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: 05/31/2023

PROJECT

05-29-23 CULVERS - GRAIN VALLEY, MO

1180 NW BUCKNER TARSNEY BLVD

GRAIN VALLEY, MO 64029

Client

Captive-Aire Region #60

Issue List

- 1. RTU-2 Supply Airflow Low
- 2. RTU-2 Diffuser 2-16 Low on Airflow, Damper Inaccessible
- 3. RTU-2 Return Disconnected
- 4. PRV-3 Hinge Kit Orientation
- 5. PRV-1 No Backdraft Damper Installed
- 6. PRV-2 and PRV-3 Grease Cups Not Installed

CheckList List

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

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

Project Issue Information

Issue Name : 1. RTU-2 Supply Airflow Low

Description : RTU2 is low on supply airflow at 5573 / 6225 cfm due to leakage from unsealed ductwork. The solid duct around many of the diffusers is not sealed and air is escaping above ceiling as a result. Some of the takeoffs and solid duct zip ties are loose as well. These ducts need to be sealed and flex needs to be checked to make sure it stays attached.

Created By : National TAB

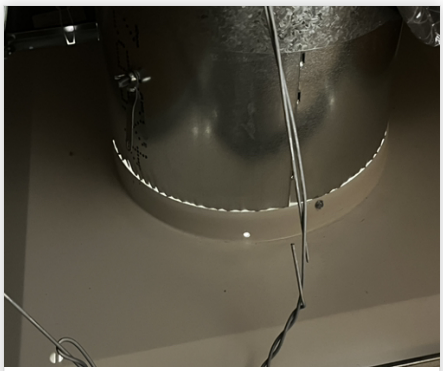
Assigned To : National TAB - Jacob Davidson

Status : Open

Originated Date : 05/23/2023 - Jacob Davidson - National TAB

Project Issue File Details

Loosezip
05/23/2023



Lightfromdiffuser.jpe..
05/23/2023

Flexductwhereairescap..
05/23/2023

Project Issue Response Details

- **06/13/2023 National TAB - Michael McDonnell**
  - Diffusers were balanced for comfort and hood performance due to low airflow.

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

Project Issue Information

Issue Name : 2. RTU-2 Diffuser 2-16 Low on Airflow, Damper Inaccessible

Description : Diffuser 2-16 on the GRD for the electrical room is very low on flow at 124/600 CFM. This value hasn't changed with moving air around which implies the damper is closed at takeoff. Tech is unable to reach takeoff to check for a damper due to ceiling restrictions.

Created By : National TAB

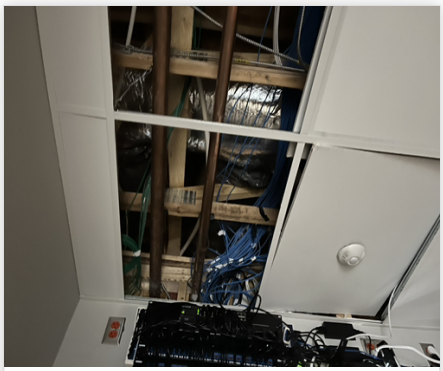
Assigned To : National TAB - Jacob Davidson

Status : Open

Originated Date : 05/23/2023 - Jacob Davidson - National TAB

Project Issue File Details

Diffuser
05/23/2023



Takeoff
05/23/2023

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

Project Issue Information

Issue Name : 3. RTU-2 Return Disconnected

Description : Flex duct is disconnected at take off for return in the back of kitchen. Recommend duct is reconnected and secured.

Created By : National TAB

Assigned To : National TAB - Jacob Davidson

Status : Open

Originated Date : 05/23/2023 - Jacob Davidson - National TAB

Project Issue File Details

Dosconnected
05/23/2023

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

Project Issue Information

Issue Name : 4. PRV-3 Hinge Kit Orientation

Description : PRV3 hinge kit is installed on the same side as the conduit pipe, preventing the fan from leaning back. This will inhibit/prevent proper grease duct cleaning. Recommend hinge location is corrected. Static pressure could not be measured as a result.

