Report By:

National TAB
1329 E Kemper Rd, Ste 4210
Cincinnati, OH 45246

Report: **Test and Balance**
Date: **8/16/2019**

PROJECT

CHICK-FIL-A #02795 - LUMBERTON, NC (REVIVE)

230 JACKSON CT
LUMBERTON, NC 28358

Client

STERLING BUILDING GROUP, INC
3224 N. O'HENRY BLVD
GREENSBORO, NC 27405

National TAB

Project: CHICK-FIL-A #02795 - LUMBERTON, NC (REVIVE)

Table Of Contents

RECOMMENDATION LIST

Assigned Organization: National TAB

Status: Not Submitted

Asset:

RECOMMENDATION / PRIORITY	
HIGH	Discharge temperature was measured as 60.2 F & 88% RH on the kitchen AC-1 which appears too high for this size of unit. Using a BTUH calculation with EAT and LAT temperatures the total capacity of the unit is 233 MBtuh but the unit has a nominal capacity of 300 MBtuh. Recommend servicing the refrigeration on this unit.
HIGH	Kitchen AC-1 economizer is missing a blade and needs to be repaired. The unit is bringing in OA over design as a result of the broken blade.
HIGH	Alarm 91 on AC-1 in the kitchen (Outdoor enthalpy sensor A7) - Recommend repairing.
HIGH	OA Filters are all clogged. Recommend cleaning. IMPORTANT: Do not clean until the damper for AC-1 has been repaired otherwise the OA will be much higher than design.
HIGH	The two capture jet fans for Hood 3 are not working properly and are causing poor hood performance. The side capture jet does not have a speed controller installed - recommend installing. The main capture jet is low on flow. This capture jet is very dirty. The techcian cleaned exterior buildup which did not have any major impact. Recommend taking fan apart and cleaning the inside as it is likely coated with grease.
HIGH	EF-2 belt is near failure and needs to be replaced. It is installed as a 4L280
HIGH	Hood 1R has a small range that is sticking outside of the hood. Recommend that this be moved fully under the hood.
HIGH	AC-3 Mesh OA filters are not installed.
LOW	AC5 in the Play area was not running and had to be jumpered on. Recommend fan runs constantly. Recommend troubleshooting with OEM to determine why unit is cycling on and off.
LOW	AC-2 Prodigy board cover is loose. Does not appear to be causing any major issues but recommend repairing if possible.
LOW	AC-3 blower door insulation is coming loose. Recommend repairing.
INFO	Major area of complaint was the kitchen. Initially the temperatures were measured throughout the kitchen as an average of 75 F. Kitchen AC-1 was initially programmed for 76 cooling temperature. This stat as well as the others were programmed for standard CFA settings of 73. After balancing was completed the space acheived this temperature. When forced into full cooling the temperature throughout the kitchen was between 69-71.

INFO	AC-3 economizer was taped shut initally (see pictures). The tape was removed and the OA was set. This was re-set to closed position and tape reinstalled until AC-1 economizer is repaired to prevent a overly positive pressure.

Notes/Comments:

NATIONAL TAB

National TAB NEBB JOE HERTENSTEIN CERTIFICATION 3629 Exp. 3/31/21 Air and Hydronic Testing

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
AC-1	KITCHEN	8000	7365	5650	4721	2350	2644	29.4%	35.9%						
AC-2	RESTROOMS	1790	1787	1290	1299	500	488	27.9%	27.3%						
AC-3	DINING	2000	1935	1440	1359	560	576	28.0%	29.8%						
AC-4	SERVING	4000	4123	2940	2977	1060	1146	26.5%	27.8%						
AC-5	PLAY AREA	1750	1832	1450	1536	300	296	17.1%	16.2%						
EF-1	HD1 RIGHT											1085	1202		
EF-2	HD1 LEFT											1085	1198		
EF-3	HD2 FRYER											701	642		
EF-4	HD3 GRIDDLE											804	811		
EF-5	RESTROOM													300	282
	TOTALS	17540	17042	12770	11892	4770	5150			0	0	3675	3853	300	282

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	4770	5150
TOTAL EXHAUST	3975	4135
NET AIRFLOW	795	1015

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.02
SIDE	
REAR	0.02
AVERAGE	**0.02**

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:

