

Report By:

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



Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 09/18/2024
Completed By: National TAB

PROJECT
06-17-24 PENN STATION CLEVELS, OH

4175 OH 128

CLEVELS , OH 45002

Client

C&T DESIGN
4025 PORT UNION RD.
FAIRFIELD, OH 45014

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

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Project Summary

The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report is further detail about your building performance including recommendations, asset data, and pictures. Our focus is to work with the trades to remedy any issues or deficiencies during the actual field balancing and not after the balancing has occurred to achieve a positive environment and outcome. The level of success is determined by the availability of the trades, possible parts needed, or time constraints.

RTU's (Roof Top Units) w/ Diffusers

Each of the RTU's were measured at their terminal devices or via traverse to establish a total flow for that unit. Each RTU was adjusted to within tolerance of the engineer's design flow. Each outlet was then adjusted to within tolerance of the design flow. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. The outside air damper was adjusted until the airflow was within the design requirements. Any equipment that fell outside of that tolerance is noted throughout the report.

Kitchen Exhaust Hood & Associated Fans

Each kitchen exhaust fan was measured at the hood filter bay utilizing a velocity matrix and a manufacturer's correction factor. Each filter velocity is multiplied by the manufacturer's corrected area. The sum of these readings equals the total flow of the exhaust fans. The total flow of the exhaust was then adjusted to within tolerance of the design flow. . Any EF's that fell outside of this tolerance is noted throughout the report.

MUA (Make Up Air Unit) w/ PSP

Total flow for the MAU (Make-up Air Unit) unit was measured by readings taken at the discharge of the hood's perforated supply plenum. Readings taken with a velocity matrix were averaged and multiplied by a manufacturer's corrected area. Adjustments to the fan speed were made in order to bring the unit to within design tolerance. Any MUA's that fell outside of this tolerance is noted throughout the report.

General Exhaust Fans w/ Grilles

The general exhaust fans were measured by reading each air device with a flow hood. The total airflow for each fan is equivalent to the sum of these readings. Fan speed was then adjusted so that the airflow was within tolerance of design. Each terminal device was balanced to within tolerance of the design volume using the installed volume dampers. Any equipment that fell outside of this tolerance is noted throughout the report.

Final Building Tests

After completing the test and balance the final building pressure was measured. It was confirmed that the building pressure fell within acceptable tolerances of $-0.02''$ wc to $+0.02''$ wc and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.

The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat on to ensure satisfactory hood capture and containment.

Issue List

- Hood 2 loose panel
- Missing diffuser
- RTU1 Mixed air
- RTUs Dirty Filters

06-17-24 PENN STATION CLEVELS, OH

Project Issue Information

Issue Name : Hood 2 loose panel
Description : Loose panels on hood 2. Drop out of square by ~0.5" preventing panels from matching up.
Created By : National TAB **Assigned To :** National TAB - Joe Hertenstein
Status : Open
Priority : Low **Asset Tag :**
Originated Date : 06/17/2024 - Gabe Merk - National TAB

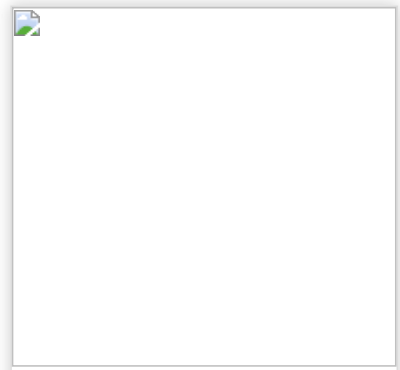
Project Issue File Details



06/17/2024

Project Issue Response Details

- **06/17/2024 National TAB - Gabe Merk**
 - Oven off centered. Permanent wall attachment prevents centering. ANSUL sprayer not covering opening.



