

Report By:

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

NATIONAL

TAB

Comfort. Under control.

**Report: FINAL TAB REPORT
Function: Test, Adjust, & Balance
Date: 8/30/2022**

**PROJECT
08-15 FIVE GUYS - SAVANNAH, GA**

5500 ABERCORN ST

SAVANNAH, GA 31405

Client

Five Guys Enterprises LLC
20718 Richmond Highway

Lorton, VA 22079

National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

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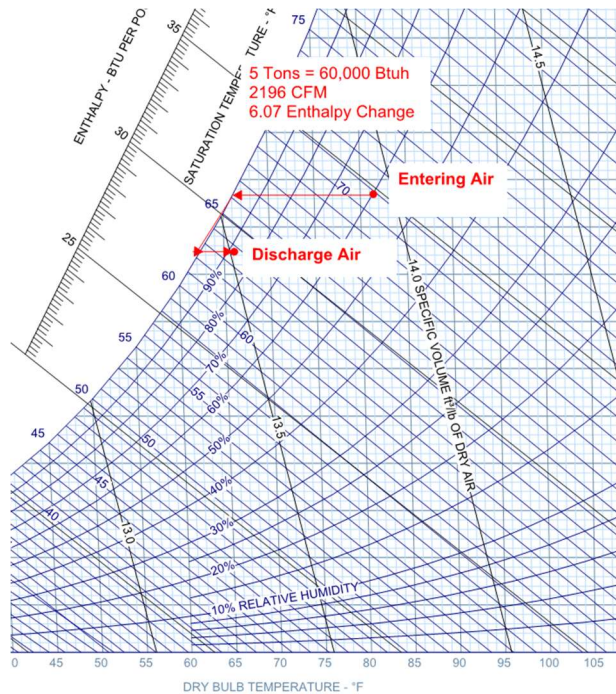
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Project Summary

The purpose of the testing was to evaluate cause of hot conditions at the cookline. Limited design information was provided so target airflows were made based on previous design documents, equipment size and application, and typical 5 Guys Designs.

Upon arrival found that the building pressure was negative. The space has five RTU's each of which are 5 ton units. It was identified that none of the RTU's had dehumidification. Two of the outside air intakes for the RTU's were closed and two were slightly cracked open. RTU-3 does not have an outside air intake installed. The building was approximately negative 600-700 CFM initially.

Airflow for RTU-4 on the cookline was initially 1704 CFM (341 CFM/ton) and was increased to 2196 CFM (439 CFM/ton) to increase airflow on the cookline. The temperature on the cookline was in the 70's in the morning but as the day progressed it increased to around 85 degrees. The measured temperature at the temp sensor matched what was being displayed on the thermostat which indicates it is sensing an accurate temperature. During peak cooking times entering and leaving temperatures on the evaporator coil were measured as 81 EAT and 66 LAT which is a 15 degree drop. A quick check was done on a psychrometric chart and it appears this is a reasonable discharge temperature, however it is recommended that the refrigeration of this unit be checked to ensure it is adequately charged and operating properly.



The MUA is a non-conditioned, non-tempered unit and discharges at the hood at a front PSP. A conditioned MUA would typically be highly recommended in this climate and it appears that this is the most significant issue related to the comfort on the cookline. This is also evident by observing that the temperature on the cookline closely matched the temperature outdoors throughout the day. The airflow was initially measured as 3307 CFM and was reduced to 2452 CFM to limit as much as possible. We would prefer to decrease further but could not do so without causing a highly negative building pressure.

The hood exhaust airflow was balanced to 4705 CFM and only a small reduction from the initial flow could be made.

All other RTU's were measured to be slightly low and were increased slightly to get airflow closer to 400 CFM/ton.

The restroom exhaust fan was found to not be running (around 375 CFM)

Ideally the outside air for the RTU's would be balanced no higher than 20%, but we increased to maximum of 23% ratio which should be OK. IT is recommended that an outside air intake be installed on RTU-3.

The building was balanced slightly negative (-0.026" wc) to ensure the MUA could be left as low as possible. This is a slight improvement from where building was found (-0.03"). Cooking was observed and the hood is operating well.