HD1R

HD1L

HD2

HD3

Side Capture Jet

HD1L Cap Jet

HD1R Cap Jet

EF2 Belt

Broken Damper

AC1 Sensors

Hum Sensor Wiring

AC2 Sensors

AC3 Sensors

AC4 Sensors

AC5 Sensors

AC3 Insulation Issue

EF5

EF4

EF3

EF1 & 2

AC5

AC4

AC3

AC2

AC1

AC2 OA Filter Dmg

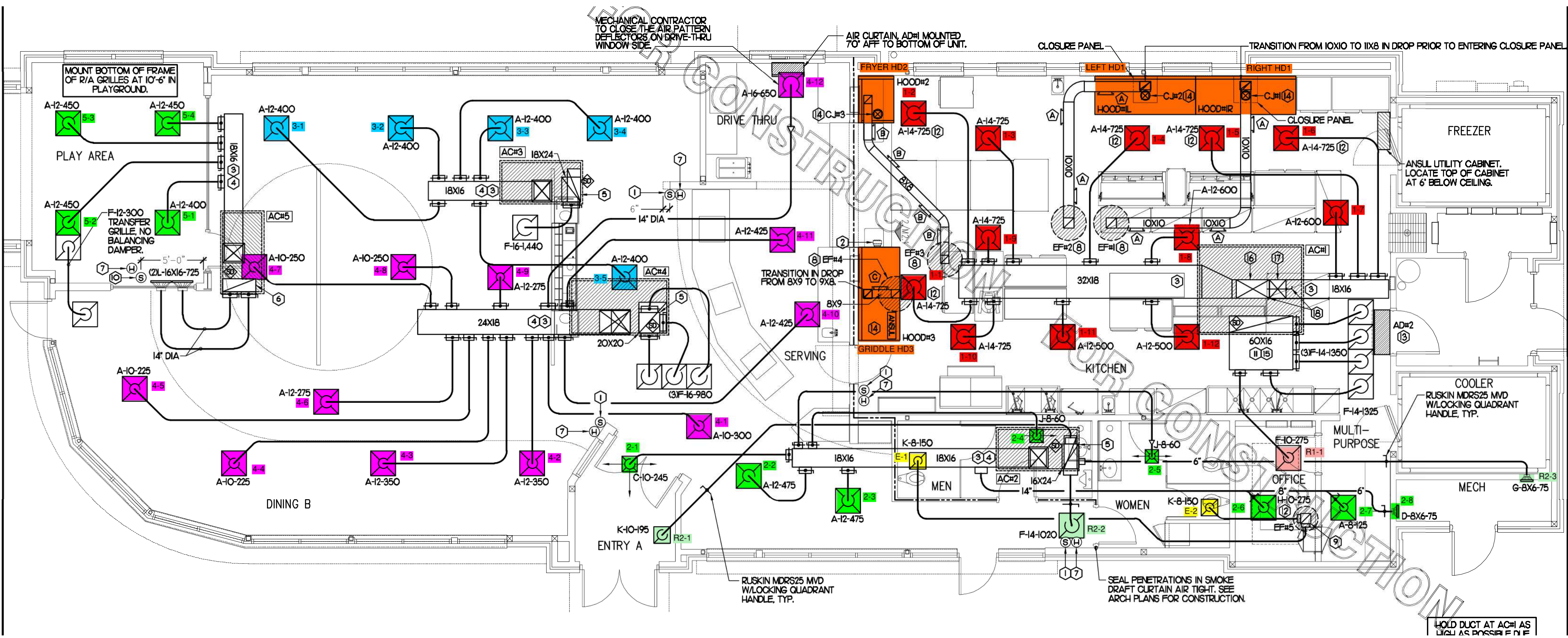
AC2 Prodigy Board

AC1 OA Filter Dmg

AC1 OA Filter Clog

AC3 OA Damper

AC2 Missing Blade



MOUNT BOTTOM OF FRAME OF R/A GRILLES AT 10'-6" IN PLAYGROUND.
PLAY AREA
DINING B
DRIVE THRU
SERVING
ENTRY A
KITCHEN
MEN
WOMEN
OFFICE
MULTI-PURPOSE
FREEZER
COOLER
MECH
MECHANICAL CONTRACTOR TO CLOSE THE AIR PATTERN DEFLECTORS ON DRIVE-THRU WINDOW SIDE.
AIR CURTAIN, AD#1 MOUNTED 7'0" AFF TO BOTTOM OF UNIT.
CLOSURE PANEL
TRANSITION FROM 10X10 TO 11X8 IN DROP PRIOR TO ENTERING CLOSURE PANEL
FRYER HD2
LEFT HD1
RIGHT HD1
GRIDDLE HD3
HOOD#1L
HOOD#1R
HOOD#2
HOOD#3
ANSUL UTILITY CABINET. LOCATE TOP OF CABINET AT 6' BELOW CEILING.
TRANSITION IN DROP FROM 8X9 TO 9X8.
F-12-300 TRANSFER GRILLE, NO BALANCING DAMPER.
(2)L-16X16-725
14" DIA
F-16-1,440
(3)F-16-980
(3)F-14-1350
F-14-1325
F-14-1020
F-10-275
RUSKIN MDRS25 MVD W/LOCKING QUADRANT HANDLE, TYP.
SEAL PENETRATIONS IN SMOKE DRAFT CURTAIN AIR TIGHT. SEE ARCH PLANS FOR CONSTRUCTION.
HOLD DUCT AT AC#1 AS HIGH AS POSSIBLE DUE
AC#1
AC#2
AC#3
AC#4
AC#5
AD#2
EF#1
EF#2
EF#3
EF#4
EF#5
FOR CONSTRUCTION

TECH - STEP 1: INITIAL READINGS

Assigned Organization: National TAB

Status: Not Submitted

Asset:

INITIAL BUILDING REVIEW:	
What is the initial building pressure before making any changes?	0.043" AVG
Are thermostats programmed?	YES, BUT TEMPS ARE NOT WHAT CFA SPECIFIES
Are building pressure relief working properly?	NA
INITIAL AIRFLOWS:	
SUPPLY RTU-1	7232
OA RTU-1	2644
SUPPLY RTU-2	1899
OA RTU-2	709
SUPPLY RTU-3	1935
OA RTU-3	0
SUPPLY RTU-4	4103
OA RTU-4	1826
SUPPLY RTU-5	0
OA RTU-5	0
EF-1	904
EF-2	861
EF-3	642
EF-4	811
EF-5	282

Notes/Comments:

[1] AC1 OA read out by reading out return and subtracting from supply total.

