHB
Serial Num	-	5188729
Type	TYPE II CANOPY	TYPE II CANOPY
Hood length	42	42
Hood Width	42	42

Test Data		
	Design	Actual
Exhaust CFM	525	522

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