

Report By:

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SUITE 4210
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Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 09/17/2024

PROJECT
09-09-24 TRUE FOOD SCOTTSDALE, AZ

8980 N. STREET #124

SCOTTSDALE, AZ 85258

Client

True Food Kitchen
4455 E Camelback Rd, Ste B100

Phoenix, AZ 85018

National TAB

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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.

RTU's (Roof Top Units) w/ Diffusers

Each of the RTU's were measured at their terminal devices or via traverse to establish a total flow for that unit. Each RTU 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.

Issue List

- DAMPERS MISSING
- EF-1 HIGH AIRFLOW



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Project Issue Information

Issue Name : DAMPERS MISSING
Description : Dampers are not installed for some air devices on DOAS-1 and DOAS-2. Dampers are not shown on plans which is why the contractor did not install them. Diffusers are balanced for DOAS-1 without dampers but are needed on DOAS-2. Total airflow is within design, but the individual diffusers are not balanced.

Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Closed
Priority : InfoOnly **Asset Tag :** DOAS 2
Originated Date : 09/17/2024 - Will Turnbough - National TAB

Project Issue Response Details

- **09/20/2024 National TAB - Will Turnbough**
 - All dampers that could be installed are now installed. The total flow for the dining room is within design but the branch with the exposed spiral duct is high on flow. It is not possible to install a damper in this branch. Not anticipated to cause any comfort problems since the total flow is within design for the open dining area.



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Project Issue Information

Issue Name : EF-1 HIGH AIRFLOW
Description : EF is a single speed fan and is high on flow (239 CFM out of design of 150 CFM). No further action is necessary since the high airflow did not affect building pressure. A speed controller would be needed to reduce airflow further.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Priority : InfoOnly **Asset Tag :** EF1
Originated Date : 09/13/2024 - David Nicolas Sanchez - National TAB

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
DOAS-1	DINING	2865	2631	0	0	2865	2631	100.0%	100.0%						
DOAS-2	DINING	3424	3157	2720	2399	704	758	20.6%	24.0%						
KEF-1	HOODS 1,2,3											2365	2346		
KEF-2	HOOD 4											500	528		
EF-1	RESTROOM													150	239
TOTALS		6289	5788	2720	2399	3569	3389			0	0	2865	2874	150	239

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	3569	3389
TOTAL EXHAUST	3015	3113
NET AIRFLOW	554	276

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.0044
SIDE	0.0028
REAR	-0.0061
AVERAGE	0.0004

FINAL CHECKS

- ACTUAL NET AIRFLOW COINCIDES WITH DESIGN: ✓
- MEASURED PRESSURES COINCIDES WITH ACTUAL NET AIRFLOW: ✓
- PRESSURE FALLS WITHIN IMC TOLERANCE OF +/-0.02" W.C. ✓

NOTES:

CheckList List

- TECH - STEP 1: INITIAL WALKTHROUGH
- TECH - STEP 2: UNIT DATA AND EVAL
- TECH - STEP 3: TEST, ADJUST AND BALANCE
- TECH - STEP 4: FINAL TESTS



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CheckList Information

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

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 09/11/2024 - Laura Robinson - National TAB

Completed Date : 09/12/2024 - David Nicolas Sanchez - National TAB

CheckList Item Details

INITIAL SITE WALKTHROUGH

All diffusers and grilles are installed and match design? Yes

Comment:

All hood filters installed and accounted for? Yes

Comment:

Hoods are wired and have power? Yes

Comment:

Hood is free of alarms? Yes

Comment:

Thermostats have power? Yes

Comment:

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

Comment:

Yes



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CheckList Information

Name : TECH - STEP 2: UNIT DATA AND EVAL **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 09/11/2024 - Laura Robinson - National TAB

Completed Date : 09/12/2024 - David Nicolas Sanchez - 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? Yes

Comment:

DCV Max damper opening position is set to minimum? Yes

Comment:

Free cooling enthalpy set point set for lowest setting (Typically "D") N/A

Comment:

Motors are all operating below the FLA rating? Yes

Comment:

Are belts tight?