TECH - STEP 2: INITIAL WALKTHROUGH

Assigned Organization: National TAB

Status: Submitted

Asset:

INITIAL SITE WALKTHROUGH	
Inspection checklists are completed?	NA
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
Thermostats have power?	YES
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	NA

Notes/Comments:

TECH - STEP 3: UNIT DATA AND EVAL

Assigned Organization: National TAB

Status: Submitted

Asset:

UNIT DATA AND EVALUATION WHILE GATHERING UNIT DATA CHECK THE FOLLOWING:	
RTU's/AHU's	
Motors are all operating below the FLA rating?	YES
If direct drive unit is the speed controller working	YES
Unit free of noticeable noise and vibration	YES
EF's	
Rotation is correct?	YES
Belts are tight?	YES
There is no major leakage around base of fan?	YES
Is the motor operating below the motor FLA rating?	YES
Unit free of noticeable noise and vibration?	YES
HOODS	
Kitchen equipment installed in proper places?	NO, HD1R HAS A SMALL RANGE THAT IS STICKING OUTSIDE THE HOOD. A PLACE NEEDS TO BE FOUND FOR IT UNDER A HOOD TO ENSURE IT CAPTURES THE SMOKE FROM USE
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

Notes/Comments:

TECH - STEP 4: TEST, ADJUST AND BALANCE

Assigned Organization: National TAB

Status: Submitted

Asset:

TEST, ADJUST, AND BALANCE ALL EQUIPMENT:	
DURING TESTING MAKE NOTE OF THE FOLLOWING:	
Ensure that deflectors for diffusers in side entry and RR vesibule are closed as shown on the mechanical plan.	NA
Look at plans and adjust pattern deflectors to throw straight down for diffusers near hood where noted	NO PATTERN DEFLECTROS INSTALLED
Adjust pattern deflectors for any other diffusers where noted on plans	NO PATTERN DEFLECTROS INSTALLED
Is space free of drafting?	YES
Is space comfortable in all areas?	KITCHEN IS WARM
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
All balancing dampers final position marked with permanent marker after balancing complete?	NO

Notes/Comments:

TECH - STEP 5: FINAL TESTS

Assigned Organization: National TAB

Status: Submitted

Asset:

Picture document all issues with full description. Needs to include the location of the specification (example: Page, specification #, detail #) in the drawings. If you see something, say something. If there are any other issues you identify outside of these checklists note those in the report as well. All issues should be communicated with the mechanical contractor on site.	
AIR DOORS	
-Installed in proper location?	YES
-Correct model/manufacturer?	YES
-Timer is set to minimum position (0)?	YES
-They are operating correctly?	YES
-Is thermostat for drive thru installed at the air door? If so, recommend it be installed in a more accessible location on the wall.	NA
-Drive thru air door is adjusted so it is not noisey and directed at the center of the drive thru window?	NA
FINAL TESTS	
HOOD CAPTURE TEST	
List equipment turned on for testing	ALL
List smoke candle type used	SMOKE EMITTER
Smoke test capture - Perimeter of hood	100% FOR ALL BUT HD3 WHICH WAS 95%
Smoke test capture - Top of cooking surface	100% FOR ALL BUT HD3 WHICH WAS 95%
WITNESS	
Date test was completed	8/9/2019
TAB tech name / Firm	TRAVIS HALTER / NATIONAL TAB
Site super name / Firm	NA
Owner representative name / Firm (if Applicable)	NA
BUILDING PRESSURE TEST	
Building pressure at front & back doors (All Systems On)	0.020" AVG WITH DIRTY OA FILTERS FOR AC1 INSTALLED

Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)	YES
VELOCITY OF SERVING WINDOW	
Transfer velocity for Serving Window (window between kitchen and serving) is 50-80FPM	77

Notes/Comments:

TECH - STEP 6: COMMISSIONING LIGHT

Assigned Organization: National TAB

Status: Submitted

Asset:

OCCUPIED / UNOCCUPIED SEQUENCE OF OPERATION	
Turn switch on Suncoast panel to occupied mode and check the following for all RTU's:	
All blowers turn on (I.e., signal to G)? (Except the Playroom unit which will stay in auto blower)	YES
All economizers open to minimum position? (I.e., signal to OCP terminal)	YES, EXCEPT WHERE NOTED OTHERWISE
Temperatures on thermostats at occupied settings (73 cooling / 69 heating)	YES
Hood exhaust and Capture Jets turn on?	YES
Turn switch on Suncoast panel to unoccupied mode and check the following for all RTU's:	
All blowers go to auto mode?	YES
All economizers close? (I.e., no signal to the OCP terminal)	YES
Temperatures on thermostats at unoccupied settings (85 cooling / 55 heating)	YES
Hood exhaust and Capture Jets turn off?	YES
HUMIDISTATS	
Review wiring diagrams and balance procedure pictures for details. Check the following for each humidistat:	
All humidistats and thermostats are installed in locations shown on drawing?	YES
"Vin" terminals wired?	YES
"Com" ternimals wired?	YES
"Vout" terminals wired?	YES
Shield wires are not in use?	YES
TEMPERATURES	
Measured temperature at each sensor matches actual temperature on thermostat?	YES
Measured temperature at each zone damper thermostat matches displayed temeprature?	YES

Notes/Comments:

TECH - STEP 6B: COMMISSIONING LIGHT

Assigned Organization: National TAB

Status: Submitted

Asset:

PRODIGY BOARD SETTINGS (MECHANICAL CONTRACTOR TO COMPLETE, TAB TO VERIFY AND CORRECT AS REQUIRED)	
Note any alarms present on the prodigy board:	NA
For all AC's EXCEPT the kitchen RTU, change parameter 65 to 0 (58 on LCH Units). This will cause the OA damper to open on "occupied" start. At kitchen AC (LGH Type) leave the setting at the default value so the OA damper will remain closed for the first 60 minutes after occupied start. At kitchen AC (LCH Type) change the value to 5400 so the OA damper will remain closed for the first 90 minutes after occupied start.	NA
At Humiditrol RTU's, set the Prodigy M3 Board control parameter #105 for dehumidification operation to a value of 5 (60% RH)	NA
Set TSTAT COM Switch on prodigy board to open position. (Newer Prodigy will not have this setting--put N/A)	UNABLE TO FIND THIS SWITCH
Enthalpy offset set to 5.0 for all AC's?	NA
Free cooling supply air setpoint set to 55.0 F?	NA
Damper max opening set to the same position as min position?	NA
Power exhaust on by econ travel set higher than min damper position (typ. 50%)?	NA
Fresh air cooling enable FAC = No?	NA
FAH = Yes (On units with fresh air tempering only. (If not applicable put N/A)	NA
If FAH, change prodigy parameter 156 to a value of 56	NA
If FAH, change prodigy parameter 157 to a value of 14	NA
If FAH, change prodigy parameter 158 to a value of 300	NA
If FAH, is the discharge sensor installed AFTER the first elbow on main supply drop?	NA
If FAH, is the wiring harness connected to the sensor wiring?	NA

At MSAV Units, set the MSAV Low speed setting to the same value as the high speed setting after TAB is completed. (If not applicable put N/A)	NA
PRODIGY INSTALL MENU SETTINGS (GO TO SETTINGS > INSTALL)	
Language = English?	NA
Date/Time is correct?	NA
Display units F/C set to Farenheit?	NA
Model Number correct?	NA
Configuration ID 1 & 2 is correct? (On white sticker titled "Original factory unit configuration" on right side of control box	NA
Catalog number is correct (Located on the unit nameplate)	NA
Serial number is correct?	NA
Set to Control type to "Wired Thermostat"	NA
PRODIGY NETWORK INTEGRATION (GO TO SETUP > NETWORK INTEGRATION)	
Set Network = L-Connection/Address-2/Monitor Only	NA
FIRMWARE UPDATE	
If RTU was manufactured in 2015 or earlier and has Prodgy 2.0, check that the firmware version is newer than 08.02.0143. If it is older contact Will immediately for instructions on how to update.	NA

Notes/Comments:

[1] All units have Prodigy 1.0 boards installed.

System/Unit: AHU/RTU

Asset: AC1 AREA: KITCHEN

Unit Data		
	Design	**Actual**
MFG	NA	LENNOX
Model Num	NA	LGH300S4BH2Y
Serial Num	-	5612F03549
Type	RTU	RTU
Configuration	VERTICAL DISCHARGE	VERTICAL
Num OA Filters 1	-	3
OA Filter Size 1	-	23.5X12.75
Num Final Filter 1	-	6
Final Filter Size 1	-	24X24X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Test Data		
	Design	**Actual**
SF CFM	8000	7365
SF RPM	-	1018
RA CFM	5650	4721
OA CFM	2350	2644
RL Voltage	-	207/207/207
RL Amperage	-	18.2/18.2/18.2
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	[4]
Min OA Damper Position	-	[4]
Min OA Damper Type	-	ECONOMIZER
Brake Horse Power	-	6.44

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	213T
Horsepower	7.5	7.5
Motor Rpm	-	1770
Phase	-	3
Rated Voltage	-	200-230
Rated Amperage	-	21.2-19.6

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.51
Fan Suction SP	-	-1.04
Fan Discharge SP	-	0.42
Total ESP	1.00"	0.93
Fan Total SP	-	1.46

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	6”
Motor Bore Size	-	1.375”
Motor Sheave SetPt	-	2.5 TURNS OUT
Fan Sheave Size	-	BK90
Fan Sheave Bore	-	1.375”
Belt CL Distance	-	21.75”
Num of Belts	-	1
Belt Size	-	BX63
Belt Alignment	-	GOOD

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

Completed By: Travis Halter on 08/09/2019

Notes: [1] Missing top half of OA ECONOMIZER
[2] OA Filters are clogged with dirt
[3] Alarm (91) Outdoor Enth Sensor A7
[4] Damper is Set to 28% but the OA damper seems to be in the closed position.
[5] With current dirty filters still installed, nothing blocked off. Discharge 60.2F 88% Hum, return 68.4F 85% Hum, MA 74.1F 72%. OA total is 2644
[6] OA total with clogged OA filters removed is 6048
[7] OA Temp is 78.5F 72%

Diffuser Supply (GRD)

AC1 / KITCHEN

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	COOKLINE HD3	A	14"	725	1	616	655	655	90.3
SGRD2	COOKLINE HD2	A	14"	725	1	688	659	659	90.9
SGRD3	PREP	A	14"	725	1	730	682	682	94.1
SGRD4	COOKLINE HD1	A	14"	725	1	627	661	661	91.2
SGRD5	COOKLINE HD1	A	14"	725	1	690	675	675	93.1
SGRD6	COOKLINE HD1	A	14"	725	1	636	654	654	90.2
SGRD7	PREP	A	12"	600	1	595	572	572	95.3
SGRD8	PREP	A	12"	600	1	443	556	556	92.7
SGRD9	PREP	A	14"	725	1	678	671	671	92.6
SGRD10	PREP	A	14"	725	1	633	669	669	92.3
SGRD11	DISHWASH	A	12"	500	1	448	459	459	91.8
SGRD12	DISHWASH	A	12"	500	1	448	452	452	90.4

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Asset	Area Served	Notes

Diffuser Ret/Exh (GRD)

AC1 / KITCHEN

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	OFFICE	F	10"	275	1	282	282	282	102.5

Completed By: Travis Halter on 08/09/2019

Asset	Area Served	Notes

System/Unit: AHU/RTU

Asset: AC2 AREA: RESTROOMS

Unit Data		
	Design	**Actual**
MFG	NA	LENNOX
Model Num	NA	LGH060H4EH1Y
Serial Num	-	5612F03265
Type	RTU	RTU
Configuration	VERTICAL DISCHARGE	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	32.5X19.5
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Test Data		
	Design	**Actual**
SF CFM	1790	1787
SF RPM	-	100%
RA CFM	1290	1299
OA CFM	500	488
RL Voltage	-	212
RL Amperage	-	6.9
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	67%
Min OA Damper Position	-	33%
Min OA Damper Type	-	ECONOMIZER
Brake Horse Power	-	0.93

Motor Data		
	Design	**Actual**
Motor MFG	-	[1]
Frame	-	[1]
Horsepower	1.0	1
Motor Rpm	-	[1]
Phase	-	1
Rated Voltage	-	208/230
Rated Amperage	-	7.4

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.55
Fan Suction SP	-	-0.88
Fan Discharge SP	-	0.23
Total ESP	.65"	0.78
Fan Total SP	-	1.11

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: Travis Halter on 08/09/2019

Notes: [1] Motor sticker not accessible, motor data take. From unit sticker
[2] Prodigy board is coming off board, see picture
[3] OA Filter slightly damaged

Diffuser Supply (GRD)

AC2 / RESTROOMS

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	ENTRY	C	10"	245	1	416	416	252	102.9
SGRD2	DINING	A	12"	475	1	398	398	433	91.2
SGRD3	DINING	A	12"	475	1	329	329	429	90.3
SGRD4	MENS RR	J	8"	60	1	181	181	101	168.3
SGRD5	WOMENS RR	J	8"	60	1	178	178	109	181.7
SGRD6	OFFICE	H	10"	275	1	221	221	256	93.1
SGRD7	MULTIPURPOSE	A	8"	125	1	100	100	126	100.8
SGRD8	MECH RM	D	8X6	75	1	76	76	81	108.0

Completed By: Travis Halter on 08/08/2019

Asset	Area Served	Notes
SGRD4	MENS RR	[1] Face damper is closed 100%, ductwork for diffuser says that it extends out of the hard ceiling on the plans but it does not.
SGRD5	WOMENS RR	[1] Face damper is closed 100%, ductwork for diffuser says that it extends out of the hard ceiling on the plans but it does not.

Diffuser Ret/Exh (GRD)

AC2 / RESTROOMS

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	ENTRY	K	10"	195	1	206	206	206	105.6
EGRD3	MECH RM	G	8X6	75	1	79	79	79	105.3

Completed By: Travis Halter on 08/08/2019

Asset	Area Served	Notes

System/Unit: AHU/RTU

Asset: AC3 AREA: DINING

Unit Data		
	Design	**Actual**
MFG	NA	LENNOX
Model Num	NA	LGH060H4EH1Y
Serial Num	-	5612F03266
Type	RTU	RTU
Configuration	VERTICAL DISCHARGE	VERTICAL
Num OA Filters 1	-	[1]
OA Filter Size 1	-	[1]
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Test Data		
	Design	**Actual**
SF CFM	2000	1935
SF RPM	-	100%
RA CFM	1440	1359
OA CFM	560	576
RL Voltage	-	211
RL Amperage	-	6.3
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	77%
Min OA Damper Position	-	23% [3]
Min OA Damper Type	-	ECONOMIZER
Brake Horse Power	-	0.85

Motor Data		
	Design	**Actual**
Motor MFG	-	[2]
Frame	-	[2]
Horsepower	1.0	1
Motor Rpm	-	[2]
Phase	-	1
Rated Voltage	-	208/230
Rated Amperage	-	7.4

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.58
Fan Suction SP	-	-1.03
Fan Discharge SP	-	0.13
Total ESP	.65"	0.71
Fan Total SP	-	1.26

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: Travis Halter on 08/09/2019

Notes: [1] No OA Filters Installed
[2] Motor sticker inaccessible, motor data taken from unit sticker
[3] The OA blades were taped shut, removed tape and set OA on high side to account for lack of filters. Tape replaced after setting to ensure building pressure didn't not get to high
[4] Insulation coming of motor compartment door

Diffuser Supply (GRD)

AC3 / DINING

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	DINING	A	12"	400	1	361	361	361	90.3
SGRD2	DINING	A	12"	400	1	368	368	368	92.0
SGRD3	DINING	A	12"	400	1	396	396	396	99.0
SGRD4	DINING	A	12"	400	1	439	439	439	109.8
SGRD5	ORDERING	A	12"	400	1	371	371	371	92.8

Completed By: Travis Halter on 08/07/2019

Asset	Area Served	Notes

System/Unit: AHU/RTU

Asset: AC4 AREA: SERVING

Unit Data		
	Design	**Actual**
MFG	NA	LENNOX
Model Num	NA	LGH120H4BH2Y
Serial Num	-	5612F02512
Type	RTU	RTU
Configuration	VERTICAL DISCHARGE	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	14.5X23
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	184T
Horsepower	5.0	5
Motor Rpm	-	1750
Phase	-	3
Rated Voltage	-	200-230
Rated Amperage	-	14.6-13.6

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	4.875”
Motor Bore Size	-	1”
Motor Sheave SetPt	-	MAX
Fan Sheave Size	-	7.5”
Fan Sheave Bore	-	1”
Belt CL Distance	-	21”
Num of Belts	-	1
Belt Size	-	BX59
Belt Alignment	-	GOOD

Test Data		
	Design	**Actual**
SF CFM	4000	4123
SF RPM	-	1097
RA CFM	2940	2977
OA CFM	1060	1146
RL Voltage	-	215/215/215
RL Amperage	-	11.1/11.1/11.1
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	88%
Min OA Damper Position	-	12%
Min OA Damper Type	-	ECONOMIZER
Brake Horse Power	-	3.88

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.89
Fan Suction SP	-	-1.27
Fan Discharge SP	-	0.19
Total ESP	.65"	1.08
Fan Total SP	-	1.46

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

Completed By: Travis Halter on 08/09/2019

Notes:

Diffuser Supply (GRD)

AC4 / SERVING

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	ENTRY	A	10"	300	1	326	326	326	108.7
SGRD2	DINING	A	12"	350	1	340	340	340	97.1
SGRD3	DINING	A	12"	350	1	382	382	382	109.1
SGRD4	DINING	A	10"	225	1	238	238	238	105.8
SGRD5	DINING	A	10"	225	1	268	268	268	119.1
SGRD6	DINING	A	12"	275	1	293	293	293	106.5
SGRD7	DINING	A	10"	250	1	268	268	268	107.2
SGRD8	DINING	A	10"	250	1	274	274	274	109.6
SGRD9	DINING	A	12"	275	1	286	286	286	104.0
SGRD10	SERVING	A	12"	425	1	383	383	383	90.1
SGRD11	SERVING	A	12"	425	1	409	409	409	96.2
SGRD12	DRIVE THRU	A	16"	650	1	656	656	656	100.9

Completed By: Wendy Biggs on

Asset	Area Served	Notes
SGRD5	DINING	[1] Damper handle is broken. Unable to close damper down to decrease flow to diffuser.

System/Unit: AHU/RTU

Asset: AC5 AREA: PLAY AREA

Unit Data

	Design	Actual
MFG	NA	LENNOX
Model Num	NA	LGH060H4EH1Y
Serial Num	-	5612F03288
Type	RTU	RTU
Configuration	VERTICAL DISCHARGE	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	14.75X10.25
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Motor Data

	Design	Actual
Motor MFG	-	[1]
Frame	-	[1]
Horsepower	1.0	1
Motor Rpm	-	[1]
Phase	-	1
Rated Voltage	-	208/230
Rated Amperage	-	7.4

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	1750	1832
SF RPM	-	70%
RA CFM	1450	1536
OA CFM	300	296
RL Voltage	-	212
RL Amperage	-	4.9
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	NA
Min OA Damper Position	-	27%
Min OA Damper Type	-	MOTORIZED DAMPER
Brake Horse Power	-	0.66

Performance Data

	Design	Actual
MA Plenum SP	-	-0.20
Fan Suction SP	-	-0.46
Fan Discharge SP	-	0.15
Total ESP	.65"	0.35
Fan Total SP	-	0.61

General

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

Completed By: Travis Halter on 08/09/2019

Notes: [1] Unit was jumped out to ensure that it ran, unit is currently not being controlled by suncoast panel
[2] Unable to access diffusers, unit was traveresed.

System/Unit: FAN - Exhaust

Asset: EF1 AREA: HD1-RIGHT

Unit Data		
	Design	**Actual**
MFG	LOREN COOK	COOK
Model Num	NA	165VH5B
Serial Num	-	050SE20579-00-0000701
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	UPBLAST	UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56
Horsepower	1/2	0.5
Motor Rpm	-	1725
Phase	-	1
Voltage (rated)	-	115/230
Amperage (rated)	-	8.8/4.4
Service Factor	-	1.25

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	3.125”
Motor Bore Size	-	0.625”
Motor Sheave SetPt	-	2 TURNS OUT
Fan Sheave Size	-	AK41
Fan Sheave Bore	-	0.75”
Belt CL Distance	-	5.5”
Num of Belts	-	1
Belt Size	-	15270

Test Data		
	Design	**Actual**
CFM	1085	1202
Fan RPM	1071	1136
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	1777
RL Voltage	-	117
RL Amperage	-	8.5
Suction ESP	-	-0.54
Discharge ESP	-	ATM
Total ESP	.75"	0.54
Brake Horse Power	-	0.48

Completed By: Travis Halter on 08/09/2019

Notes:

System/Unit: FAN - Exhaust

Asset: EF2 AREA: HD1-LEFT

Unit Data		
	Design	**Actual**
MFG	LOREN COOK	COOK
Model Num	NA	165VH5B
Serial Num	-	050SE20579-00/0000702
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	UPBLAST	UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56
Horsepower	1/2	0.5
Motor Rpm	-	1725
Phase	-	1
Voltage (rated)	-	115/230
Amperage (rated)	-	8.8/4.4
Service Factor	-	1.25

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	3.125”
Motor Bore Size	-	0.625”
Motor Sheave SetPt	-	3 TURNS OUT
Fan Sheave Size	-	AK41
Fan Sheave Bore	-	0.75”
Belt CL Distance	-	5.5”
Num of Belts	-	1
Belt Size	-	4L280

Test Data		
	Design	**Actual**
CFM	1085	1198
Fan RPM	1071	1058
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	1780
RL Voltage	-	117
RL Amperage	-	8.6
Suction ESP	-	-0.61
Discharge ESP	-	ATM
Total ESP	.75"	0.61
Brake Horse Power	-	0.49

Completed By: Travis Halter on 08/09/2019

Notes: [1] Belt is damaged and needs to be replaced

System/Unit: FAN - Exhaust

Asset: EF3 AREA: HD2 FRYER

Unit Data		
	Design	**Actual**
MFG	LOREN COOK	COOK
Model Num	NA	150VH3B
Serial Num	-	050SE20579-00/0003201
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	UPBLAST	UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	48
Horsepower	1/4	0.25
Motor Rpm	-	1725
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	5.6
Service Factor	-	1.35

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	3.125”
Motor Bore Size	-	0.5”
Motor Sheave SetPt	-	1 TURN OUT
Fan Sheave Size	-	AK41
Fan Sheave Bore	-	0.75”
Belt CL Distance	-	5.5”
Num of Belts	-	1
Belt Size	-	15270

Test Data		
	Design	**Actual**
CFM	701	642
Fan RPM	1238	1227
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	1745
RL Voltage	-	116
RL Amperage	-	5.3
Suction ESP	-	-0.46
Discharge ESP	-	ATM
Total ESP	.75"	0.46
Brake Horse Power	-	0.24

Completed By: Travis Halter on 08/09/2019

Notes: [1] There is a noticeable vibration sound, stops when pressure is applied to lid. Not noticeable in space

System/Unit: FAN - Exhaust

Asset: EF4 AREA: HD3 GRIDDLE

Unit Data		
	Design	**Actual**
MFG	LOREN COOK	COOK
Model Num	NA	150VH3B
Serial Num	-	050SE20579-00/0005701
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	UPBLAST	UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	48
Horsepower	1/4	0.25
Motor Rpm	-	1725
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	5.6
Service Factor	-	1.35

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	3.125”
Motor Bore Size	-	0.5”
Motor Sheave SetPt	-	3.5 TURNS OUT
Fan Sheave Size	-	AK39
Fan Sheave Bore	-	0.75”
Belt CL Distance	-	5.75”
Num of Belts	-	1
Belt Size	-	4L290

Test Data		
	Design	**Actual**
CFM	804	811
Fan RPM	1295	1110
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	1745
RL Voltage	-	117
RL Amperage	-	5.5
Suction ESP	-	-0.33
Discharge ESP	-	ATM
Total ESP	.75"	0.33
Brake Horse Power	-	0.25

Completed By: Travis Halter on 08/09/2019

Notes:

System/Unit: FAN - Exhaust

Asset: EF5 AREA: RESTROOMS

Unit Data		
	Design	**Actual**
MFG	LOREN COOK	DAYTON
Model Num	ACED-90C15DH	4YC876
Serial Num	-	13585976
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	DOWNBLAST	DOWNBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	DAYTON
Frame	-	48Y
Horsepower	1/8	0.125
Motor Rpm	-	1140
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	2.2
Service Factor	-	1.0

Test Data		
	Design	**Actual**
CFM	300	282
Fan RPM	1294	SINGLE SPEED DD
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	SINGLE SPEED DD
System SetPt	-	SINGLE SPEED
RL Voltage	-	[1]
RL Amperage	-	[1]
Total ESP	.375"	0.21”
Fan Inlet SP	-	-0.21”
Fan Discharge SP	-	ATM

Completed By: Travis Halter on 08/08/2019

Notes: [1] No place to safely take volts and amps

Diffuser Ret/Exh (GRD)

EF5 / RESTROOMS

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	MEN	K	8"	150	1	147	147	147	98.0
EGRD2	WOMEN	K	8"	150	1	135	135	135	90.0

Completed By: Travis Halter on 08/07/2019

Asset	Area Served	Notes

System/Unit: Kitchen Hood Type I

Asset: HD2 AREA: FRYER

Unit Data	Design	Actual
MFG	HALTON	HALTON
Model Num	KVL-C	KVL-C
Job / Serial Num	-	62205-312
Type	TYPE I LOW PROXIMITY	TYPE I LOW PROXIMITY
Hood length	42	41
Hood Width	34	34

Test Data Exhaust	Design	Actual
Filter Size 1	SS FILTER (KSA)	SS FILTER (KSA)
Filter Size 2	1/2 SS FILTER (KSA)	1/2 SS FILTER (KSA)
Filter Qty 1	2	2
Filter Qty 2	0	0
Plenum SP	-	0.247
CFM	701	642

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

Test Data Supply	Design	Actual
Plenum SP	.29"	0.329

Performance Data	Design	Actual
Smoke Generation Type	-	SMOKE EMITTER
Hood Capture %	-	100%

General	Design	Actual
Third Party Witness	-	NA
Third Party Company	-	NA
Tech Witness	-	TRAVIS HALTER
Tech Company	-	NATIONAL TAB

Completed By: Travis Halter on 08/09/2019

Notes: [1] Capture Jet Speed controller is broken, Unable to adjust from this speed.

