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: 02/08/2023

PROJECT

02-06-23 FIVE GUYS - LORAIN, OH

5350 N. LEAVITT RD

LORAIN, OH

Client

NNI Construction

5386 Majestic Parkway

Suite 3-4

Bedford Heights, OH

National TAB

Project: 02-06-23 FIVE GUYS - LORAIN, OH

Table Of Contents

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.

MUA (Make Up Air Unit) w/ PSP
Total flow for the MAU (Make-up Air Unit) unit was measured by readings taken at the discharge of the hood's perforated supply plenum. Readings taken with a velocity matrix were averaged and multiplied by a manufacturer's corrected area. Adjustments to the fan speed were made in order to bring the unit to within design tolerance. Any MUA'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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Project Issue Information

Issue Name : EF-3 fan blade is out of balance

Description : NOTE: Ef-3 fan is also out of balance. This is causing vibrations in the roof and slightly into the space

Created By : National TAB **Assigned To :** National TAB - Tyler Youells

Status : Open

Originated Date : 02/07/2023 - Tyler Youells - National TAB

Project Issue File Details

Ef3vibrating.jpeg

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02-06-23 FIVE GUYS - LORAIN, OH

Project Issue Information

Issue Name : NOTE: MUA/MPU FAN IMBALANCE

Description : NOTE ONLY: There is a slight imbalance in the fan blade causing the unit to have minor vibrations. Recommend Captive Aire evaluates.

Created By : National TAB **Assigned To :** National TAB - Tyler Youells

Status : Open

Originated Date : 02/07/2023 - Tyler Youells - National TAB

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02-06-23 FIVE GUYS - LORAIN, OH

Project Issue Information

Issue Name : NOTE: RTU-1 HEATING/COOLING FIGHTING each other

Description : RTU-1 will go into heat then it will overheat causing it to switch to cooling. Since the temperature sensor the unit controls to is located in the return duct, which pulls warm air from the ceiling, it may be heating the sensor too quickly. if issue persists recommend relocating the sensor in the space.

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

Status : Open

Originated Date : 02/08/2023 - Tyler Youells - National TAB

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02-06-23 FIVE GUYS - LORAIN, OH

Project Issue Information

Issue Name : RTU FILTER DOOR NOT SEATED PROPERLY

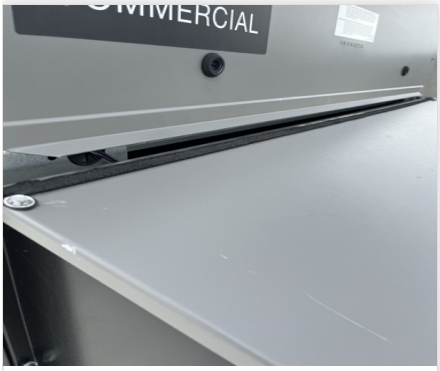
Description : Both RTUs have an inch to two inch sized gap at the filter door. This is allowing unwanted outside air into the unit and would also allow moisture or rain to enter the unit. NTAB will temporarily tape, but recommend installing sheet metal and sealing the gap.

Created By : National TAB **Assigned To :** National TAB - Tyler Youells

Status : Open

Originated Date : 02/07/2023 - Tyler Youells - National TAB

Project Issue File Details



Rtufilterdoorgap.jpeg

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Project Issue Information

Issue Name : WOMENS EXHAUST GRILLE MISSING DAMPER

Description : The women's restroom does not have an accessible damper and is 153% of design. Men's restroom is at the low end of design. Recommend installing a face damper in the women's restroom to push more air to the men's restroom.

Created By : National TAB **Assigned To :** National TAB - Tyler Youells

Status : Open

Originated Date : 02/07/2023 - Tyler Youells - National TAB

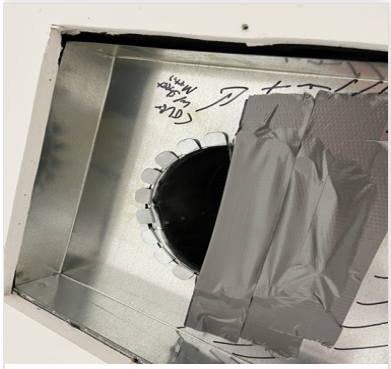
Project Issue File Details

Nodamperatdrop.jpeg

Nodamperinface.jpeg

Project Issue Response Details

- **02/08/2023 National TAB - Tyler Youells**
  - TAPED over the opening to obtain design cfm. MC to install sheet metal exactly the size of the tape to ensure grille stays within design.