Comment:

N/A

If direct drive unit is the speed controller working.

Comment:

Yes

Is gas piping installed and valves turned on?

Yes

Comment:

Unit free of noticeable noise and vibration

Comment:

EF's

Rotation is correct?

Comment:

Belts are tight?

Comment:

N/A

Grease cup installed on hood fan?

Yes

Comment:

Hinge kit installed installed on hood fan?

Yes

Comment:

Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?

Yes

Comment:

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

Yes

Comment:

There is no major leakage around base of fan?

Yes

Comment:

Is the motor operating below the motor FLA rating?

Yes

Comment:

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

Yes

Comment:

Unit free of noticeable noise and vibration?

Yes

Comment:

MUA

Rotation is correct?

N/A

Comment:

Gas piping is installed and valves are in on position?

N/A

Comment:

Heater tested and is functional?

N/A

Comment:

Internal motorized damper is fully opening?

N/A

Comment:

Motor is operating below the FLA rating?

N/A

Comment:

Unit free of noticeable noise and vibration?

N/A

Comment:

HOODS

Kitchen equipment installed in proper places?

Yes

Comment:

Can kitchen equipment be turned on for final smoke test?

Yes

Comment:

DOCUMENTATION

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

Comment:



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CheckList Information

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

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 09/11/2024 - Laura Robinson - National TAB

Completed Date : 09/12/2024 - David Nicolas Sanchez - National TAB

CheckList Item Details

TEST, ADJUST, AND BALANCE ALL EQUIPMENT:

DURING TESTING MAKE NOTE OF THE FOLLOWING:

Is space free of drafting? Yes

Comment:

Is space comfortable in all areas? Yes

Comment:

Is the space free of ventilation noise? Yes

Comment:

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

Comment:

N/A



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CheckList Information

Name : TECH - STEP 4: FINAL TESTS **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 09/11/2024 - Laura Robinson - National TAB

Completed Date : 09/13/2024 - David Nicolas Sanchez - National TAB

CheckList Item Details

FINAL TESTS

HOOD CAPTURE TEST

List equipment turned on for testing

Comment:

N/A

List smoke candle type used

Comment:

CEO163 45 second 150CF

Smoke test capture - Perimeter of hood

Comment:

100%

Smoke test capture - Top of cooking surface

Comment:

100%

WITNESS

Date test was completed

09/13/2024

Comment:

TAB tech name / Firm

Comment:

David Nicolas Sanchez / National TAB Intelligence

Site super name / Firm

Comment:

Dwayne Ashurst / Stansell

Owner representative name / Firm (if Applicable)

Comment:

N/A

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

Comment:

Front door: 0.0044 Front exit door: 0.0028 Back exit door: -0.0061

ADDITIONAL

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

Comment:

Yes

Thermostats are programmed?

Yes

Comment:

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Project: 09-09-24 TRUE FOOD SCOTTSDALE, AZ

System/Unit: AHU/RTU



Asset: DOAS 1

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Serial Num	-	5805978
Model Num	CASRTU3-1.150-20-15T	CAS-HVAC3-1.150-20-15T-DOAS
Type	-	DOAS
Configuration	-	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16X25X2
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	TECO
Frame	-	182T
Horsepower	-	3
Motor Rpm	-	1755
Phase	-	3
Rated Voltage	-	230
Rated Amperage	-	8.60

Drive Data	
	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	2865	2632
SF RPM	-	1164
RA CFM	0	0
OA CFM	2865	2865
RL Voltage	-	159@VFD
RL Amperage	-	7.9@VFD
SF Rotation	-	CCW
SF System SetPt	-	39.8 HZ
RA Damper Position	-	0%
Min OA Damper Position	-	100%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	N/A

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

Completed By: David Nicolas Sanchez on 09/12/2024

Notes:
Dampers installed as of 9/12

Written By: Will Turnbough on 09/20/2024

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Project:09-09-24 TRUE FOOD SCOTTSDALE, AZ
AHU/RTU