06/17/2024

06/17/2024

06/17/2024

- **06/17/2024 National TAB - Joe Hertenstein**

- Gabe, I notice that oven is not centered under hood. Can it be moved over to the left ?
-



06-17-24 PENN STATION CLEVELS, OH

Project Issue Information

Issue Name : Missing diffuser
Description : Missing diffuser 2-11 in boh.
Created By : National TAB **Assigned To :** National TAB - Joe Hertenstein
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 06/18/2024 - Gabe Merk - National TAB

Project Issue File Details



06/18/2024

Project Issue Response Details

- **06/18/2024 National TAB - Gabe Merk**
 - Not much room to add through wall



06/18/2024



06-17-24 PENN STATION CLEVES, OH

Project Issue Information

Issue Name : RTU1 Mixed air
Description : Rtu 1 has a mixed air leak at curb. This should be sealed to prevent any excess outdoor air/debris/creatures from entering unit.
Created By : National TAB **Assigned To :** National TAB - Joe Hertenstein
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 05/29/2024 - Gabe Merk - National TAB

Project Issue File Details



05/29/2024

Project Issue Response Details

- **06/17/2024 National TAB - Gabe Merk**
 - Issue still open 6/17/24



06-17-24 PENN STATION CLEVES, OH

Project Issue Information

Issue Name : RTUs Dirty Filters
Description : Dirty construction filters installed in RTUs. Airflow restricted by filter buildup. Filters removed for TAB. Recommend installing correct, clean filters.
Created By : National TAB **Assigned To :** National TAB - Joe Hertenstein
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 06/17/2024 - Gabe Merk - 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	4000	3342	3120	2489	880	853	22.0%	25.5%						
RTU-2	KITCHEN	2900	2286	2445	1821	455	465	15.7%	20.3%						
MUA-1	COOKLINE									1630	1661				
KEF-1	GRILL											1120	1129		
KEF-2	OVEN											600	602		
KEF-3	FRYER											850	894		
EF-4	RESTROOM													75	75
EF-5	RESTROOM													75	59
TOTALS		6900	5628	5565	4310	1335	1318			1630	1661	2570	2625	150	134

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2965	2979
TOTAL EXHAUST	2720	2759
NET AIRFLOW	245	220

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.00
SIDE	NA
REAR	-0.001
AVERAGE	-0.001

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:

BUILDING NEGATIVE IN REAR DUE TO RETURN ALONE IN SPACE.

CheckList List

- TECH - SITE PICTURE



06-17-24 PENN STATION CLEVES, OH

CheckList Information

Name : TECH - SITE PICTURE **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/23/2024 - Brianna Biggs - National TAB
Completed Date : 06/18/2024 - Gabe Merk - National TAB

CheckList Item Details

STORE FRONT

Comment:



05/29/2024

RTU-1

Comment:



05/29/2024

RTU-2

Comment:



05/29/2024

KEF-1

Comment:



05/29/2024

KEF-2

Comment:



05/29/2024

KEF-3

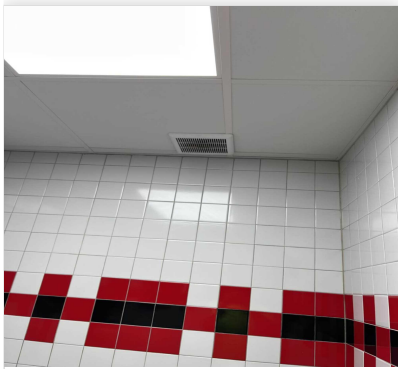
Comment:



05/29/2024

EF-4

Comment:



06/17/2024

EF-5

Comment:



06/17/2024

MUA-1

Comment:



05/29/2024

HD-1

Comment:



06/17/2024

HD-2

Comment:



06/17/2024

HD-3

Comment:



06/17/2024

CheckList List

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



06-17-24 PENN STATION CLEVELS, OH

CheckList Information

Name : TECH - STEP 1: INITIAL WALKTHROUGH **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/23/2024 - Brianna Biggs - National TAB
Completed Date : 06/18/2024 - Gabe Merk - National TAB

CheckList Item Details

INITIAL SITE WALKTHROUGH

Review Plan Review Checklist, has it been signed off and meets our standards to start balancing? If not contact processor to ensure job is ready.

Comment:

N/A

All diffusers and grilles are installed and match design?

Comment:

YES

All hood filters installed and accounted for?

Comment:

YES

Hoods are wired and have power?

Comment:

YES

Hood is free of alarms?

Comment:

YES

Thermostats have power?

Comment:

YES

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?

Comment:

YES



06-17-24 PENN STATION CLEVES, OH

CheckList Information

Name : TECH - STEP 2: UNIT DATA AND EVAL **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/23/2024 - Brianna Biggs - National TAB
Completed Date : 06/18/2024 - Gabe Merk - 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?