Findings and Recommendations

- Major cause for the comfort issue on the uncomfortable temperatures on the cookline appear to be the non-conditioned MUA. Even with steps below a conditioned MUA will likely be required. Would recommend consulting an OEM to discuss how they would typically design in this climate. It might be possible to get away with installing an AC-PSP at the hood instead. These have been effective for other clients in similar clients but without knowledge of the load calculation for the space unable to give a definitive answer if this would work. If preferring not to install conditioning, the following steps could be attempted:
 1. Ensure that refrigeration for RTU-4 on the cookline is adequately charged and operating properly. Appears that it is based on the entering air conditions even though the discharge temp was measured as 66 degrees.
 2. Change pulleys on the hood exhaust fan to lower airflow as much as possible so that the MUA could be further reduced. Could potentially get the hood exhaust airflow at least to 4000 CFM which would allow a reduction of MUA to 2000 CFM. Installing full vertical end panels on both sides of the hood would allow for even more reduction.
 3. Install OA intake on RTU-3 and balance to ~450 CFM. This would allow MUA to be reduced to 1500 CFM.
 4. Balance new EF for restroom (if installed) as low as possible. If this is installed it will impact how low the MUA can be reduced.
 5. Balance the building slightly negative

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-A	DINING	2000	2103	1550	1695	450	408	22.5%	19.4%						
RTU-A	KITCHEN	2000	1801	1550	1395	450	406	22.5%	22.5%						
RTU-E2	DINING	1900	2060	1450	1619	450	441	23.7%	21.4%						
RTU-E3	DINING	2000	1802	2000	1802	0	0	0.0%	0.0%						
RTU-E4	SERVING	2000	2196	1550	1703	450	493	22.5%	22.4%						
EF-1	HD1											5300	4705		
MAU	HOOD									4240	2452				
TOTALS		9900	9962	8100	8214	1800	1748			4240	2452	5300	4705	0	0

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	6040	4200
TOTAL EXHAUST	5300	4705
NET AIRFLOW	740	-505

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	
SIDE	
REAR	-0.026
AVERAGE	-0.026

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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08-15 FIVE GUYS - SAVANNAH, GA

Project Issue Information

Issue Name : EF2

Description : EF2 RR FAN IS NOT RUNNING MOTOR IS SEIZED, UNABLE TO BALANCE FAN.

Created By : National TAB

Assigned To : National TAB - Dale Wheeler

Status : Open

Originated Date : 08/18/2022 - Dale Wheeler - National TAB

Project Issue File Details



SAV4.JPG



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08-15 FIVE GUYS - SAVANNAH, GA

Project Issue Information

Issue Name : RTU-3 DOES NOT HAVE AN OA INTAKE INSTALLED.
Description : RECOMMEND INSTALLING.
Created By : National TAB **Assigned To :** National TAB - Dale Wheeler
Status : Open
Originated Date : 08/30/2022 - Will Turnbough - National TAB

Project Issue File Details



Screenshot_2022_08_30_08504
6.png



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Project Issue Information

Issue Name : RTU-E4 ECON

Description : ECON IS NOT FUNCTIONING CORRECTLY. OUTSIDE AIR HAD TO BE SET MANUALLY

Created By : National TAB

Assigned To : National TAB - Dale Wheeler

Status : Open

Originated Date : 08/18/2022 - Dale Wheeler - National TAB

Project Issue File Details



SAV3.jpg



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08-15 FIVE GUYS - SAVANNAH, GA

Project Issue Information

Issue Name : SPIRAL DINING ROOM DUCT INSTALLED

Description : SPIRAL DINING ROOM DUCT IS CAPPED OFF AND DOES NOT CONNECT TO ANY RTU. FOUR WAY DIFFUSERS WERE INSTALLED IN THE DROP CEILING. THIS IS DIFFERENT THEN WHAT IS SHOWN ON ORIGINAL PLANS.