Diffuser Supply (GRD)

DOAS 1/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
DOAS 1-SGRD1	KITCHEN	S-1	NA	718	1	1081	1081	667	92.9
DOAS 1-SGRD2	KITCHEN	S-1	NA	718	1	386	386	648	90.3
DOAS 1-SGRD3	KICTHEN	S-1	NA	718	1	530	530	649	90.4
DOAS 1-SGRD4	KITCHEN	S-1	NA	718	1	635	635	668	93.0
Total				2872		2632	2632	2632	91.64%

Completed By: David Nicolas Sanchez on 09/12/2024

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Project: 09-09-24 TRUE FOOD SCOTTSDALE, AZ

System/Unit: AHU/RTU



Asset: DOAS 2

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Serial Num	-	5805978
Model Num	CASRTU2-1.200-18-10T	CAS-HVAC2-1.200-18-10T
Type	-	DOAS
Configuration	-	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	20X25X2
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	Actual
Motor MFG	-	TECO
Frame	-	184T
Horsepower	-	5.00
Motor Rpm	-	1750
Phase	-	3
Rated Voltage	-	230
Rated Amperage	-	13.6

Drive Data	
	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	3424	3157
SF RPM	-	1312
RA CFM	2720	2399
OA CFM	704	758
RL Voltage	-	179@VFD
RL Amperage	-	12.2@VFD
SF Rotation	-	CCW
SF System SetPt	-	75HZ
RA Damper Position	-	65%
Min OA Damper Position	-	35%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	N/A

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

Completed By: David Nicolas Sanchez on 09/12/2024

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Project:09-09-24 TRUE FOOD SCOTTSDALE, AZ

AHU/RTU



Diffuser Supply (GRD)

DOAS 2/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
DOAS 2-SGRD1	DINNING	S-1	NA	428	1	412	407	407	95.1
DOAS 2-SGRD2	DINNING	S-1	NA	428	1	448	593	593	138.6
DOAS 2-SGRD3	DINNING	S-1	NA	428	1	448	593	593	138.6
DOAS 2-SGRD4	DINNING	S-1	NA	428	1	448	593	593	138.6
DOAS 2-SGRD5	DINNING	S-1	NA	850	1	243	326	326	38.4
DOAS 2-SGRD6	DINNING	S-1	NA	428	1	191	317	317	74.1
DOAS 2-SGRD7	DINNING	S-1	NA	428	1	194	328	328	76.6
DOAS 2-SGRD8									-
Total				3418		2384	3157	3157	92.36%

Asset	Notes	Date	Written By
DOAS 2-SGRD1	Damper fully opened	09/12/2024	David Nicolas Sanchez
DOAS 2-SGRD2	Diffusers 2, 3, and 4 are now an exposed spiral duct. A damper could not be installed in this duct so airflow is high to this branch. However the total airflow for the open dining room is within tolerance. Not anticipated to cause any comfort issues since total flow is within design.	09/20/2024	Will Turnbough
DOAS 2-SGRD5	Damper fully opened.	09/12/2024	David Nicolas Sanchez
DOAS 2-SGRD6	Damper fully opened.	09/12/2024	David Nicolas Sanchez
DOAS 2-SGRD7	Damper fully opened.	09/12/2024	David Nicolas Sanchez
DOAS 2-SGRD8	Diffuser has been removed in updated design plans.	09/11/2024	David Nicolas Sanchez

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Project: 09-09-24 TRUE FOOD SCOTTSDALE, AZ

System/Unit: FAN - Exhaust



Asset: EF1

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	CUE-070-VG	G-080-VG-1-17-X
Serial Num	-	25121625
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	VARI-GREEN
Frame	-	N/A
Horsepower	-	1/10
Motor Rpm	-	1750
Phase	-	1
Voltage (rated)	-	208
Amperage (rated)	-	0.73
Service Factor	-	N/A

Test Data		
	Design	Actual
CFM	150	239
Fan RPM	-	1750
Fan Rotation	-	CW
Motor RPM	-	1750
System SetPt	-	SINGLE SPEED
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	-0.24"
Fan Inlet SP	-	-0.24"
Fan Discharge SP	-	NA

Completed By: David Nicolas Sanchez on 09/12/2024

Notes:
Wired for single speed.