Created By : National TAB

Assigned To : National TAB - Jacob Davidson

Status : Open

Originated Date : 05/22/2023 - Jacob Davidson - National TAB

Project Issue File Details

PRV3hinge
05/22/2023

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

Project Issue Information

Issue Name : 5. PRV-1 No Backdraft Damper Installed

Description : PRV1 does not have a backdraft damper which is required for restroom exhaust fans. Recommend damper is installed. This does not affect the scope of the tab

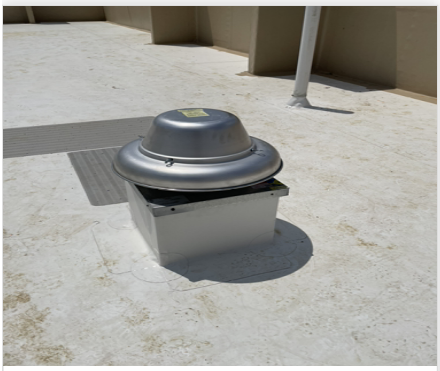
Created By : National TAB

Assigned To : National TAB - Jacob Davidson

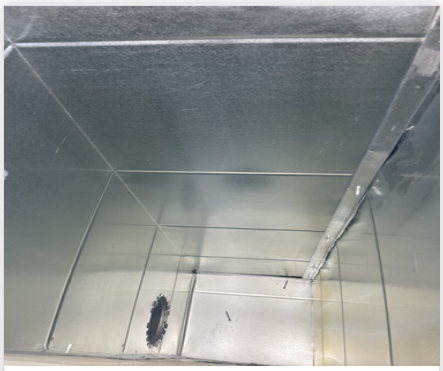
Status : Open

Originated Date : 05/22/2023 - Jacob Davidson - National TAB

Project Issue File Details



PRV1
05/22/2023



Nodamper
05/22/2023

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

Project Issue Information

Issue Name : 6. PRV-2 and PRV-3 Grease Cups Not Installed

Description : Grease capture cups are not installed on either PRV2 or PRV3. In addition, the hinge kit on PRV3 is supposed to be installed opposite of the grease spout and is installed to the side of it. Recommend this is corrected. This will not impact TAB.

Created By : National TAB

Assigned To : National TAB - Jacob Davidson

Status : Open

Originated Date : 05/22/2023 - Jacob Davidson - National TAB

Project Issue File Details

PRV3
05/22/2023

PRV2
05/22/2023

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 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.

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	6150	5650	4400	3926	1750	1724	28.5%	30.5%						
RTU-2	KITCHEN	6225	5222	4525	3539	1700	1683	27.3%	32.2%						
PRV-2	HOOD 1											1500	1497		
PRV-3	HOOD 2											1500	1474		
PRV-1	RESTROOMS													300	275
EF-1A	MOP SINK													75	73
EF-1A	TOILET													75	79
TOTALS		12375	10872	8925	7465	3450	3407			0	0	3000	2971	450	427

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	3450	3407
TOTAL EXHAUST	3450	3398
NET AIRFLOW	0	9

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.0015
SIDE	0.0011
REAR	0.0007
AVERAGE	**0.0011**

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:

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

CheckList Information

Name :	SITE PICTURES	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

STORE FRONT

FRONT(1)
05/24/2023

RTU-1

RTU1
05/24/2023

RTU-2

RTU2
05/24/2023

PRV-1

PRV1
05/24/2023

PRV-2

PRV2
05/24/2023

PRV-3

PRV3
05/24/2023

EF-1A (Mop Sink)

EF-1A (Restroom)

Ef1arr
05/24/2023

HOOD 1

HOOD1
05/24/2023

HOOD 2

HOOD2
05/24/2023

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

CheckList Information

Name :	TECH - STEP 1: INITIAL WALKTHROUGH	**Status :**	Not Completed
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
All hood filters installed and accounted for?	YES
Hoods are wired and have power?	YES
Thermostats have power?	NO, CAPTIVE AIRE TO START UP UNITS 5/22/23
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	YES