Womensexhaustgrille1.jpeg

Womensexhaustgrille2.jpeg

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
RTU-1	DINING	4050	3922	3250	3107	800	815	19.8%	20.8%						
RTU-2	KITCHEN	2968	2979	2418	2407	550	572	18.5%	19.2%						
MUA-1	KITCHEN AREA									2821	2825				
EF-1	HOOD 2											1852	1882		
EF-2	HOOD 1											1662	1643		
EF-3	RESTROOM													225	232
TOTALS		7018	6901	5668	5514	1350	1387			2821	2825	3514	3525	225	232

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	4171	4212
TOTAL EXHAUST	3739	3757
NET AIRFLOW	432	455

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.0049
SIDE	-
REAR	0.0055
AVERAGE	**0.0052**

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:

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CheckList Information

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

CheckList Item Details

STORE FRONT	YES

STOREFRONT.jpeg

RTU-1	DINING

Rtu1dining.jpeg

RTU-2	KITCHEN

Rtu2kitchen.jpeg

EF-1	RIGHT HOOD

Ef1hoodright.jpeg

EF-2	HOOD LEFT

Ef2lefthood.jpeg

EF-3	Serves restrooms

Ef3(1).jpeg

MUA-1	SERVES BOTH HOODS

Mpu1.jpeg

HOOD 1	YES

HOOD1.jpeg

HOOD-2	YES

Hood2.jpeg

Notes/Comments :

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02-06-23 FIVE GUYS - LORAIN, OH

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?	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?	N/A

Notes/Comments :

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02-06-23 FIVE GUYS - LORAIN, OH

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?	YES
DCV Max damper opening position is set to minimum?	YES
Free cooling enthalpy set point set for lowest setting (Typically "D")	SET TO ES5 ON HONEYWELL CONTROLLER
Motors are all operating below the FLA rating?	YES
Are belts tight?	YES
If direct drive unit is the speed controller working.	N/A
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?	N/A
Grease cup installed on hood fan?	YES
Hinge kit installed installed on hood fan?	YES
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 MAJOR LEAKAGE TO NOTE
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?	YES
Heater tested and is functional?	YES
Internal motorized damper is fully opening?	YES
Motor is operating below the FLA rating?	YES
Unit free of noticeable noise and vibration?	THERE IS SOME MINOR VIBRATION FROM THE FAN BLADE.
HOODS	
Kitchen equipment installed in proper places?	YES
Can kitchen equipment be turned on for final smoke test?	YES, STORE IS OPEN AND COOKING
DOCUMENTATION	
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	N/A

Notes/Comments :

Comfort. Under control.

02-06-23 FIVE GUYS - LORAIN, OH

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?	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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02-06-23 FIVE GUYS - LORAIN, OH

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	ALL EQUIPMENT ON, STORE IS OPEN
List smoke candle type used	COOKING AFFLUENT
Smoke test capture - Perimeter of hood	100%
Smoke test capture - Top of cooking surface	100%
WITNESS	
Date test was completed	02/08/2023
TAB tech name / Firm	TYLER/NTAB
Site super name / Firm	COOKLINE EMPLOYEES
Owner representative name / Firm (if Applicable)	N/A
Building pressure at front & back doors (All Systems On)	YES + 0.005"
ADDITIONAL	
Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)	YES
Thermostats are programmed?	YES

Notes/Comments :

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02-06-23 FIVE GUYS - LORAIN, OH

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?	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?	N/A

Notes/Comments :

Comfort. Under control.