Created By : National TAB

Assigned To : National TAB - Wendy Biggs

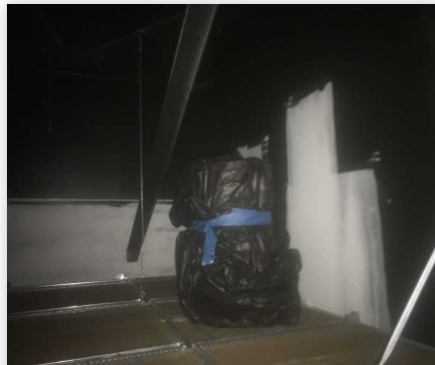
Status : Open

Originated Date : 08/18/2022 - Dale Wheeler - National TAB

Project Issue File Details



SAV2.JPG



SAV1_.jpg

RTU4 / TEMP. SEN.



EF2



RTU-E4



RTU-E3



RTU1/ DINING



EF1



MAU



RTU1/ KITCHEN



RTU-E2



DINING ROOM



HOOD1R/HOOD1L



STORE FRONT



08-15 FIVE GUYS - SAVANNAH, GA

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?	NO / DINING ROOM GRILLS DO NOT MATCH GRD
All hood filters installed and accounted for?	YES / BUT SMALLER HOOD HAS A GAP WERE FILTERS DO NOT FIT PROPERLY THIS SPACE WAS BLOCKED OFF WITH CARDBOARD FOR BALANCE
Hoods are wired and have power?	YES
Hood is free of alarms?	N/A
Thermostats have power?	YES
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	OPEN LOCATION

Notes/Comments :

08-15 FIVE GUYS - SAVANNAH, GA

CheckList Information

Name : TECH - STEP 2: UNIT DATA AND EVAL **Status :** Submitted
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?	RTU3 DOES NOT HAVE AN OUTSIDE AIR CANOPY INSTALLED. RECOMMEND OA INTAKE BE INSTALLED.
DCV Max damper opening position is set to minimum?	YES
Free cooling enthalpy set point set for lowest setting (Typically "D")	MANUAL DAMPERS FOR TWO UNITS / ENTHALPY IS SET ON LENNOX UNITS
Motors are all operating below the FLA rating?	YES
Are belts tight?	YES / FOR ALL UNITS THAT ARE BELT DRIVEN
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?	UTILITY STYLE FAN
Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	UNABLE TO LEAN FAN BACK DUE TO IT BEING A UTILITY STYLE FAN.
Flex conduit is long enough so that fan can be completely tilted back?	N/A
There is no major leakage around base of fan?	NO 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?

RR FAN IS NOT FUNCTIONING / MOTOR IS SEIZED

Unit free of noticeable noise and vibration?

RR FAN IS NOT FUNCTIONING / MOTOR IS SEIZED

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?

OPEN LOCATION

Notes/Comments :

08-15 FIVE GUYS - SAVANNAH, GA

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?	DINING AREA IS CONFORTABLE COOK LINE GETS VERY WARM, ALL DAMPERS ARE OPEN, UNIT IS RUNNING AT MAX SPEED. HOOD DOES NOT HAVE AN ACPSP INSTALLED NOR IS THE MAU CONDITIONED AIR.
Is the space free of ventilation noise?	YES
If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".	N/A

Notes/Comments :

08-15 FIVE GUYS - SAVANNAH, GA

CheckList Information

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

CheckList Item Details

FINAL TESTS

HOOD CAPTURE TEST

List equipment turned on for testing	FRYERS / GRIDDLES
List smoke candle type used	SMOKE EMITTER
Smoke test capture - Perimeter of hood	100% / SOME CAME OUT OF THE FRONT OF THE HOOD INCIALLY THEN WAS PULLED BACK INSIDE THE CANOPY
Smoke test capture - Top of cooking surface	100%

WITNESS

Date test was completed	08/16/2022
TAB tech name / Firm	DALE WHEELER / NTAB
Site super name / Firm	-
Owner representative name / Firm (if Applicable)	JADA / 5 GUYS MANAGEMENT
Building pressure at front & back doors (All Systems On)	FRONT DOOR COULD NOT GET AN ACCURATE READING DUE TO WIND AND STRONG BREEZE THROUGH STRIPMALL OVERHANG / WALKWAYCANOPY. BACK DOOR -0.026"

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 / BUILDING IS NEGATIVLY PRESSURED.
Thermostats are programmed?	5 GUYS MANAGEMENT DID NOT WANT ME TO PROGRAM THERMOSTATS THEY HAD BEEN INSTRUCTED TO LET UNITS STAY RUNNING THROUGH THE NIGHT.