Written By: David Nicolas Sanchez on 09/12/2024

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Project:09-09-24 TRUE FOOD SCOTTSDALE, AZ

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF1/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EF1-EGRD1	RESTROOM	NA	NA	75	1	120	120	120	160.0
EF1-EGRD2	RESTROOM	NA	NA	75	1	119	119	119	158.7
Total				150		239	239	239	159.33%

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Project: 09-09-24 TRUE FOOD SCOTTSDALE, AZ

System/Unit: FAN - Exhaust



Asset: KEF 1

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	DU180HFA	DU180HFA
Serial Num	-	5766080
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TECO
Frame	-	145T
Horsepower	-	2
Motor Rpm	-	1740
Phase	-	3
Voltage (rated)	-	230
Amperage (rated)	-	5.48
Service Factor	-	1.15

Test Data		
	Design	Actual
CFM	2365	2346
Fan RPM	-	919
Fan Rotation	-	CCW
Motor RPM	-	919
System SetPt	-	31.7HZ
RL Voltage	-	205/206/206
RL Amperage	-	3.61/3.52/3.45
Total ESP	-	-0.63"
Fan Inlet SP	-	-0.63"
Fan Discharge SP	-	ATMS

Completed By: David Nicolas Sanchez on 09/12/2024

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Project: 09-09-24 TRUE FOOD SCOTTSDALE, AZ

System/Unit: FAN - Exhaust



Asset: KEF 2

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	DU33HFA	DU33HFA
Serial Num	-	5766080
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO
Frame	-	N/A
Horsepower	-	1/3
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	N/A
Service Factor	-	N/A

Test Data		
	Design	Actual
CFM	500	528
Fan RPM	-	887
Fan Rotation	-	CCW
Motor RPM	-	887
System SetPt	-	45P
RL Voltage	-	120
RL Amperage	-	0.80
Total ESP	-	-0.34
Fan Inlet SP	-	-0.34
Fan Discharge SP	-	ATMS

Completed By: David Nicolas Sanchez on 09/12/2024

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Project: 09-09-24 TRUE FOOD SCOTTSDALE, AZ

System/Unit: Kitchen Hood Type I



Asset: HD 1

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	6030 ND-2	6030 ND-2
Job / Serial Num	-	5766080
Type	-	TYPE 1 CANOPY
Hood length	-	132"
Hood Width	-	60"

Test Data Exhaust		
	Design	Actual
Filter Type	-	CAPTRATE SOLO
Filter Size 1	-	16X20
Filter Qty 1	-	8
Filter AK factor size 1	-	2.08
Filter Total AK Area	-	16.64
Filter1 FPM	-	127
Filter2 FPM	-	139
Filter3 FPM	-	139
Filter4 FPM	-	152
Filter5 FPM	-	154
Filter6 FPM	-	148
Filter7 FPM	-	141
Filter8 FPM	-	129
Filter Ave FPM(corr)	-	158
CFM	2365	2346

Cooking Equipment	
	Actual
Item 1	GRILL
Item 2	GRIDDLE

Completed By: David Nicolas Sanchez on 09/12/2024

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Project: 09-09-24 TRUE FOOD SCOTTSDALE, AZ

System/Unit: Kitchen Hood Type II



Asset: HD 2

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	1830 VHB-G	4830 VHB-G
Serial Num	-	5766080
Type	-	TYPE 2 CANAPY
Hood length	-	48"
Hood Width	-	48"

Test Data		
	Design	Actual
Exhaust CFM	500	528

Completed By: David Nicolas Sanchez on 09/11/2024

