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: 7/18/2022

PROJECT

07-11 CULVERS - ANGOLA, IN

2207 N WAYNE STREET

ANGOLA, IN 46703

Client

Captive-Aire Region #60

National TAB

Project: 07-11 CULVERS - ANGOLA, IN

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)
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.

General Exhaust Fans
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 recorded at +0.011" W.C. average. This pressure falls within the recommended tolerances by the International Mechanical Code of +0.02" W.C. to -0.02" W.C. The building is designed for a net positive pressure and this measurement coincides with that requirement.
The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat "off" and 100% capture was observed. Cooking equipment was not able to be turned on while the technician was on site.

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07-11 CULVERS - ANGOLA, IN

Project Issue Information

Issue Name : BUILDING DOES NOT HAVE GAS

Description : NO GAS SERVICE AT TIME OF BALANCE. RTU VALVES CLOSED. RECOMMEND THAT HEATER STARTUP BE COMPLETED ONCE GAS IS TURNED ON. HOOD SMOKE TEST WAS PERFORMED COLD. ANTICIPATED THAT ONCE THE EQUIPMENT IS HOT, THE HEAT WILL AID SMOKE CAPTURE.

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

Status : Open

Originated Date : 07/13/2022 - Michael McDonnell - National TAB

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07-11 CULVERS - ANGOLA, IN

Project Issue Information

Issue Name : DOAS condensate drain size.

Description : Due to high fan suction pressure on both units, recommend distance between inlet and outlet increased for condensate drains from 2” to 4” to help units efficiently drain.

Created By : National TAB **Assigned To :** National TAB - Michael McDonnell

Status : Open

Originated Date : 07/14/2022 - Michael McDonnell - National TAB

Project Issue File Details

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Project Issue Response Details

- **07/14/2022 National TAB - Will Turnbough**
  - Recommend Captive Aire advise based on their experience if this is required.

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07-11 CULVERS - ANGOLA, IN

Project Issue Information

Issue Name : PRV-2 and PRV-3 not secured to curb

Description : Recommend fans are secured to their curbs with screws.

Created By : National TAB **Assigned To :** National TAB - Michael McDonnell

Status : Open

Originated Date : 07/12/2022 - Michael McDonnell - National TAB

Project Issue File Details

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07-11 CULVERS - ANGOLA, IN

Project Issue Information

Issue Name : RTU-2 has vibration.

Description : RTU-2 (kitchen) has vibration. CAS is aware and inspected blower wheel.

Created By : National TAB **Assigned To :** National TAB - Michael McDonnell

Status : Open

Originated Date : 07/14/2022 - Michael McDonnell - National TAB

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	6300	6092	4625	4392	1675	1700	26.6%	27.9%						
RTU-2	KITCHEN	6150	5909	4450	4165	1700	1744	27.6%	29.5%						
PRV-1	RESTRROM													300	304
PRV-2	HD1 GRIDDLE											1500	1458		
PRV-3	HD2 FRYERS											1500	1531		
EF-1A	MOP ROOM													75	76
TOTALS		12450	12001	9075	8557	3375	3444			0	0	3000	2989	375	380

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	3375	3444
TOTAL EXHAUST	3375	3369
NET AIRFLOW	0	75

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.003
SIDE	0.004
REAR	0.004
AVERAGE	**0.0037**

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:

[1] Building designed nuetral. Set OA for both RTUs above design to push building slightly positive.

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07-11 CULVERS - ANGOLA, IN

CheckList Information

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

CheckList Item Details

STORE FRONT

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RTU-1

FuseIT11e1775e878f42f7a91e9aed9b11e721.jpeg

RTU-2

IMG_6542.jpg

PRV-1

FuseITc8713b21ae1f427aa0b5862647afb75b.jpeg

PRV-2

FuseIT2901fe28cc1948b29d4ca15cdbf88f3d.jpeg

PRV-3

FuseIT028745279b294349958d1a70752ffec8.jpeg

EF-1A

FuseIT794e80aeb5db44148f6e9c8dc922ded1.jpeg

HOOD 1

FuseIT176fcb91970e4b7cb714c4a61411678a.jpeg

HOOD 2

FuseITe8f73fc1685a42a097b9305b2e734554.jpeg

PRODIGY BOARD WIRING

Captive Aire DOAS

Notes/Comments :

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07-11 CULVERS - ANGOLA, IN

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
Perforated diffusers are installed on the cook line? (4-ways will disrupt hood capture)	Yes

Screenshot_2022_07_14_101311.png

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?	Yes
On the cookline diffusers neck is there 18" (12" minimum) straight rigid duct run attached?	Yes

Screenshot_2022_07_14_101444.png

Notes/Comments :

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07-11 CULVERS - ANGOLA, IN

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
Thermostat wire run from OCP on the RTU to the Ec terminal at the thermostat? If no, jumper can be installed from R to OCP temporarily. (The economizers will not open without OCP being energized.)	Captive Aire DOAS units installed.
Motors are all operating below the FLA rating?	Yes
Are belts tight?	NA, all direct drive units.
If direct drive unit is the speed controller working.	Yes
Is gas piping installed and valves turned on?	No, building does not yet have gas.

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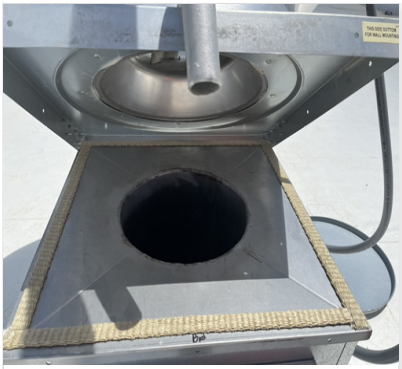
Unit free of noticeable noise and vibration	RTU-2 (Kitchen) has slight vibration above 40 HZ. Set to 57 HZ. CAS is aware of this issue.
EF's	
Rotation is correct?	Yes
Belts are tight?	NA, fans are direct drive
Grease cup installed on hood fan?	Yes
Hinge kit installed installed on hood fan?	Yes
Lean grease rated fans back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	Yes



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Flex conduit is long enough so that fan can be completely tilted back?	Yes
There is no major leakage around base of fan?	Yes
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

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Unit free of noticeable noise and vibration?	Yes
The hood exhaust fans are installed in correct positions and are not switched?	Yes
HOODS	
Kitchen equipment installed in proper places?	Yes
Can kitchen equipment be turned on for final smoke test?	No, building does not yet have gas.
Second stage Grease Grabber filters are installed on the griddle hood?	No, Captive Aire hoods.
DOCUMENTATION	
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	Yes

Notes/Comments :

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CheckList Information

Name :	TECH - STEP 3: TEST, ADJUST AND BALANCE	**Status :**	NotSubmitted
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

TEST, ADJUST, AND BALANCE ALL EQUIPMENT:

DURING TESTING MAKE NOTE OF THE FOLLOWING:

Is space free of drafting?	Yes
Is space comfortable in all areas?	Yes
Is the space free of ventilation noise?	Some minor noise in dining by returns due to DOAS unit. Should be cancelled out by store music and activity once operational.
If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".	NA

Notes/Comments :

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07-11 CULVERS - ANGOLA, IN

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	None
List smoke candle type used	45 sec smoke emitter
Smoke test capture - Perimeter of hood	100%
Smoke test capture - Top of cooking surface	100%
WITNESS	
Date test was completed	07/13/2022
TAB tech name / Firm	Michael McDonnell / National Tab
Site super name / Firm	Spencer Schultz / McCon Building Group
Owner representative name / Firm (if Applicable)	NA
Building pressure at front & back doors (All Systems On)	0.003"
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
PRODIGY SETTINGS FOR RTU'S	
Parameter 65 set to 0	[1]

Parameter 78 set to 0	[1]
Parameter 105 set to 6	[1]
Parameter 156 set to 70 (Dining unit only)	[1]
Parameter 156 set to 65 (Kitchen Unit Only)	[1]
Parameter 170 set to 75 (Dining Unit Only)	[1]
Parameter 170 set to 70 (Kitchen Unit Only)	[1]
Parameter 131 set to the same % as OA minimum position?	[1]
Parameter 117 set to the same % as OA minimum position?	[1]

Notes/Comments :

[1] Captive Aire DOAS units installed.

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Project: 07-11 CULVERS - ANGOLA, IN

System/Unit: AHU/RTU

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Asset: RTU1 AREA:DINING

Unit Data		
	Design	**Actual**
MFG	LENNOX	CAPTIVE AIRE
Serial Num	-	5218690
Model Num	LGH240H4B	CASRTU3-I.400-24-20T-DOAS
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16X20
Num Final Filter 1	-	8
Final Filter Size 1	-	20X25X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Motor Data		
	Design	**Actual**
Motor MFG	-	WESTINGHOUSE
Frame	-	215T
Horsepower	-	10.0
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208/230	230
Rated Amperage	-	24.3

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	62.0 HZ
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	6300	6092
SF RPM	-	1814
RA CFM	4625	4392
OA CFM	1675	1700
RL Voltage	-	211
RL Amperage	-	24.1
SF Rotation	-	CCW
RA Damper Position	-	NA
Min OA Damper Position	-	4.3V
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	NA
Brake Horse Power	-	9.92

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-1.44"
Fan Suction SP	-	-3.20"
Fan Discharge SP	-	0.61"
Total ESP	-	2.05"
Fan Total SP	-	3.81"

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

Completed By: Michael McDonnell

Notes:

National TAB

Project:07-11 CULVERS - ANGOLA, IN

AHU/RTU

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Diffuser Supply (GRD)

RTU1/DINING

Asset							
SGRD1	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	ENTRY	SD1	8"	150	1	145	146
	FINAL CFM	**% to design**					
	146	97.3					
SGRD2	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	MENS RR	SD4	8"	150	1	145	145
	FINAL CFM	**% to design**					
	145	96.7					
SGRD3	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	WOMENS RR	SD4	8"	150	1	130	139
	FINAL CFM	**% to design**					
	139	92.7					
SGRD4	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	HALL	SD1	8"	150	1	184	151
	FINAL CFM	**% to design**					
	151	100.7					
SGRD5	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	CUSTOMER ORDER ING	SD1	8"	450	1	385	422
	FINAL CFM	**% to design**					
	422	93.8					
SGRD6	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	175	148
	FINAL CFM	**% to design**					
	148	98.7					
SGRD7	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	166	146
	FINAL CFM	**% to design**					
	146	97.3					
SGRD8	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	118	149
	FINAL CFM	**% to design**					
	149	99.3					
SGRD9	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	123	159
	FINAL CFM	**% to design**					
	159	106.0					
SGRD10	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	136	153
	FINAL CFM	**% to design**					
	153	102.0					
SGRD11	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	178	145
	FINAL CFM	**% to design**					

	145	96.7					
SGRD12	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	164	150
	FINAL CFM	**% to design**					
	150	100.0					
SGRD13	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	150	145
	FINAL CFM	**% to design**					
	145	96.7					
SGRD14	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	170	154
	FINAL CFM	**% to design**					
	154	102.7					
SGRD15	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	145	146
	FINAL CFM	**% to design**					
	146	97.3					
SGRD16	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	199	153
	FINAL CFM	**% to design**					
	153	102.0					
SGRD17	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	188	146
	FINAL CFM	**% to design**					
	146	97.3					
SGRD18	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	173	141
	FINAL CFM	**% to design**					
	141	94.0					
SGRD19	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	158	136
	FINAL CFM	**% to design**					
	136	90.7					
SGRD20	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DINING	SD1	8"	150	1	75	152
	FINAL CFM	**% to design**					
	152	101.3					
SGRD21	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DRINKS & CONDIMENTS	SD1	10"	300	1	341	298
	FINAL CFM	**% to design**					
	298	99.3					
SGRD22	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	ENTRY	SD1	8"	150	1	188	140
	FINAL CFM	**% to design**					
	140	93.3					
SGRD23	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	CUSTOMER ORDER AREA	SD1	12"	450	1	397	428
	FINAL CFM	**% to design**					
	428	95.1					
SGRD24	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	CUSTOMER SERVICE	SD1	10"	350	1	294	328
	FINAL CFM	**% to design**					
	328	93.7					
SGRD25	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**

	CUSTOMER SERVICE	SD1	10"	350	1	293	330
	FINAL CFM	**% to design**					
	330	94.3					
	Location	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
SGRD26	CUSTOMER SERVICE	SD1	10"	350	1	292	326
	FINAL CFM	**% to design**					
	326	93.1					
	Location	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
SGRD27	CUSTOMER SERVICE	SD1	10"	350	1	291	320
	FINAL CFM	**% to design**					
	320	91.4					
	Location	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
SGRD28	DRIVE THRU	SD1	12"	500	1	562	495
	FINAL CFM	**% to design**					
	495	99.0					
	Location	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
SGRD29	OFFICE	SD1	8"	200	1	225	201
	FINAL CFM	**% to design**					
	201	100.5					

Completed By:Michael McDonnell on

Asset	Notes

National TAB

Project: 07-11 CULVERS - ANGOLA, IN

System/Unit: AHU/RTU

Comfort. Under control.

Asset: RTU2 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	LENNOX	CAPTIVE AIRE
Serial Num	-	5218690
Model Num	LGH210H4B	CASRTU3-I.400-24-20T-DOAS
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16X20
Num Final Filter 1	-	8
Final Filter Size 1	-	20X25X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Motor Data		
	Design	**Actual**
Motor MFG	-	WESTINGHOUSE
Frame	-	215T
Horsepower	-	10.0
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208/230	230
Rated Amperage	-	24.3

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	57.0 HZ
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	6150	5909
SF RPM	-	1667
RA CFM	4450	4165
OA CFM	1700	1744
RL Voltage	-	187
RL Amperage	-	23.7
SF Rotation	-	CCW
RA Damper Position	-	NA
Min OA Damper Position	-	4.4V
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	NA
Brake Horse Power	-	9.75

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.805"
Fan Suction SP	-	-2.39"
Fan Discharge SP	-	0.63"
Total ESP	-	1.435"
Fan Total SP	-	3.02"

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

Completed By: Michael McDonnell

Notes:

National TAB

Project:07-11 CULVERS - ANGOLA, IN

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

RTU2/KITCHEN

Asset							
SGRD1	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	SUNDAE SERVICE	SD1	12"	600	1	305	461
	FINAL CFM	**% to design**					
	548	91.3					
SGRD2	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	SUNDAE SERVICE	SD1	12"	600	1	298	461
	FINAL CFM	**% to design**					
	561	93.5					
SGRD3	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	COOKLINE	SD5	10"	200	1	235	278
	FINAL CFM	**% to design**					
	200	100.0					
SGRD4	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	COOKLINE	S5D	12"	375	1	290	333
	FINAL CFM	**% to design**					
	374	99.7					
SGRD5	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	FOOD PREP	SD5	12"	400	1	437	522
	FINAL CFM	**% to design**					
	395	98.8					
SGRD6	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	FOOD PREP	SD5	12"	400	1	390	442
	FINAL CFM	**% to design**					
	392	98.0					
SGRD7	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	COOKLINE	SD5	10"	250	1	351	421
	FINAL CFM	**% to design**					
	246	98.4					
SGRD8	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	COOKLINE	SD5	10"	275	1	273	343
	FINAL CFM	**% to design**					
	273	99.3					
SGRD9	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	TOILET	SD1	8"	75	1	184	209
	FINAL CFM	**% to design**					
	73	97.3					
SGRD10	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	ALCOVE	SD5	8"	125	1	189	238
	FINAL CFM	**% to design**					
	120	96.0					
SGRD11	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DISHWASHING	SD5	12"	350	1	506	609
	FINAL CFM	**% to design**					

	346	98.9					
SGRD12	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DISHWASHING	SD5	12"	350	1	336	382
	FINAL CFM	**% to design**					
	330	94.3					
SGRD13	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	FOOD PREP	SD5	12"	350	1	225	284
	FINAL CFM	**% to design**					
	346	98.9					
SGRD14	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	UTILITY ROOM	SD1	12"	600	1	304	365
	FINAL CFM	**% to design**					
	558	93.0					
SGRD15	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DRY GOODS	SD1	12"	600	1	295	353
	FINAL CFM	**% to design**					
	546	91.0					
SGRD16	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	DRY GOODS	SD1	12"	600	1	381	422
	FINAL CFM	**% to design**					
	601	100.2					

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Asset	Notes

National TAB

Project: 07-11 CULVERS - ANGOLA, IN

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF-A1 AREA:MOP ROOM

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XCR-B80	CFA 100CA
Serial Num	-	5218690
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	BROAN
Frame	-	NL
Horsepower	-	0.116
Motor Rpm	900	NL
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.1
Service Factor	-	NL

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	SINGLE SPEED
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Test Data		
	Design	**Actual**
CFM	75	76
Fan RPM	885	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
RL Voltage	-	119
RL Amperage	-	0.34
Suction ESP	-	ATM
Discharge ESP	-	0.09"
Total ESP	0.125"	0.09"

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Notes:

Asset	Notes

National TAB

Project: 07-11 CULVERS - ANGOLA, IN

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: PRV1 AREA:RESTROOMS

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XRED-095-D	DR12HFA
Serial Num	-	5218690
Type	DOWNBLAST	DOWNBLAST
Configuration	HORIZONTAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	0.0667	0.25
Motor Rpm	1550	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	2.9
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	300	304
Fan RPM	1479	991
Fan Rotation	-	CCW
Motor RPM	-	991
System SetPt	-	54%
RL Voltage	-	119
RL Amperage	-	0.5
Total ESP	0.5"	0.21"
Fan Inlet SP	-	-0.21"
Fan Discharge SP	-	ATM

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Notes:

National TAB

Project:07-11 CULVERS - ANGOLA, IN

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

PRV1/RESTROOMS

Asset							
EGRD1	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	WOMENS RR	EG1	10X10	75	1	82	64
	FINAL CFM	**% to design**					
	70	93.3					
EGRD2	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	MENS RR	EG1	10X10	75	1	115	81
	FINAL CFM	**% to design**					
	78	104.0					
EGRD3	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**
	TOILET	EF1	10X10	150	1	228	163
	FINAL CFM	**% to design**					
	156	104.0					

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Asset	Notes

National TAB

Project: 07-11 CULVERS - ANGOLA, IN

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: PRV2 AREA:HD1 GRIDDLE

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XRUB-160XP-15	DU85HFA
Serial Num	-	5218690
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	NL
Horsepower	1.5	0.75
Motor Rpm	1725	1725
Phase	3	3
Voltage (rated)	208	208-230
Amperage (rated)	-	2.6-2.5
Service Factor	-	1.15

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	38.9 HZ
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Test Data		
	Design	**Actual**
CFM	1500	1458
Fan RPM	2411	1147
Fan Rotation	-	CCW
Motor RPM	-	1147
RL Voltage	-	209/210/210
RL Amperage	-	1.9/1.9/1.9
Suction ESP	-	-0.83"
Discharge ESP	-	ATM
Total ESP	2.337"	0.83"