Notes/Comments :

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Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU-A1

AREA:DINING

Unit Data		
	Design	Actual
MFG	CARRIER	TRANE
Serial Num	-	113611960L
Model Num	48TCDA06A2A5	YSC060E3ELA0000
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	28.5X11
Num Final Filter 1	-	2
Final Filter Size 1	-	20X30X2
Num Final Filter 2	-	N/L
Final Filter Size 2	-	N/L

Test Data		
	Design	Actual
SF CFM	2000	2103
SF RPM	-	1076
RA CFM	1508	1695
OA CFM	450	408
RL Voltage	-	208/208/207
RL Amperage	-	3.0/3.1/3.1
SF Rotation	-	CW
RA Damper Position	-	NO DAMPER
Min OA Damper Position	-	1 7/8
Min OA Damper Type	-	MANUAL DAMPER

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56
Horsepower	1.5	1.0
Motor Rpm	-	1725
Phase	-	3
Rated Voltage	-	200
Rated Amperage	-	4.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.18"
Fan Suction SP	-	-0.596"
Fan Discharge SP	-	0.30"
Total ESP	0.8"	0.48"
Fan Total SP	-	1.076"

Drive Data		
	Design	Actual
Motor Sheave Size	-	VL34
Motor Bore Size	-	5/8
Motor Sheave SetPt	-	2 TURNS OUT
Fan Sheave Size	-	AK44
Fan Sheave Bore	-	0.75"
Belt CL Distance	-	9.0"
Num of Belts	-	1
Belt Size	-	A25
Belt Alignment	-	GOOD

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

Completed By: Dale Wheeler

Notes:[1] UNIT GRILLS TO NOT MATCH WHAT IS SHOWN ON GRD.

National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU-A1

AREA: KITCHEN / BACK OF HOUSE

Unit Data		
	Design	Actual
MFG	CARRIER	LENNOX
Serial Num	-	5619D03188
Model Num	48TCDA06A2A5	LGH060H4EU4Y
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	31X13.75
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2
Num Final Filter 2	-	N/L
Final Filter Size 2	-	N/L

Test Data		
	Design	Actual
SF CFM	2000	1801
SF RPM	-	DD
RA CFM	1508	1395
OA CFM	450	406
RL Voltage	-	209
RL Amperage	-	7.4
SF Rotation	-	CCW
RA Damper Position	-	4.25"
Min OA Damper Position	-	25%
Min OA Damper Type	-	ECON

Motor Data		
	Design	Actual
Motor MFG	-	N/L
Frame	-	N/L
Horsepower	1.5	1
Motor Rpm	-	N/L
Phase	-	1
Rated Voltage	-	200
Rated Amperage	-	7.4

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.32"
Fan Suction SP	-	-0.47"
Fan Discharge SP	-	0.95"
Total ESP	0.8"	1.25"
Fan Total SP	-	1.42"

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

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

Completed By: Dale Wheeler

Notes:[1] UNIT SERVES BACK OF HOUSE/ KITHCEN AREA.

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Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU-E2

AREA:DINING

Unit Data		
	Design	Actual
MFG	NA	TRANE
Serial Num	-	113510L01L
Model Num	NA	YSC060E3ELA
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	28.5X11
OA Filter Size 1	-	2
Num Final Filter 1	-	20X30X2
Final Filter Size 1	-	N/A
Num Final Filter 2	-	N/A
Final Filter Size 2	-	

Test Data		
	Design	Actual
SF CFM	1900	2060
SF RPM	-	1074
RA CFM	-	1619
OA CFM	450	441
RL Voltage	-	206/205/206
RL Amperage	-	3.1/3.4/3.1
SF Rotation	-	CW
RA Damper Position	-	NO DAMPER
Min OA Damper Position	-	2.0"
Min OA Damper Type	-	MANUAL DAMPER

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56
Horsepower	-	1.0
Motor Rpm	-	1725
Phase	-	3
Rated Voltage	-	200
Rated Amperage	-	4.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.221"
Fan Suction SP	-	-0.717"
Fan Discharge SP	-	0.2"
Total ESP	-	0.421"
Fan Total SP	-	0.917"

Drive Data		
	Design	Actual
Motor Sheave Size	-	VL34
Motor Bore Size	-	5/8
Motor Sheave SetPt	-	2 TURNS OUT
Fan Sheave Size	-	AK44
Fan Sheave Bore	-	0.75"
Belt CL Distance	-	8.75"
Num of Belts	-	1
Belt Size	-	A-25
Belt Alignment	-	GOOD

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

Completed By: Dale Wheeler

Notes:[1] UNIT GRILLS TO NOT MATCH WHAT IS SHOWN ON GRD.

National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU-E3

AREA:DINING

Unit Data		
	Design	Actual
MFG	NA	TRANE
Serial Num	-	1608125981
Model Num	NA	YSC063G3ELA0000
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	NO OA
OA Filter Size 1	-	NO OA
Num Final Filter 1	-	4
Final Filter Size 1	-	18X18X2
Num Final Filter 2	-	N/L
Final Filter Size 2	-	N/L

Test Data		
	Design	Actual
SF CFM	2000	1802
SF RPM	-	DD
RA CFM	-	1802
OA CFM	-	0
RL Voltage	-	209
RL Amperage	-	4.6
SF Rotation	-	CW
RA Damper Position	-	NO RETURN
Min OA Damper Position	-	NO OA
Min OA Damper Type	-	NO OA

Motor Data		
	Design	Actual
Motor MFG	-	N/L
Frame	-	N/L
Horsepower	-	1.0
Motor Rpm	-	N/L
Phase	-	1
Rated Voltage	-	208
Rated Amperage	-	6.9

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.22"
Fan Suction SP	-	-0.44"
Fan Discharge SP	-	0.19"
Total ESP	-	0.41"
Fan Total SP	-	0.63"

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

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

Completed By: Dale Wheeler

Notes:[1] UNIT GRILLS TO NOT MATCH WHAT IS SHOWN ON GRD. [2] UNIT DOES NOT HAVE AN OA CANOPY/ INTAKE INSTALLED RECOMMEND ONE BE INSTALLED ON UNIT.

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Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU-E4

AREA:SERVING

Unit Data		
	Design	Actual
MFG	NA	LENNOX
Serial Num	-	5621E09908
Model Num	NA	LGH060S4TU5Y
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29X14
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2
Num Final Filter 2	-	N/L
Final Filter Size 2	-	N/L

Test Data		
	Design	Actual
SF CFM	2000	2196
SF RPM	-	847
RA CFM	-	1703
OA CFM	450	493
RL Voltage	-	209/209/208
RL Amperage	-	1.8/1.9/1.9
SF Rotation	-	CCW
RA Damper Position	-	7.0"
Min OA Damper Position	-	3 5/8
Min OA Damper Type	-	[2] SET MANUALLY

Motor Data		
	Design	Actual
Motor MFG	-	US MOTORS
Frame	-	56
Horsepower	-	1.0
Motor Rpm	-	1745
Phase	-	3
Rated Voltage	-	208
Rated Amperage	-	3.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.48"
Fan Suction SP	-	-0.61"
Fan Discharge SP	-	0.64"
Total ESP	-	1.12"
Fan Total SP	-	1.25"

Drive Data		
	Design	Actual
Motor Sheave Size	-	3.0"
Motor Bore Size	-	0.75"
Motor Sheave SetPt	-	MINIMIZED
Fan Sheave Size	-	4.75"
Fan Sheave Bore	-	1.0"
Belt CL Distance	-	16.0"
Num of Belts	-	1
Belt Size	-	A-40
Belt Alignment	-	GOOD

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

Completed By: Dale Wheeler

Notes:[1] UNIT GRILLS DO NOT MATCH WHAT IS SHOWN ON GRD. [2] OA HAD TO BE SET MANUALLY DUE TO ECON NOT WORKING. UNIT TEMP. DISCHARGE IS 66F AT DIFFUSER

National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF1

AREA:HOOD 1

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	HRE-24	HRE-24
Serial Num	-	1386233
Type	UPBLAST	UTILITY
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	WEG
Frame	-	184T
Horsepower	5	5.0
Motor Rpm	-	1775
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	14.0
Service Factor	-	1.15

Drive Data		
	Design	Actual
Motor Sheave Size	-	2VP42
Motor Bore Size	-	1 1/8
Motor Sheave SetPt	-	3 TURNS OUT
Fan Sheave Size	-	5 5/8
Fan Sheave Bore	-	1 3/8
Belt CL Distance	-	10 3/8
Num of Belts	-	2
Belt Size	-	BX33

Test Data		
	Design	Actual
CFM	5300	4705
Fan RPM	1084	1059
Fan Rotation	-	CCW
Motor RPM	-	1760
RL Voltage	-	207/207/207
RL Amperage	-	8.4/8.7/8.9
Suction ESP	-	[1]
Discharge ESP	-	[1]
Total ESP	-2.0"	[1]

Completed By: Dale Wheeler

Notes:

National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF-A2

AREA:RESTROOMS

Unit Data		
	Design	Actual
MFG	GREENHECK	COOK
Model Num	G-085-D	90 ACEH 90C10DH
Serial Num	-	050SD76371
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	FASCO
Frame	-	N/L
Horsepower	1/20	1/25
Motor Rpm	-	1050
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	1.4
Service Factor	-	1.0

Test Data		
	Design	Actual
CFM	375	-
Fan RPM	-	[1]
Fan Rotation	-	[1]
Motor RPM	-	[1]
System SetPt	-	[1]
RL Voltage	-	[1]
RL Amperage	-	[1]
Total ESP	0.375"	[1]
Fan Inlet SP	-	[1]
Fan Discharge SP	-	[1]

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Notes: [1] FAN IS NOT OPERATIONAL.

National TAB

Project:08-15 FIVE GUYS - SAVANNAH, GA

FAN - Exhaust



Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF-A2/RESTROOMS

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	WOMENS RR	J			1				
EGRD2	MENS RR	J			1				
EGRD3	MOP ROOM	J			1				

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National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: FAN - Supply



Comfort. Under control.

Asset: MAU1

AREA:

Unit Data		
	Design	Actual
MFG	NA	FLO AIRE
Model Num	NA	NSA12
Serial Num	-	1105108
Type	-	MAU
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	NEMA
Frame	-	145T
Horsepower	-	2.0
Motor Rpm	-	1745
Phase	-	3
Voltage (rated)	-	208
Amperage (rated)	-	5.9
Service Factor	-	1.15

Gas Heat		
	Design	Actual
Heater Operates (y/n)	-	N/A
Flame Status (pass/fail)	-	N/A
Inlet Air Temp SetPt	-	N/A
Discharge Air Temp SetPt	-	N/A
Air Flow Switch SP Actual	-	N/A

Test Data		
	Design	Actual
CFM	-	2452
SF RPM	-	751
Motor RPM	-	1783
SF System SetPt	-	2.5 TURNS OUT
RL Voltage	-	209/209/209
RL Amperage	-	2.9/2.9/2.8
Total ESP	-	N/R
Fan Discharge SP	-	N/R

General		
	Design	Actual
Fan Rotation Correct	-	YES

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Notes:

National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: Kitchen Hood Type I



Comfort. Under control.

Asset: HD1

AREA:

Unit Data		
	Design	Actual
MFG	NA	COMMERCIAL AIRE
Model Num	NA	CADEX-146.54-FP
Job / Serial Num	-	0310-7154
Type	-	TYPE 1 CANOPY
Hood length	-	144
Hood Width	-	54

Performance Data		
	Design	Actual
Smoke Generation Type	-	SMOKE EMITTER
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES

General		
	Design	Actual
Third Party Witness	-	JADA
Third Party Company	-	5 GUYS
Tech Witness	-	DALE WHEELER

Test Data Exhaust		
	Design	Actual
Filter Type	-	BAFFLED
Filter Size 1	-	20X16
Filter Size 2	-	16X16
Filter Qty 1	-	5
Filter Qty 2	-	3
Filter AK factor size 1	-	2.08
Filters AK factor size 2	-	1.62
Filter Total AK Area	-	15.26
Filter1 FPM	-	185
Filter2 FPM	-	197
Filter3 FPM	-	184
Filter4 FPM	-	197
Filter5 FPM	-	210
Filter6 FPM	-	184
Filter7 FPM	-	151
Filter8 FPM	-	184
Filter9 FPM	-	N/A
Filter10 FPM	-	N/A
Filter11 FPM	-	N/A
Filter12 FPM	-	N/A
Filter Ave FPM(corr)	-	186
CFM	-	2838

Cooking Equipment		
	Design	Actual
Item 1	-	GRIDDLE
Item 2	-	N/A

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Notes:

National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: Kitchen Hood Type I



Comfort. Under control.