Comment:

N/A

DCV Max damper opening position is set to minimum?

Comment:

MANUALLY SET

Free cooling enthalpy set point set for lowest setting (Typically "D")

Comment:

N/A

Motors are all operating below the FLA rating?

Comment:

YES

Are belts tight?

Comment:

YES

If direct drive unit is the speed controller working.

Comment:

N/A

Is gas piping installed and valves turned on?

Comment:

YES

Unit free of noticeable noise and vibration

Comment:

YES

EF's

Rotation is correct?

Comment:

YES

Belts are tight?

Comment:

N/A

Grease cup installed on hood fan?

Comment:

YES

Hinge kit installed installed on hood fan?

Comment:

YES

Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?

Comment:

YES

Flex conduit is long enough so that fan can be completely tilted back?

Comment:

YES

There is no major leakage around base of fan?

Comment:

NO

Is the motor operating below the motor FLA rating?

Comment:

YES

For restroom fan(s) is the back draft damper installed and can it fully open?

Comment:

N/A

Unit free of noticeable noise and vibration?

Comment:

YES

MUA

Rotation is correct?

Comment:

YES

Gas piping is installed and valves are in on position?

Comment:

YES

Heater tested and is functional?

Comment:

YES

Internal motorized damper is fully opening?

Comment:

YES

Motor is operating below the FLA rating?

Comment:

YES

Unit free of noticeable noise and vibration?

Comment:

YES

HOODS

Kitchen equipment installed in proper places?

Comment:

YES

Can kitchen equipment be turned on for final smoke test?

Comment:

YES

DOCUMENTATION

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?

Comment:

YES



06-17-24 PENN STATION CLEVES, OH

CheckList Information

Name : TECH - STEP 3: TEST, ADJUST AND BALANCE **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/23/2024 - Brianna Biggs - National TAB
Completed Date : 06/18/2024 - Gabe Merk - National TAB

CheckList Item Details

TEST, ADJUST, AND BALANCE ALL EQUIPMENT:

DURING TESTING MAKE NOTE OF THE FOLLOWING:

Is space free of drafting?

Comment:

YES

Is space comfortable in all areas?

Comment:

Dining unit not making temperature setpoint.

Is the space free of ventilation noise?

Comment:

YES

If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".

Comment:

N/A



06-17-24 PENN STATION CLEVES, OH

CheckList Information

Name : TECH - STEP 4: FINAL TESTS **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/23/2024 - Brianna Biggs - National TAB
Completed Date : 09/18/2024 - Wesley John - National TAB

CheckList Item Details

FINAL TESTS

HOOD CAPTURE TEST

List equipment turned on for testing

Comment:

FRYER, OVEN, GRIDDLE

List smoke candle type used

Comment:

COOKING

Smoke test capture - Perimeter of hood

Comment:

100%

Smoke test capture - Top of cooking surface

Comment:

100%

WITNESS

Date test was completed

Comment:

6/18/2024

TAB tech name / Firm

Comment:

GABE / NTAB

Site super name / Firm

Comment:

N/A

Owner representative name / Firm (if Applicable)

Comment:

N/A

Building pressure at front & back doors (All Systems On)

Comment:

0.000",-0.001"

ADDITIONAL

Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)

Comment:

NO, LONE RETURN IN BOH CAUSING NEGATIVITY

PROGRAM THERMOSTATS

Occupied 7:15AM-10:15PM: 68 Heat/72 Cool (NOTE: 3 degree MAX setback)

N/A

Comment:

Unoccupied 10:16PM-7:14AM: 65 Heat/75 Cool

N/A

Comment:

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: AHU/RTU



Asset: RTU1

AREA: DINING

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	3402G40503
Model Num	48TFD012	48TFD012
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	32"x23"
Num Final Filter 1	-	4
Final Filter Size 1	-	20"x20"x2"

Test Data		
	Design	Actual
SF CFM	4000	3342
SF RPM	-	825
RA CFM	3120	2489
OA CFM	880	853
RL Voltage	-	206/207/208
RL Amperage	-	5.2/5.2/5.3
SF Rotation	-	CW
Min OA Damper Position	-	MANUALLY SET
Min OA Damper Type	-	MANUALLY SET

Motor Data		
	Design	Actual
Motor MFG	-	GE
Frame	-	56Y
Horsepower	-	NA
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	5.2