02-06-23 FIVE GUYS - LORAIN, OH

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?	YES
DCV Max damper opening position is set to minimum?	YES
Free cooling enthalpy set point set for lowest setting (Typically "D")	SET TO ES5 ON HONEYWELL CONTROLLER
Motors are all operating below the FLA rating?	YES
Are belts tight?	YES
If direct drive unit is the speed controller working.	N/A
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?	N/A
Grease cup installed on hood fan?	YES
Hinge kit installed installed on hood fan?	YES
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 MAJOR LEAKAGE TO NOTE
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?	YES
Heater tested and is functional?	YES
Internal motorized damper is fully opening?	YES
Motor is operating below the FLA rating?	YES
Unit free of noticeable noise and vibration?	THERE IS SOME MINOR VIBRATION FROM THE FAN BLADE.
HOODS	
Kitchen equipment installed in proper places?	YES
Can kitchen equipment be turned on for final smoke test?	YES, STORE IS OPEN AND COOKING
DOCUMENTATION	
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	N/A

Notes/Comments :

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02-06-23 FIVE GUYS - LORAIN, OH

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?	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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02-06-23 FIVE GUYS - LORAIN, OH

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	ALL EQUIPMENT ON, STORE IS OPEN
List smoke candle type used	COOKING AFFLUENT
Smoke test capture - Perimeter of hood	100%
Smoke test capture - Top of cooking surface	100%
WITNESS	
Date test was completed	02/08/2023
TAB tech name / Firm	TYLER/NTAB
Site super name / Firm	COOKLINE EMPLOYEES
Owner representative name / Firm (if Applicable)	N/A
Building pressure at front & back doors (All Systems On)	YES + 0.005"
ADDITIONAL	
Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)	YES
Thermostats are programmed?	YES

Notes/Comments :

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Project: 02-06-23 FIVE GUYS - LORAIN, OH

System/Unit: AHU/RTU

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Asset: RTU1 AREA:

Unit Data		
	Design	**Actual**
MFG	LENNOX	RHEEM
Serial Num	-	F442101545
Model Num	LGH120H4B	RGEDZS120ACB152AA
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	20X20
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	**Actual**
Motor MFG	-	PROTECH
Frame	-	NL
Horsepower	2.0	3
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	9.09

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VP50
Motor Bore Size	-	0.875”
Motor Sheave SetPt	-	0 TURNS OUT
Fan Sheave Size	-	7.75”
Fan Sheave Bore	-	1
Belt CL Distance	-	17”
Num of Belts	-	1
Belt Size	-	A50
Belt Alignment	-	GOOD

Completed By: Tyler Youells

Notes:

Test Data		
	Design	**Actual**
SF CFM	4050	3922
SF RPM	-	1024
RA CFM	3250	3107
OA CFM	800	815
RL Voltage	-	211.3/211.9/208.9
RL Amperage	-	8.54/7.95/7.60
SF Rotation	-	CCW
RA Damper Position	-	MECHANICAL LINKAGE
Min OA Damper Position	-	4.40V
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.69”
Fan Suction SP	-	-1.23”
Fan Discharge SP	-	0.91”
Total ESP	-	1.6”
Fan Total SP	-	2.14”

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

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Project:02-06-23 FIVE GUYS - LORAIN, OH

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	S2	NA	475	1.03	369	479	468	98.5
SGRD2	DINING	S2	NA	475	1.03	375	495	459	96.6
SGRD3	DINING	S2	NA	475	1.03	412	526	463	97.5
SGRD4	DINING	S2	NA	475	1.03	359	460	479	100.8
SGRD5	DINING	S2	NA	475	1.03	380	492	462	97.3
SGRD6	DINING	S2	NA	475	1.03	389	504	439	92.4
SGRD7	DINING	S2	NA	475	1.03	367	482	447	94.1
SGRD8	DINING	S2	NA	475	1.03	405	429	453	95.4
SGRD9	DINING	S3	NA	50	1	16	26	53	106.0
SGRD10	DINING	S1	NA	100	1	0	25	101	101.0
SGRD11	DINING	S3	NA	100	1	34	54	98	98.0

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Project: 02-06-23 FIVE GUYS - LORAIN, OH

System/Unit: AHU/RTU

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Asset: RTU2 AREA:

Unit Data		
	Design	**Actual**
MFG	LENNOX	RHEEM
Serial Num	-	F202101976
Model Num	LGH092H4B	RGEDZR090ACB20BAA
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	20X20
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	**Actual**
Motor MFG	-	PROTECH
Frame	-	NL
Horsepower	2	3
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	9.09

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VP50
Motor Bore Size	-	0.875”
Motor Sheave SetPt	-	2 TURNS OUT
Fan Sheave Size	-	8.25”
Fan Sheave Bore	-	1VP50
Belt CL Distance	-	16.5”
Num of Belts	-	1
Belt Size	-	A50
Belt Alignment	-	GOOD