Asset: HD2

AREA:

Unit Data		
	Design	Actual
MFG	NA	COMMERCIAL AIRE
Model Num	NA	CADEX-94.54-FP
Job / Serial Num	-	0310-7154
Type	-	TYPE 1 CANOPY
Hood length	-	94
Hood Width	-	54

Performance Data		
	Design	Actual
Smoke Generation Type	-	SMOKE EMITTER
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES

General		
	Design	Actual
Third Party Witness	-	JADA
Third Party Company	-	5 GUYS
Tech Witness	-	DALE WHEELER

Test Data Exhaust		
	Design	Actual
Filter Type	-	BAFFLED
Filter Size 1	-	16X16
Filter Size 2	-	20X16
Filter Qty 1	-	3
Filter Qty 2	-	2
Filter AK factor size 1	-	1.62
Filters AK factor size 2	-	2.08
Filter Total AK Area	-	9.02
Filter1 FPM	-	208
Filter2 FPM	-	208
Filter3 FPM	-	220
Filter4 FPM	-	203
Filter5 FPM	-	197
Filter6 FPM	-	N/R
Filter7 FPM	-	N/R
Filter8 FPM	-	N/R
Filter9 FPM	-	N/R
Filter10 FPM	-	N/R
Filter11 FPM	-	N/R
Filter12 FPM	-	N/R
Filter Ave FPM(corr)	-	207
CFM	-	1867

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

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Notes:

National TAB

Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: Kitchen Hood Type I



Comfort. Under control.

Asset: PSP-HD1

AREA:

Unit Data		
	Design	Actual
MFG	NA	COMERCIAL AIRE
Model Num	NA	CADEX-146.54-FP
Supply Plenum Type	-	PSP
Supply Plenum Width	-	14"
Supply Plenum Length	-	144"

Test Data Supply		
	Design	Actual
AK factor	-	14.0
Kv factor (Vel)	-	0.87
Num of Readings	-	9
Reading1 FPM	-	177
Reading2 FPM	-	88
Reading3 FPM	-	134
Reading4 FPM	-	29
Reading5 FPM	-	54
Reading6 FPM	-	19
Reading7 FPM	-	119
Reading8 FPM	-	179
Reading9 FPM	-	34
Reading10 FPM	-	N/L
Reading11 FPM	-	N/L
Reading12 FPM	-	N/L
Reading13 FPM	-	N/L
Reading14 FPM	-	N/L
Ave FPM(corr)	-	137
CFM	-	1644

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Notes:

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Project: 08-15 FIVE GUYS - SAVANNAH, GA

System/Unit: Kitchen Hood Type I



Comfort. Under control.

Asset: PSP-HD2

AREA:

Unit Data		
	Design	Actual
MFG	NA	CADEX-146.54-FP
Model Num	NA	NA
Supply Plenum Type	-	PSP
Supply Plenum Width	-	14"
Supply Plenum Length	-	54"

Test Data Supply		
	Design	Actual
AK factor	-	5.25
Kv factor (Vel)	-	0.87
Num of Readings	-	6
Reading1 FPM	-	113
Reading2 FPM	-	241
Reading3 FPM	-	213
Reading4 FPM	-	147
Reading5 FPM	-	161
Reading6 FPM	-	186
Reading7 FPM	-	N/R
Reading8 FPM	-	N/R
Reading9 FPM	-	N/R
Reading10 FPM	-	N/R
Reading11 FPM	-	N/R
Reading12 FPM	-	N/R
Reading13 FPM	-	N/R
Reading14 FPM	-	N/R
Ave FPM(corr)	-	177
CFM	-	808

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Notes:

NOTE: CONTRACTOR TO RE-USE ANY EXISTING DIFFUSERS AND DUCTWORK THAT WILL FIT WITH NEW DESIGN.