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.49"
Fan Suction SP	-	-0.81"
Fan Discharge SP	-	0.55"
Total ESP	-	1.04"
Fan Total SP	-	1.36"

Drive Data	
	Actual
Motor Sheave Size	4"
Motor Bore Size	5/8"
Motor Sheave SetPt	2 OUT
Fan Sheave Size	7"
Fan Sheave Bore	1"
Belt CL Distance	17.25"
Num of Belts	1
Belt Size	4L-500
Belt Alignment	GOOD

General	
	Actual
Fan Rotation Correct	YES
Unit Filters Clean	NO REMOVED FOR TAB
Condensate Drain Installed	YES

Completed By: Gabe Merk on 06/17/2024

Notes:
 MOTOR MAXED ON AMPERAGE.
 DIRTY FILTERS REMOVED FOR TAB.
 DIFFUSER 1-9 DAMPER FULLY OPEN NOT REACHING FLOW.

Written By: Wesley John on 09/18/2024

National TAB

Project:06-17-24 PENN STATION CLEVES, OH

AHU/RTU



Diffuser Supply (GRD)

RTU1/DINING

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU1-SGRD13				50				53	106.0
RTU1-SGRD14				50				51	102.0
SGRD1	ENTRY VESTIBULE		6"	50	1	70	75	43	86.0
SGRD2	DINING		10"	400	1	273	297	316	79.0
SGRD3	DINING		10"	400	1	331	333	366	91.5
SGRD4	DINING		10"	400	1	313	318	338	84.5
SGRD5	DINING		10"	400	1	365	372	319	79.8
SGRD6	DINING		10"	400	1	76	314	338	84.5
SGRD7	DINING		10"	375	1	316	353	288	76.8
SGRD8	DINING		10"	375	1	261	268	294	78.4
SGRD9	DINING		10"	400	1	231	229	245	61.3
SGRD10	DINING		10"	375	1	277	288	325	86.7
SGRD11	DINING		10"	375	1	314	322	320	85.3
SGRD12	RR HALLWAY		6"	50	1	107	113	46	92.0
Total				4100		2934	3282	3342	81.51%

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: AHU/RTU



Asset: RTU2

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	1202G20643
Model Num	48TFD008	48TFD008
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	32"x23"
Num Final Filter 1	-	4
Final Filter Size 1	-	20"x16"x2"

Test Data		
	Design	Actual
SF CFM	2900	2286
SF RPM	-	870
RA CFM	2545	1821
OA CFM	455	465
RL Voltage	-	208/208/210
RL Amperage	-	4.5/4.5/4.6
SF Rotation	-	CW
Min OA Damper Position	-	MANUALLY SET
Min OA Damper Type	-	MANUALLY SET

Motor Data		
	Design	Actual
Motor MFG	-	GE
Frame	-	56Y
Horsepower	-	NA
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	5.2

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.20"
Fan Suction SP	-	-0.71"
Fan Discharge SP	-	0.77"
Total ESP	-	0.97"
Fan Total SP	-	1.48"

Drive Data	
	Actual
Motor Sheave Size	3.75"
Motor Bore Size	5/8"
Motor Sheave SetPt	2 OUT
Fan Sheave Size	7"
Fan Sheave Bore	1"
Belt CL Distance	17.5"
Num of Belts	1
Belt Size	A48
Belt Alignment	GOOD

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

Completed By: Gabe Merk on 06/18/2024

Notes:

2-12 and 2-13 connected to RTU 1

2-11 NOT INSTALLED. LOAD ADDED TO 2-7,2-9, AND 2-10

UNDERSIZED DUCTWORK TO COOKLINE DIFFUSERS 2-2,2-3,2-4,2-6 INSTALLED 2X4" DUCTS FOR EACH.

Written By: Wesley John on 09/18/2024

National TAB

Project:06-17-24 PENN STATION CLEVES, OH

AHU/RTU



Diffuser Supply (GRD)

RTU2/KITCHEN

Asset								
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	FINAL CFM	% to design
SGRD1	HOOD 1	ACPSP	70X6	465	2.275	426	426	91.6
SGRD2	KITCHEN			315	1	141	166	52.7
SGRD3	KITCHEN			315	1	114	146	46.3
SGRD4	KITCHEN			315	1	140	163	51.7
SGRD5	HOOD 3	ACPSP	48X6	250	1.56	332	273	109.2
SGRD6	KITCHEN			315	1	164	177	56.2
SGRD7	BOH		10"	225	1	224	273	121.3
SGRD8	BOH		6"	50	1	238	46	92.0
SGRD9	BOH		8"	225	1	406	307	136.4
SGRD10	BOH		8"	225	1	472	309	137.3
SGRD11	BOH		8"	200				-
Total				2900		2657	2286	78.83%

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Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: FAN - Exhaust



Asset: EF4

AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	NA	ZHONGSHAN AOCHUANG
Model Num	NA	BPT13-14D
Serial Num	-	774741
Type	CEILING	CEILING

Test Data		
	Design	Actual
CFM	75	75

Motor Data		
	Design	Actual
Phase	-	1
Voltage (rated)	-	120
Amperage (rated)	-	0.18

Completed By: Gabe Merk on 06/17/2024

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Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: FAN - Exhaust



Asset: EF5

AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	NA	ZHONGSHAN AOCHUANG
Model Num	NA	BPT13-14D
Serial Num	-	ILLEGIBLE
Type	CEILING	CEILING

Test Data		
	Design	Actual
CFM	75	59

Motor Data		
	Design	Actual
Phase	-	1
Voltage (rated)	-	120
Amperage (rated)	-	0.18

Completed By: Gabe Merk on 06/17/2024

Notes:
SINGLE SPEED FAN.
NO OBSTRUCTIONS TO NOTE.
UNABLE TO INCREASE AIRFLOW.

Written By: Wesley John on 09/18/2024

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: FAN - Exhaust



Asset: KEF1

AREA:HOOD-3

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECONAIR
Model Num	DU85HFA	EADU85H
Serial Num	-	6351756
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Horsepower	0.750	0.75
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	8.9

Test Data		
	Design	Actual
CFM	1120	1129
Fan Rotation	-	CCW
System SetPt	-	60%
RL Voltage	-	120
RL Amperage	-	4.9
Total ESP	1.150"	1.01"
Fan Inlet SP	-	-1.01"
Fan Discharge SP	-	ATM

Completed By: Gabe Merk on 06/17/2024

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Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: FAN - Exhaust



Asset: KEF2

AREA:HOOD-2

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECONAIR
Model Num	DU33HFA	EADU33H
Serial Num	-	6351756
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Horsepower	0.333	0.333
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	4.3

Test Data		
	Design	Actual
CFM	600	602
Fan Rotation	-	CCW
System SetPt	-	80%
RL Voltage	-	121
RL Amperage	-	3.2
Total ESP	0.600"	0.86"
Fan Inlet SP	-	-0.86"
Fan Discharge SP	-	ATM

Completed By: Gabe Merk on 06/17/2024

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: FAN - Exhaust



Asset: KEF3

AREA:HOOD-1

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECONAIR
Model Num	DU85HFA	EADU85H
Serial Num	-	6351756
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCOGREEN
Horsepower	0.750	0.750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	8.9

Test Data		
	Design	Actual
CFM	850	894
Fan Rotation	-	CCW
System SetPt	-	55%
RL Voltage	-	120
RL Amperage	-	4.6
Total ESP	1.150"	1.07"
Fan Inlet SP	-	-1.07"
Fan Discharge SP	-	ATM

Completed By: Gabe Merk on 06/17/2024

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: FAN - Supply



Asset: MUA1

AREA:COOKLINE

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECONAIR
Model Num	A1-D.250-15D	EA1-D.250-15D
Serial Num	-	6351756
Type	MUA	MUA
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	1630	1661
SF System SetPt	-	59.6
RL Voltage	-	207/208/209
RL Amperage	-	3.7/3.0/3.3
Total ESP	-	0.47"
Fan Discharge SP	-	0.47"

Motor Data		
	Design	Actual
Motor MFG	-	WESTINGHOUSE
Frame	-	145T
Horsepower	1.5	1.5
Motor Rpm	-	1740
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	4.03
Service Factor	-	1.15

General	
	Actual
Fan Rotation Correct	YES

Gas Heat		
	Design	Actual
Heater Operates (y/n)	-	YES
Flame Status (pass/fail)	-	PASS
Inlet Air Temp SetPt	55	55
Discharge Air Temp SetPt	60	60
Air Flow Switch SP Actual	-	0.30"

Completed By: Gabe Merk on 06/17/2024

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: Kitchen Hood Type I



Asset: HD1

AREA:COOKLINE

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON AIR
Model Num	3650 ELPX-2 246 MISC ACPSP	3650 ELPX-2
Job / Serial Num	-	6351756
Type	TYPE I LOW PROXIMITY	TYPE 1 CANOPY
Hood length	72"	72"
Hood Width	36"	36"
Supply Plenum Type	-	ACPSP
Supply Plenum Width	14"	14"
Supply Plenum Length	72"	72"

Test Data Supply		
	Design	Actual
Total AK Area	7	7
Kv factor (Vel)	0.89	0.89
Num of Readings	-	4
Reading1 FPM	-	168
Reading2 FPM	-	160
Reading3 FPM	-	182
Reading4 FPM	-	181
Ave FPM(corr)	-	173
CFM	1000	1076

Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16x16
Filter Qty 1	4	4
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	6.48	6.48
Filter1 FPM	-	167
Filter2 FPM	-	179
Filter3 FPM	-	172
Filter4 FPM	-	177
Filter Ave FPM(corr)	-	174
CFM	1120	1129

Cooking Equipment	
	Actual
Item 1	GRIDDLE

Completed By: Gabe Merk on 06/17/2024

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: Kitchen Hood Type I



Asset: HD2

AREA:COOKLINE

Unit Data

	Design	Actual
MFG	CAPTIVEAIRE	ECON AIR
Model Num	4412 PS-OVN	NL
Job / Serial Num	-	NL
Type	TYPE I CANOPY	TYPE I CANOPY
Hood length	21.25"	21"
Hood Width	44"	44"

Test Data Exhaust

	Design	Actual
Filter Type	SS BAFFLE	SS BAFFLE
Filter Size 1	20X10	20x10
Filter Qty 1	2	2
Filter AK factor size 1	-	1.2
Filter Total AK Area	-	2.4
Filter1 FPM	-	250
Filter2 FPM	-	252
Filter Ave FPM(corr)	-	251
CFM	600	602

Cooking Equipment

	Actual
Item 1	OVEN

Completed By: Gabe Merk on 06/17/2024

National TAB

Project: 06-17-24 PENN STATION CLEVES, OH

System/Unit: Kitchen Hood Type I



Asset: HD3

AREA:COOKLINE

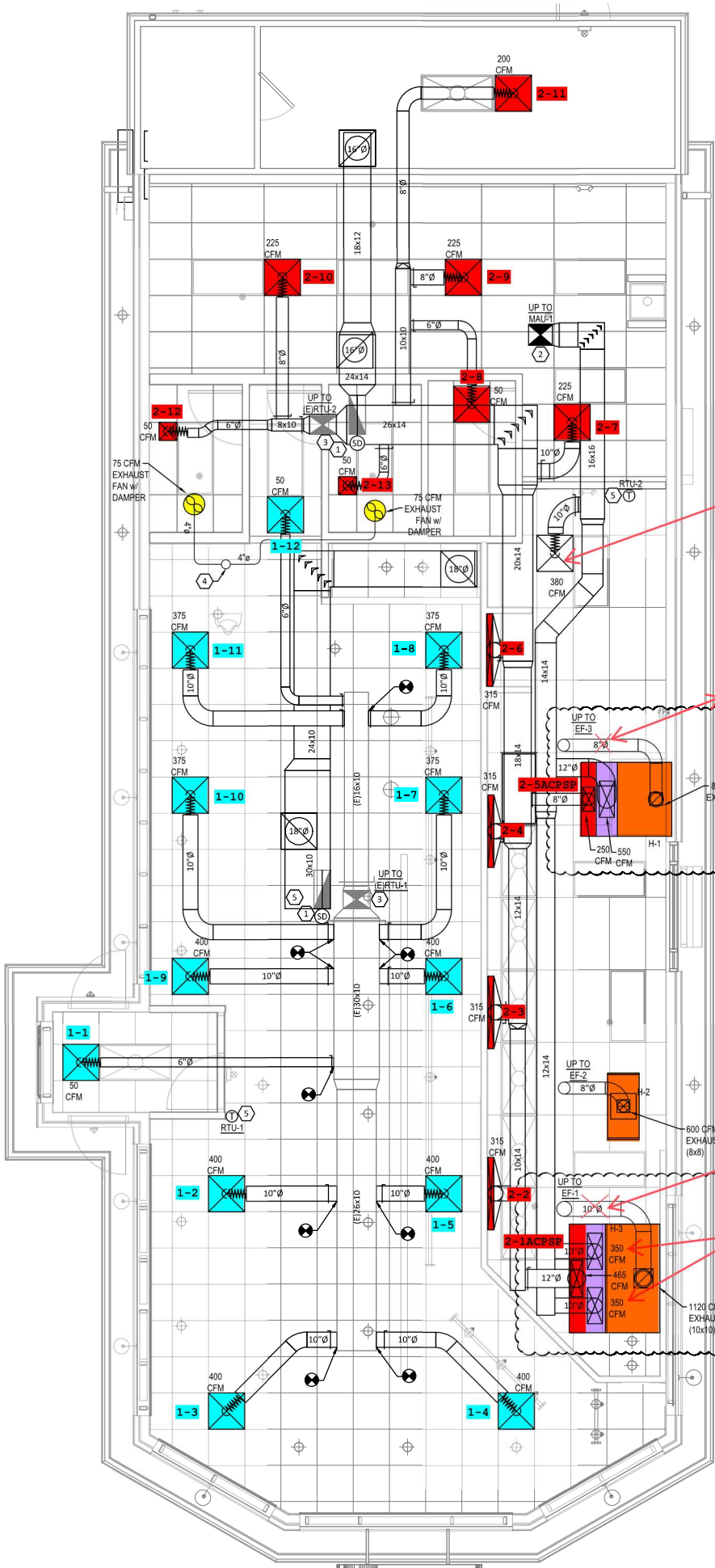
Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON AIR
Model Num	3650 ELPX-2 246 MISC ACPSP	3650 ELPX-2
Job / Serial Num	-	6351756
Type	TYPE I LOW PROXIMITY	TYPE 1 CANOPY
Hood length	50"	50"
Hood Width	36"	36"
Supply Plenum Type	-	ACPSP
Supply Plenum Width	14"	14"
Supply Plenum Length	50"	50"

Test Data Supply		
	Design	Actual
Total AK Area	4.86	4.86
Kv factor (Vel)	0.89	0.89
Num of Readings	-	4
Reading1 FPM	-	133
Reading2 FPM	-	104
Reading3 FPM	-	146
Reading4 FPM	-	158
Ave FPM(corr)	-	135
CFM	630	585

Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16x16
Filter Qty 1	3	3
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	4.86	4.86
Filter1 FPM	-	184
Filter2 FPM	-	191
Filter3 FPM	-	177
Filter Ave FPM(corr)	-	184
CFM	850	894

Cooking Equipment	
	Actual
Item 1	FRYER

Completed By: Gabe Merk on 06/17/2024



HVAC PLAN NOTES

- EC TO FURNISH RETURN DUCT MOUNTED SMOKE DETECTOR AND PROVIDE COMPATIBLE REMOTE ANNUNCIATOR/TEST SWITCH. MC TO INSTALL SMOKE DETECTOR IN RETURN DUCT. PRIOR TO ANY OUTDOOR AIR CONNECTIONS. MC TO PROVIDE INTERLOCK WIRING BETWEEN SMOKE DETECTOR AND UNIT TO SHUT DOWN UNIT UPON DETECTION OF SMOKE. EC SHALL PROVIDE WIRING FOR FINAL CONNECTION TO CENTRAL FIRE ALARM SYSTEM, IF APPLICABLE. AND WIRING TO REMOTE ANNUNCIATOR/TEST SWITCH.
- TYPICAL SUPPLY AIR DROP FROM MAKEUP AIR UNIT, PROVIDE DIRECTIONAL VANES AT BOTTOM OF DROP INSIDE DUCT. KEEP ALL MAKEUP AIR DUCTS ABOVE THE CEILING.
- TYPICAL SUPPLY FROM RTU. PROVIDE DIRECTIONAL VANES AT BOTTOM OF DROP INSIDE DUCT. 22 GA. MATERIAL
- REPLACE EXISTING EXHAUST FAN AND REUSE EXISTING EXHAUST DUCT, ROOF PENETRATION AND VENT CAP.
- PROVIDE NEW THERMOSTAT AND MOUNT ON WALL 4 FEET A.F.F.