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

CheckList Information

Name :	TECH - STEP 2: UNIT DATA AND EVAL	**Status :**	Not Completed
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.)	DOAS UNITS
Motors are all operating below the FLA rating?	YES
Are belts tight?	NA
If direct drive unit is the speed controller working.	YES
Is gas piping installed and valves turned on?	GAS INSTALLED, VALVES NOT TURNED ON
Unit free of noticeable noise and vibration	YES
EF's	
Rotation is correct?	YES
Belts are tight?	NA
Grease cup installed on hood fan?	NO
Hinge kit installed installed on hood fan?	YES, BUT PRV3 CANNOT BE LEANED BACK
Lean grease rated fans back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	PRV2 YES, PRV3 CANNOT BE LEANED BACK

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
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?	NO DAMPER INSTALLED
Unit free of noticeable noise and vibration?	YES
The hood exhaust fans are installed in correct positions and are not switched?	NO, FANS ARE SWITCHED, BUT ARE THE SAME MODEL, NO ISSUE.
HOODS	
Kitchen equipment installed in proper places?	YES
Can kitchen equipment be turned on for final smoke test?	NO
Second stage Grease Grabber filters are installed on the griddle hood?	NA
DOCUMENTATION	
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	YES

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

CheckList Information

Name :	TECH - STEP 3: TEST, ADJUST AND BALANCE	**Status :**	Not Completed
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

Comfort. Under control.

05-29-23 CULVERS - GRAIN VALLEY, MO

CheckList Information

Name :	TECH - STEP 4: FINAL TESTS	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

FINAL TESTS	
HOOD CAPTURE TEST	
List equipment turned on for testing	GRIDDLE, FRYERS
List smoke candle type used	45 SECOND SMOKE EMITTER
Smoke test capture - Perimeter of hood	100%
Smoke test capture - Top of cooking surface	100%
WITNESS	
Date test was completed	05/23/2023
TAB tech name / Firm	JACOB / NATIONAL TAB INTELLIGENCE
Site super name / Firm	ADAM / MCCON CONSTRUCTION
Owner representative name / Firm (if Applicable)	CONNOR / CULVER'S
Building pressure at front & back doors (All Systems On)	FRONT 0.0015" SIDE 0.0011" BACK 0.0007"
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

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: AHU/RTU

Comfort. Under control.

Asset: RTU1 AREA:DINING

Unit Data		
	Design	**Actual**
MFG	ACCUREX/CAPT.	CAPTIVE AIRE
Serial Num	-	5703827
Model Num	NA	CASRTU3-I.300-24-20T
Type	RTU	DOAS RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1 BIRD SCREEN
OA Filter Size 1	-	25.5X45.75
Num Final Filter 1	-	8 METAL MESH
Final Filter Size 1	-	16X25X2
Num Final Filter 2	-	8
Final Filter Size 2	-	20X25X2

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	215T
Horsepower	-	10
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208	230/460
Rated Amperage	-	24.3/12.2

Test Data		
	Design	**Actual**
SF CFM	6150	5650
SF RPM	-	1609
RA CFM	4400	3926
OA CFM	1750	1724
RL Voltage	-	170 @VFD
RL Amperage	-	23.4A @VFD
SF Rotation	-	CCW
RA Damper Position	-	4.5V
Min OA Damper Position	-	5.5V
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.05"
Fan Suction SP	-	UTO
Fan Discharge SP	-	0.44"
Total ESP	0.75"	0.49"
Fan Total SP	-	0.49"

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

Completed By: Wale Odofin on

Notes: [1] TOTAL SUPPLY AIRFLOW IS AT 91.8% OF DESIGN WITH UNIT SET TO 55.0 HZ AND MOTOR AT FLA, FAN SPEED CANNOT BE INCREASED. COULD NOT PUSH AIR TO SATISFY ALL DIFFUSERS AS A RESULT. DIFFUSERS LOW ON AIRFLOW NOTED BELOW. NOT ANTICIPATED TO CAUSE ANY ISSUES.