Test Data		
	Design	**Actual**
SF CFM	2968	2979
SF RPM	-	893
RA CFM	2418	2407
OA CFM	550	572
RL Voltage	-	212.1/212/209.5
RL Amperage	-	5.42/5.92/6.72
SF Rotation	-	CCW
RA Damper Position	-	CCW
Min OA Damper Position	-	4.10V
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.57”
Fan Suction SP	-	-0.85”
Fan Discharge SP	-	0.78”
Total ESP	-	1.35”
Fan Total SP	-	1.63”

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

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Notes:

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Project:02-06-23 FIVE GUYS - LORAIN, OH

AHU/RTU

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Diffuser Supply (GRD)

RTU2/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	KITCHEN	S1	NA	300	1	337	360	313	104.3
SGRD2	KITCHEN	S1	NA	300	1	261	313	327	109.0
SGRD3	HD 1 PSP	NA	NA	584	3.71	412	527	621	106.3
SGRD4	HD 2 PSP	NA	NA	584	3.71	263	404	559	95.7
SGRD7	KITCHEN	S1	NA	300	1	394	286	287	95.7
SGRD8	KITCHEN	S1	NA	300	1	335	287	279	93.0
SGRD9	ICE	S1	NA	300	1	379	293	304	101.3
SGRD10	KITCHEN	S1	NA	300	1	437	291	289	96.3

Completed By: Wale Odofin on

National TAB

Project: 02-06-23 FIVE GUYS - LORAIN, OH

System/Unit: FAN - Exhaust

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Asset: EF1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU180HFA	DU180HFA
Serial Num	-	5086386
Type	ROOF	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO
Frame	-	184T
Horsepower	2.0	2
Motor Rpm	-	1165
Phase	3	3
Voltage (rated)	208	230
Amperage (rated)	-	7.51
Service Factor	-	1.15

Test Data		
	Design	**Actual**
CFM	1852	1882
Fan RPM	1084	1012
Fan Rotation	-	CCW
Motor RPM	-	1012
System SetPt	-	52.1HZ
RL Voltage	-	210.9/212.3/213.2
RL Amperage	-	4.1AVG
Total ESP	1.375"	0.64”
Fan Inlet SP	-	-0.64”
Fan Discharge SP	-	ATM

Completed By: Tyler Youells

Notes:

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Project: 02-06-23 FIVE GUYS - LORAIN, OH

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF2 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	CASRE15DD	CASRE15DD
Serial Num	-	5086386
Type	ROOF	UTILITY
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO
Frame	-	145T
Horsepower	2.0	2.0
Motor Rpm	-	1740
Phase	3	3
Voltage (rated)	208	230
Amperage (rated)	-	5.48
Service Factor	-	1.15

Test Data		
	Design	**Actual**
CFM	1662	1643
Fan RPM	1801	1322
Fan Rotation	-	CCW
Motor RPM	-	1322
System SetPt	-	45.6HZ
RL Voltage	-	211.8/212.8/212.4
RL Amperage	-	3.8 AVG
Total ESP	1.375"	NOT ACCESSIBLE
Fan Discharge SP	-	ATM

Completed By: Tyler Youells

Notes:

National TAB

Project: 02-06-23 FIVE GUYS - LORAIN, OH

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF3 AREA:

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	G-090-G	G-090-G-1-17-X
Serial Num	-	20076014
Type	ROOF	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	MCMILLAN
Frame	-	NL
Horsepower	1/20	0.067
Motor Rpm	-	1550
Phase	1	1
Voltage (rated)	115	120
Amperage (rated)	-	1.2
Service Factor	-	1

Test Data		
	Design	**Actual**
CFM	225	232
Fan RPM	-	1550
Fan Rotation	-	CW
Motor RPM	-	1550
System SetPt	-	WITED FOR HIGH
RL Voltage	-	117.3
RL Amperage	-	1.28
Total ESP	0.25"	0.45”
Fan Inlet SP	-	-0.45”
Fan Discharge SP	-	ATM

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Notes:

National TAB

Project:02-06-23 FIVE GUYS - LORAIN, OH

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF3/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	RESTROOM	E1	NA	150	1	137	150	150	100.0
EGRD2	RESTROOM	E1	NA	75	1	115	82	82	109.3

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National TAB

Project: 02-06-23 FIVE GUYS - LORAIN, OH

System/Unit: FAN - Supply

Comfort. Under control.