REQUIRED TESTS

- CONDUCT A LIGHT-TIGHTNESS TEST WITNESSED BY THE ARCHITECT UNDER CERTAIN CONDITIONS.
- A PUFF TEST IS REQUIRED FOR ALL EXHAUST PENETRATIONS.
- AN AIR-CAPTURE TEST IS REQUIRED FOR ALL EXHAUST PENETRATIONS.
- A TEST AND BALANCE REPORT IS REQUIRED FOR ALL EXHAUST PENETRATIONS.

MECHANICAL - FLOOR PLAN

SCALE: 1/4" = 1'-0"

1
M1.0

Recommended this be perforated. At times they install too close to hood & then causes performance issues if 4way. They dont always install exact location shown on prints, so fail safe.

To be 100 cfm Positive in pressure for building based upon RTU units OA amounts & including bathroom fan, & all hood exhaust we need the makeup air unit to have 1480 CFM of supply air. Adjusted CFM at hood.

total exhaust = -2720
rtu OA = + 1335
SF1 (mu) = +1460
net = +75 CFM

Recommended grease duct size for performance & sound ratings.

12" dia
455 CFM Each

MECHANICAL SPECIFICATIONS

- HVAC SYSTEMS SHALL INCLUDE HIGH & LOW VOLTAGE FOR LOCAL CODE COMPLIANCE BY THE MECHANICAL CONTRACTOR.
- COORDINATE ALL WORK WITH THE EQUIPMENT MANUFACTURER'S WORK, AND HOOK UP REQUIREMENTS.
- HOOD SUPPLIER SHALL PROVIDE SHOP DRAWINGS FOR APPROVAL.
- GENERAL NOTES
 - NO PENETRATIONS SHALL OCCUR THROUGH ROOF OR FLOOR.
 - GAS LINE PENETRATIONS BEHIND SEPARATION WALLS SHALL BE PULLED OUT TO NEAR FULL LENGTH OF EQUIPMENT, BUT NOT SO CLOSE AGAINST THE WALL. GAS LINE MUST BE RESTRAINED TO MEET "RESTRAINT DETAIL" ON SHEET A6.0.
- GENERAL CONTRACTOR MUST COORDINATE WITH ALL OTHER TRADES. SYSTEMS ARE INSTALLED TOGETHER PRIOR TO OTHER TRADES. WORK COMPLETED AT LEAST 4 WORKING DAYS PRIOR TO TESTING. BALANCE TO TAKE PLACE. CHECKLIST SO.
- LIMIT FLEX-PIPE RUNS TO 5'-0" MAXIMUM.
- USE HARD-PIPE, 90° ELBOWS AT ALL CORNERS.
- ALL HANGERS AND INSTALLATION METHODS SHALL BE AS SHOWN ON SHOP DRAWINGS.
- PROVIDE 4" X 48" LINEAR DIFFUSERS.
- REFER TO CAPTIVEAIRE SHOP DRAWINGS FOR EQUIPMENT SPECIFICATIONS.
- EXHAUST FANS BY NUTRONE OR EQUIVALENT. SINGLE PORT IN-LINE VENTILATOR TYPE. PENETRATION IF FIELD CONDITIONS PERMITTED.
- IN OCCUPIED MODE, THE HVAC UNIT SHALL BE SET TO 68°F.

VENTILATION SCHEDULE - O.M.C - 2017 - 403.3.1.1

Penn Station - Cleves, OH		Table 403.3.1.1					Vbz
ROOM #	ROOM NAME	Az	OCCUPANCY CATEGORY	Rp	Ra	Pz	
		SQFT		CFM/P	CFM/SQFT	people	
100	Vestibule	50	Corridor	0	0.06	0	
101	Dining	1061	Dining	7.5	0.18	58	
	RTU-1	1111				58	
102	Serving	420	Kitchen	7.5	0.18	4	
103	Storage	41	Storage	0	0.12	0	
104	Prep	370	Kitchen	7.5	0.18	2	
105	Men's RR	42	N/A	0	0	0	
106	Women's RR	42	N/A	0	0	0	
107	Dry Storage	202	Storage	0	0.12	0	
	RTU-2	1117				6	