Date: 06/13/2023

National TAB

Project:05-29-23 CULVERS - GRAIN VALLEY, MO

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

RTU1/DINING

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	ENRTY	SD-4	8"	150	1	205	125	139	92.7
SGRD2	DINING	SD-1	8"	150	1	160	129	138	92.0
SGRD3	DINING	SD-1	8"	150	1	126	130	154	102.7
SGRD4	DINING	SD-1	8"	150	1	162	139	163	108.7
SGRD5	DINING	SD-1	8"	150	1	165	138	142	94.7
SGRD6	DINING	SD-1	8"	150	1	155	123	136	90.7
SGRD7	DINING	SD-1	8"	150	1	143	124	144	96.0
SGRD8	DINING	SD-1	8"	150	1	187	138	137	91.3
SGRD9	DINING	SD-1	8"	150	1	169	165	153	102.0
SGRD10	DINING	SD-1	8"	150	1	174	155	143	95.3
SGRD11	DINING	SD-1	8"	150	1	150	135	162	108.0
SGRD12	DINING	SD-1	8"	150	1	177	147	164	109.3
SGRD13	DINING	SD-1	8"	150	1	136	139	143	95.3
SGRD14	DINING	SD-1	8"	150	1	145	150	155	103.3
SGRD15	DINING	SD-1	8"	150	1	179	148	157	104.7
SGRD16	DINING	SD-1	8"	150	1	272	143	149	99.3
SGRD17	DINING	SD-1	12"	450	1	413	380	386	85.8
SGRD18	DINING	SD-4	8"	150	1	161	140	145	96.7
SGRD19	DINING	SD-4	8"	150	1	161	140	141	94.0
SGRD20	C.SERVICE	SD-1	10"	350	1	310	321	322	92.0
SGRD21	C.SERVICE	SD-1	10"	350	1	418	340	356	101.7
SGRD22	C.SERVICE	SD-1	10"	350	1	240	236	248	70.9
SGRD23	C.SERVICE	SD-1	10"	350	1	162	172	182	52.0
SGRD24	DINING	SD-1	12"	450	1	376	408	427	94.9
SGRD25	DINING	SD-1	10"	300	1	236	247	259	86.3
SGRD26	DINING	SD-1	8"	150	1	193	127	135	90.0
SGRD27	DRIVE THRU	SD-1	12"	500	1	384	402	452	90.4
SGRD28	OFFICE	SD-1	8"	200	1	199	194	218	109.0

Completed By: Jacob Davidson on 05/24/2023

Asset	Notes	Date
SGRD17	[1] COULD NOT PUSH MORE AIR TO DIFFUSER	06/13/2023
SGRD22	[1] COULD NOT PUSH MORE AIR TO DIFFUSER	06/13/2023
SGRD23	[1] COULD NOT PUSH MORE AIR TO DIFFUSER	06/13/2023
SGRD25	[1] COULD NOT PUSH MORE AIR TO DIFFUSER	06/13/2023

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: AHU/RTU

Comfort. Under control.

Asset: RTU2 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	ACCUREX/CAPT.	CAPTIVE AIRE
Serial Num	-	5703827
Model Num	NA	CASRTU3-I.250-24-20T
Type	RTU	DOAS RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1 BIRD SCREEN
OA Filter Size 1	-	25.5X45.75
Num Final Filter 1	-	8 METAL MESH
Final Filter Size 1	-	16X25X2
Num Final Filter 2	-	8
Final Filter Size 2	-	20X25X2

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	215T
Horsepower	-	10
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208	230/460
Rated Amperage	-	24.3/12.2

Test Data		
	Design	**Actual**
SF CFM	6225	5222
SF RPM	-	1667
RA CFM	4525	3539
OA CFM	1700	1683
RL Voltage	-	178 @VFD
RL Amperage	-	24.2 @VFD
SF Rotation	-	CCW
RA Damper Position	-	5.3V
Min OA Damper Position	-	5.3V
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.19"
Fan Discharge SP	-	0.31"
Total ESP	0.75"	0.50"

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

Completed By: Wale Odofin on

Notes: MOTOR SETPOINT: 57.0 HZ [1] UNIT IS LOW ON FLOW DUE TO DUCT LEAKAGE, SEE ISSUE. DIFFUSERS WERE BALANCED FOR HOOD SMOKE CAPTURE PERFORMANCE AND COMFORT.

Date: 06/13/2023

Diffuser Supply (GRD)

RTU2/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	KITCHEN	SD-5	10"	200	1	364	245	214	107.0
SGRD2	KITCHEN	SD-5	12"	375	1	449	323	349	93.1
SGRD3	KITCHEN	SD-5	12"	400	1	481	426	398	99.5
SGRD4	KITCHEN	SD-5	12"	400	1	527	375	397	99.3
SGRD5	KITCHEN	SD-5	10"	250	1	309	300	249	99.6
SGRD6	KITCHEN	SD-5	10"	275	1	191	336	260	94.5
SGRD7	KITCHEN	SD-1	12"	600	1	346	272	563	93.8
SGRD8	KITCHEN	SD-1	12"	600	1	423	438	403	67.2
SGRD9	KITCHEN	SD-5	12"	350	1	457	354	330	94.3
SGRD10	KITCHEN	SD-5	12"	350	1	296	350	336	96.0
SGRD11	KITCHEN	SD-5	12"	350	1	351	320	294	84.0
SGRD12	DRY GOODS	SD-1	12"	600	1	323	582	554	92.3
SGRD13	DRY GOODS	SD-1	10"	200	1	276	163	181	90.5
SGRD14	TOILET	SD-4	6"	75	1	97	46	68	90.7
SGRD15	KITCHEN	SD-1	12"	600	1	258	489	451	75.2
SGRD16	UTILITY ROOM	SD-1	12"	600	1	129	194	175	29.2

Completed By: Wale Odofin on

Asset	Notes	Date
SGRD16	[1] SUSPECT DAMPER IS CLOSED. NOT ACCESSIBLE DUE TO CEILING OBSTRUCTIONS.	06/13/2023

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EFA1 AREA:MOP SINK

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XCR-B80	CFA 100CA
Serial Num	-	5838505
Type	CEILING	CEILING
Configuration	VERICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	0.01	0.116
Motor Rpm	900	493
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.1

Test Data		
	Design	**Actual**
CFM	75	73
Fan RPM	885	493
Fan Rotation	-	CW
Motor RPM	-	493
System SetPt	-	SINGLE SPEED
Total ESP	0.125"	0.07"
Fan Inlet SP	-	ATM
Fan Discharge SP	-	0.07"

Completed By: Jacob Davidson on 05/24/2023

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EFA2 AREA:EMPLOYEE RESTROOM

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVE AIRE
Model Num	NA	CFA 100CA
Serial Num	-	5838505
Type	-	CEILING
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	0.116
Motor Rpm	-	493
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	1.1

Test Data		
	Design	**Actual**
CFM	75	79
Fan RPM	-	493
Fan Rotation	-	CW
Motor RPM	-	493
System SetPt	-	SINGLE SPEED
Total ESP	-	0.06"
Fan Inlet SP	-	ATM
Fan Discharge SP	-	-0.06"

Completed By: Jacob Davidson on 05/24/2023

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: PRV1 AREA:RESTROOM

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XRED-090-D	DR12FA
Serial Num	-	5703827
Type	DOWNBLAST	DOWNBLAST
Configuration	CENTRIFUGAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	0.1"	1/4
Motor Rpm	1725	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	2.9
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	300	275
Fan RPM	1465	1387
Fan Rotation	-	CCW
Motor RPM	-	1387
System SetPt	-	72%
Total ESP	0.5"	0.25"
Fan Inlet SP	-	-0.25"
Fan Discharge SP	-	ATM

Completed By: Jacob Davidson on 05/24/2023

National TAB

Project:05-29-23 CULVERS - GRAIN VALLEY, MO

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

PRV1/RESTROOM

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	M RESTROOM	EG-1	10X10	150	1	66	136	136	90.7
EGRD2	W.RESTROOM	EG-1	10X10	150	1	62	139	139	92.7

Completed By: Jacob Davidson on 05/24/2023

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: PRV2 AREA:HOOD 1

Unit Data		
	Design	**Actual**
MFG	CAPTIVE AIRE	CAPTIVE AIRE
Model Num	NA	DU85HFA
Serial Num	-	5838505
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	NL
Horsepower	-	3/4
Motor Rpm	-	1725
Phase	-	1
Voltage (rated)	-	208-230
Amperage (rated)	-	2.6-2.5
Service Factor	-	1.15

Test Data		
	Design	**Actual**
CFM	1500	1497
Fan RPM	-	1236
Fan Rotation	-	CCW
Motor RPM	-	1236
System SetPt	-	43.0 HZ
RL Voltage	-	129V VFD
RL Amperage	-	2.2A VFD
Total ESP	-	0.62"
Fan Inlet SP	-	-0.62"
Fan Discharge SP	-	ATM

Completed By: Jacob Davidson on 05/24/2023

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: PRV3 AREA:HOOD2

Unit Data		
	Design	**Actual**
MFG	CAPTIVE AIRE	CAPTIVE AIRE
Model Num	NA	DU85HFA
Serial Num	-	5838505
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	NL
Horsepower	-	3/4
Motor Rpm	-	1725
Phase	-	1
Voltage (rated)	-	208-230
Amperage (rated)	-	2.6-2.5
Service Factor	-	1.15

Test Data		
	Design	**Actual**
CFM	1500	1474
Fan RPM	-	1170
Fan Rotation	-	CCW
Motor RPM	-	1170
System SetPt	-	40.7 HZ
RL Voltage	-	119V VFD
RL Amperage	-	2.0A VFD
Total ESP	-	[1]
Fan Inlet SP	-	[1]
Fan Discharge SP	-	ATM

Completed By: Jacob Davidson on

Notes: [1] HINGE KIT ORIENTATION INCORRECT. RECOMMEND CORRECTION. STATIC PRESSURE COULD NOT BE MEASURED.

Date: 06/13/2023

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: Kitchen Hood Type I

Comfort. Under control.

Asset: HD1 AREA:

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XGEP-64-S	3347 BD-2
Job / Serial Num	-	5838505
Type	TYPE I	TYPE I LOW PROXIMITY
Hood length	64"	67"
Hood Width	23"	33"

Test Data Exhaust		
	Design	**Actual**
Filter Type	GREASE GRABBER	BAFFLE
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	-	233
Filter2 FPM	-	234
Filter3 FPM	-	230
Filter4 FPM	-	228
Filter Ave FPM(corr)	-	231
CFM	1500	1497

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

Completed By: Jacob Davidson on 05/22/2023

National TAB

Project: 05-29-23 CULVERS - GRAIN VALLEY, MO

System/Unit: Kitchen Hood Type I

Comfort. Under control.

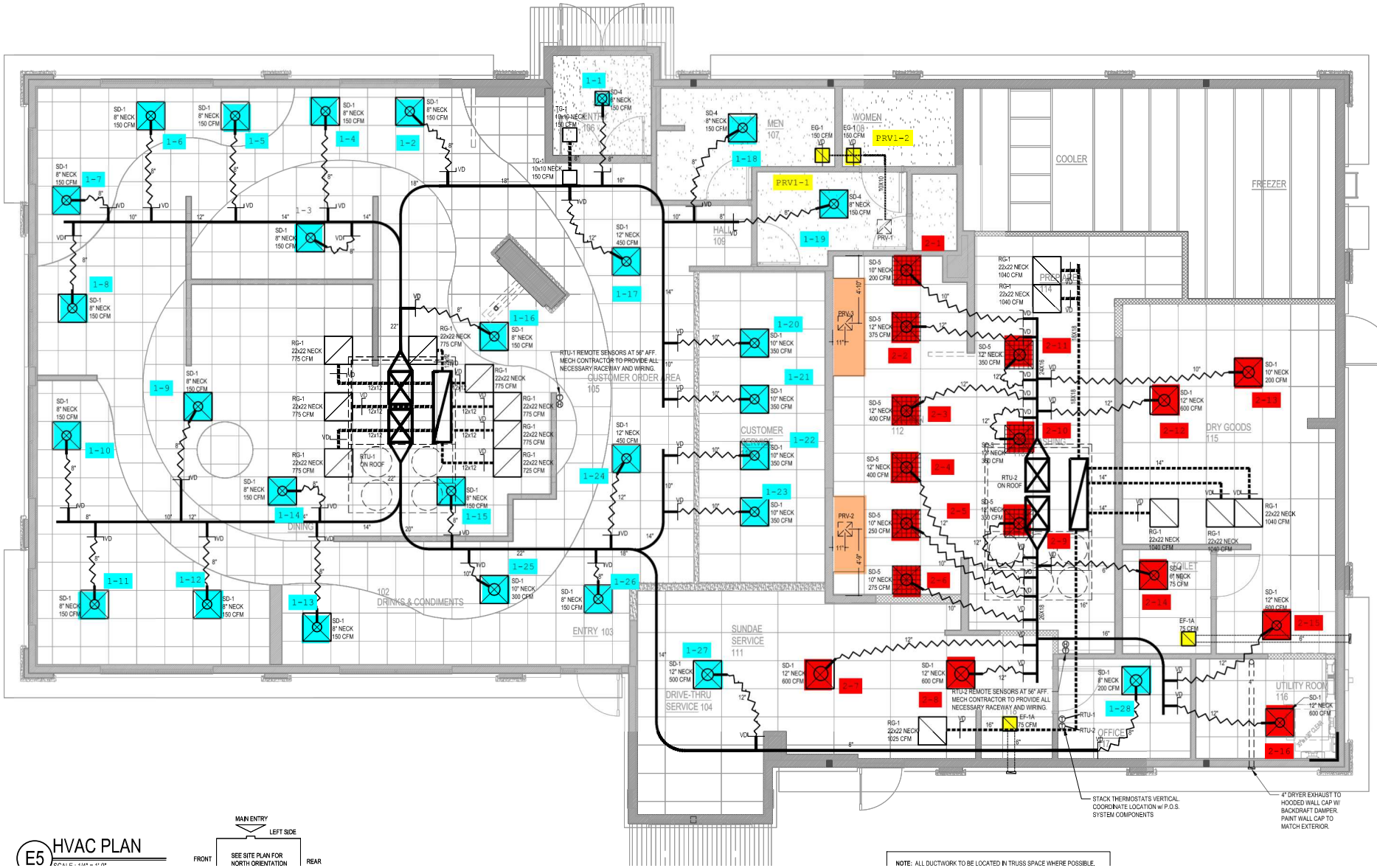
Asset: HD2 AREA:

Unit Data		
	Design	**Actual**
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XXEP-83-S	3347 BD-2
Job / Serial Num	-	5838505
Type	TYPE I	TYPE I LOW PROXIMITY
Hood length	83"	84"
Hood Width	23"	33"

Test Data Exhaust		
	Design	**Actual**
Filter Type	X-TRACTOR	BAFFLE
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	-	169
Filter2 FPM	-	193
Filter3 FPM	-	187
Filter4 FPM	-	189
Filter5 FPM	-	176
Filter Ave FPM(corr)	-	182
CFM	1500	1474

Cooking Equipment		
	Design	**Actual**
Item 1	-	FRYERS

Completed By: Jacob Davidson on 05/22/2023



E5 HVAC PLAN

Date: 6/13/2023

LOWELL JOHN LARSON - ENGINEER