System/Unit: Kitchen Hood Type I

Asset: HD3 AREA: GRIDDLE

Unit Data		
	Design	**Actual**
MFG	HALTON	HALTON
Model Num	KVM	WORN OFF
Job / Serial Num	-	WPRN OFF
Type	TYPE I LOW PROXMITY	TYPE I LOW PROXIMITY
Hood length	90	90
Hood Width	40	40

Test Data Exhaust		
	Design	**Actual**
Filter Size 1	SS FILTER (KSA)	SS FILTER (KSA)
Filter Size 2	1/2 SS FILTER (KSA)	1/2 SS FILTER (KSA)
Filter Qty 1	4	4
Filter Qty 2	0	0
Plenum SP	-	0.093
CFM	804	811

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

Test Data Supply		
	Design	**Actual**
Plenum SP	.28"	0.116

Performance Data		
	Design	**Actual**
Smoke Generation Type	-	SMOKE EMITTER
Hood Capture %	-	95%

General		
	Design	**Actual**
Third Party Witness	-	NA
Third Party Company	-	NA
Tech Witness	-	TRAVIS HALTER
Tech Company	-	NATIONAL TAB

Completed By: Travis Halter on 08/09/2019

Notes: [1] Capture Jet Speed controller is maximized, can see no obstructions at inlet. Cleaned dirt buildup at inlet.
[2] Hood Capture is only 95%, loss is on the left side of the hood by griddle. It is caused by a combination of high side capture jet flow and low Hood capture jet flow.

System/Unit: Kitchen Hood Type I

Asset: HDL1 AREA: LEFT

Unit Data		
	Design	**Actual**
MFG	HALTON	HALTON
Model Num	KVL-2	WORN OFF
Job / Serial Num	-	WORN OFF
Type	TYPE I LOW PROXIMITY	TYPE I LOW PROXIMITY
Hood length	97	97
Hood Width	37	38

Test Data Exhaust		
	Design	**Actual**
Filter Size 1	SS FILTER (KSA)	SS FILTER (KSA)
Filter Size 2	1/2 SS FILTER (KSA)	1/2 SS FILTER (KSA)
Filter Qty 1	4	4
Filter Qty 2	1	1
Plenum SP	-	0.155
CFM	1085	1198

Cooking Equipment		
	Design	**Actual**
Item 1	-	PRESSURE FRYER
Item 2	-	NA

Test Data Supply		
	Design	**Actual**
Plenum SP	.30"	0.329

Performance Data		
	Design	**Actual**
Smoke Generation Type	-	SMOKE EMITTER
Hood Capture %	-	100%

General		
	Design	**Actual**
Third Party Witness	-	NA
Third Party Company	-	NA
Tech Witness	-	TRAVIS HALTER
Tech Company	-	NATIONAL TAB

Completed By: Travis Halter on 08/09/2019

Notes:

System/Unit: Kitchen Hood Type I

Asset: HDR1 AREA: RIGHT

Unit Data		
	Design	**Actual**
MFG	HALTON	HALTON
Model Num	KVL-2	WORN OFF
Job / Serial Num	-	WORN OFF
Type	TYPE I LOW PROXIMITY	TYPE I LOW PROXIMITY
Hood length	97	97
Hood Width	37	38

Test Data Exhaust		
	Design	**Actual**
Filter Size 1	SS FILTER (KSA)	SS FILTER (KSA)
Filter Size 2	1/2 SS FILTER (KSA)	1/2 SS FILTER (KSA)
Filter Qty 1	4	4
Filter Qty 2	1	1
Plenum SP	-	0.156
CFM	1085	1202

Cooking Equipment		
	Design	**Actual**
Item 1	-	PRESSURE FRYER
Item 2	-	PRESS GRILL

Test Data Supply		
	Design	**Actual**
Plenum SP	.30"	0.284

Performance Data		
	Design	**Actual**
Smoke Generation Type	-	SMOKE EMITTER
Hood Capture %	-	100%

General		
	Design	**Actual**
Third Party Witness	-	NA
Third Party Company	-	NA
Tech Witness	-	TRAVIS HALTER
Tech Company	-	NATIONAL TAB

Completed By: Travis Halter on 08/09/2019

Notes:

System/Unit: Kitchen Hood Type I

Asset: SIDE CAPTURE JET1 AREA: HOOD4

Unit Data		
	Design	**Actual**
MFG	HALTON	HALTON
Supply Plenum Type	SIDE CAPTURE JET	SIDE CAPTURE JET

Test Data Supply		
	Design	**Actual**
Plenum SP	.35"	1.418

Completed By: Travis Halter on 08/09/2019

Notes: [1] No speed controller installed
[2] Large amount of dirt buildup around motor, see picture.

Rectangular Duct Traverse Report

System: AC5 (LENNOX-LGH060H4EH1Y-PLAY AREA)

Service:

Altitude: Density: Factor:

Duct		Design	Actual
Width: 18	Readings: 4	SCFM:	SCFM:
Height: 16	Readings: 4	FPM:	FPM: 916
Area: 2.00		CFM:	CFM: 1832
S.P.:	Temp:		

Notes:

Duct Traverse Data Points

857	775	695	720
1037	982	738	703
1113	1081	1018	855
1119	986	1066	905