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Notes:

Asset	Notes

National TAB

Project: 07-11 CULVERS - ANGOLA, IN

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: PRV3 AREA:HD2 FRYERS

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XRUB-140-7	DU85HFA
Serial Num	-	5218690
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	NL
Horsepower	0.75	0.75
Motor Rpm	1725	1725
Phase	3	3
Voltage (rated)	208	208-230
Amperage (rated)	-	2.6-2.5
Service Factor	-	1.15

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	39.9 HZ
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Test Data		
	Design	**Actual**
CFM	1500	1531
Fan RPM	1377	1118
Fan Rotation	-	CCW
Motor RPM	-	1118
RL Voltage	-	210/210/209
RL Amperage	-	2.0/1.9/2.0
Suction ESP	-	-0.71"
Discharge ESP	-	ATM
Total ESP	1.0"	0.71"

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Notes:

Asset	Notes

National TAB

Project: 07-11 CULVERS - ANGOLA, IN

System/Unit: Kitchen Hood Type I

Comfort. Under control.

Asset: HD1 AREA:GRIDDLE

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XGEP-64-S	3347 BD-2
Job / Serial Num	-	5218690
Type	TYPE I LOW PROXIMITY	TYPE I LOW PROFILE
Hood length	64"	66"
Hood Width	23"	33"

Test Data Exhaust		
	Design	**Actual**
Filter Type	GREASE GRABBER	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	4	4
Filter AK factor size 1	1.53	1.62
Filter Total AK Area	6.12	6.48
Filter1 FPM	-	219
Filter2 FPM	-	226
Filter3 FPM	-	235
Filter4 FPM	-	218
Filter Ave FPM(corr)	-	225
CFM	-	1458

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

Performance Data		
	Design	**Actual**
Smoke Generation Type	-	45 SEC SMOKE EMITTER
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES

General		
	Design	**Actual**
Third Party Witness	-	VIDEO TAPED
Third Party Company	-	MCCONSTRUCTION
Tech Witness	-	MICHAEL MCDONNELL

Completed By: Michael McDonnell

Notes:

Asset	Notes

National TAB

Project: 07-11 CULVERS - ANGOLA, IN

System/Unit: Kitchen Hood Type I

Comfort. Under control.

Asset: HD2 AREA:FRYERS

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XXEP-83-S	3347 BD-2
Job / Serial Num	-	5218690
Type	TYPE I LOW PROXIMITY	TYPE I LOW PROFILE
Hood length	83"	84"
Hood Width	23"	33"

Test Data Exhaust		
	Design	**Actual**
Filter Type	X-TRACTOR	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	5	5
Filter AK factor size 1	1.53	1.62
Filter Total AK Area	7.65	8.1
Filter1 FPM	-	189
Filter2 FPM	-	198
Filter3 FPM	-	194
Filter4 FPM	-	194
Filter5 FPM	-	170
Filter Ave FPM(corr)	-	189
CFM	-	1531

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

Performance Data		
	Design	**Actual**
Smoke Generation Type	-	45 SEC SMOKE EMITTER
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES

General		
	Design	**Actual**
Third Party Witness	-	VIDEO TAPED
Third Party Company	-	MCCON CONSTRUCTION
Tech Witness	-	MICHAEL MCDONNELL

Completed By: Michael McDonnell

Notes:

Asset	Notes


CUSTOMER ORDER AREA
105
SUNDAE SERVICE
111
KITCHEN
112
DRY GOODS
115
OFFICE
MOP ROOM
118
RTU-1 REMOTE SENSOR AT 56" AFF
CONTRACTOR TO CONFIRM THERMOSTAT MOUNTING LOCATION WITH OWNER.
TRANSFER GRILLES CENTERED ABOVE DOOR AND BETWEEN DOOR AND CEILING