Asset: MUA1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	A2-D500-20D-MPU	A2-D500-20D-MPU
Serial Num	-	5086386
Type	MUA	MPU
Configuration	HORIZONTAL	VERTICAL DISCHARGE

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO
Frame	-	182T
Horsepower	3.0	3
Motor Rpm	-	1755
Phase	3	3
Voltage (rated)	208	230
Amperage (rated)	-	8.60
Service Factor	-	1.15

Drive Data		
	Design	**Actual**

Gas Heat		
	Design	**Actual**
Heater Operates (y/n)	-	YES
Flame Status (pass/fail)	-	PASS
Inlet Air Temp SetPt	55	55
Discharge Air Temp SetPt	60	60
Air Flow Switch SP Actual	-	0.351”

Test Data		
	Design	**Actual**
CFM	2821	2825
SF RPM	1425	1337
Motor RPM	-	1337
RL Voltage	-	212.6/213.4/213.1
RL Amperage	-	6.6AVG
Total ESP	-	0.35”
Fan Discharge SP	-	0.72”

General		
	Design	**Actual**
Fan Rotation Correct	-	YES

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Notes:

National TAB

Project: 02-06-23 FIVE GUYS - LORAIN, OH

System/Unit: Kitchen Hood Type I

Comfort. Under control.

Asset: HD1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424ND-2-ACPSPF-F	5424ND-2-ACPSPF-F
Job / Serial Num	-	5086386
Type	TYPE 1 CANOPY	TYPE I CANOPY
Hood length	105	105
Hood Width	54	54
Supply Plenum Type	-	ACPSP
Supply Plenum Width	24	14
Supply Plenum Length	117	117

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	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	-	171
Filter2 FPM	-	171
Filter3 FPM	-	183
Filter4 FPM	-	172
Filter5 FPM	-	162
Filter6 FPM	-	156
Filter Ave FPM(corr)	-	169
CFM	1662	1643

Cooking Equipment		
	Design	**Actual**
Item 1	-	2X GRIDDLE

Test Data Supply		
	Design	**Actual**
Total AK Area	11.375	11.375
Kv factor (Vel)	0.90	0.90
Num of Readings	-	9
Reading1 FPM	-	200
Reading2 FPM	-	150
Reading3 FPM	-	141
Reading4 FPM	-	146
Reading5 FPM	-	173
Reading6 FPM	-	120
Reading7 FPM	-	126
Reading8 FPM	-	129
Reading9 FPM	-	161
Ave FPM(corr)	-	149
CFM	1413	1525

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Notes:

National TAB

Project: 02-06-23 FIVE GUYS - LORAIN, OH

System/Unit: Kitchen Hood Type I

Comfort. Under control.

Asset: HD2 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424ND-2-ACPSPF-F	5424ND-2-ACPSPF-F
Job / Serial Num	-	5086386
Type	TYPE 1 CANOPY	TYPE I CANOPY
Hood length	117	117
Hood Width	54	54
Supply Plenum Type	-	ACPSP
Supply Plenum Width	24	14
Supply Plenum Length	117	117

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	7	7
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	11.34	11.34
Filter1 FPM	-	145
Filter2 FPM	-	160
Filter3 FPM	-	179
Filter4 FPM	-	181
Filter5 FPM	-	161
Filter6 FPM	-	170
Filter7 FPM	-	167
Filter Ave FPM(corr)	-	166
CFM	1852	1882

Cooking Equipment		
	Design	**Actual**
Item 1	-	4X BANK FRYER

Test Data Supply		
	Design	**Actual**
Total AK Area	11.375	11.375
Kv factor (Vel)	0.90	0.90
Num of Readings	-	9
Reading1 FPM	-	154
Reading2 FPM	-	121
Reading3 FPM	-	114
Reading4 FPM	-	117
Reading5 FPM	-	147
Reading6 FPM	-	138
Reading7 FPM	-	112
Reading8 FPM	-	131
Reading9 FPM	-	111
Ave FPM(corr)	-	127
CFM	1408	1300

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Notes: