Report By:

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

Report: TAB REPORT

Function: Test, Adjust, & Balance

Date: 08/06/2024

PROJECT

07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

9959 IRON BRIDGE RD

CHESTERFIELD, VA 23832

Client

CAVA

702 H ST NW

2nd floor

Washington, DC 20001

National TAB

Project: 07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

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) 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: End panel is not installed
- RTU-2: There is missing diffuser that is not installed
- RTUs: Construction filters are still in place
- RTUs: Hail guards are not installed
- RTUs: Return sensor is not functional

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Project Issue Information

Issue Name : Hood: End panel is not installed

Description : The quarter end panel for the hood is not installed. Recommend having end panel in place prior to stores opening.

Created By : National TAB

Assigned To : National TAB - David Annan

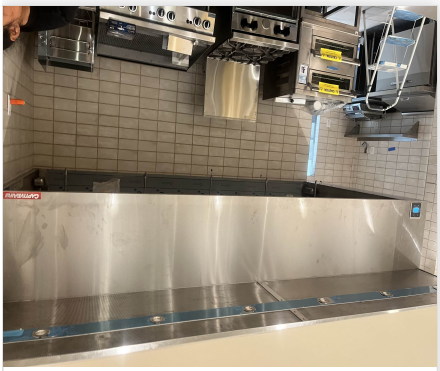
Status : Open

Priority : Medium

Asset Tag :

Originated Date : 08/01/2024 - David Annan - National TAB

Project Issue File Details



08/01/2024

07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

Project Issue Information

Issue Name : RTU-2: There is missing diffuser that is not installed

Description : RTU-2 has a missing diffuser that is suppose to be located next to the hood. Diffusers were proportionally balanced and for comfort.

Created By : National TAB

Assigned To : National TAB - David Annan

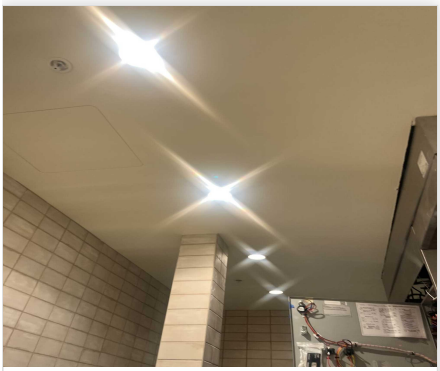
Status : Open

Priority : Urgent

Asset Tag :

Originated Date : 08/01/2024 - David Annan - National TAB

Project Issue File Details



08/01/2024

07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

Project Issue Information

Issue Name : RTUs: Construction filters are still in place

Description : Both RTUs construction filters are still installed. Recommend having pleated filters with a MERV rating of atleast 8 or higher installed before stores opening.

Created By : National TAB

Assigned To : National TAB - David Annan

Status : Open

Priority : High

Asset Tag :

Originated Date : 08/01/2024 - David Annan - National TAB

Project Issue File Details

08/01/2024

07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

Project Issue Information

Issue Name : RTUs: Hail guards are not installed
Description : Both RTU hail guards are not installed.

Created By :	National TAB	**Assigned To :**	National TAB - Brianna Biggs
Status :	Open		
Priority :	Medium	**Asset Tag :**	
Originated Date :	08/01/2024 - David Annan - National TAB		

Project Issue File Details

08/01/2024

07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

Project Issue Information

Issue Name : RTUs: Return sensor is not functional

Description : The return sensor was found to be not functional due to not providing a reading. Recommend to have mechanical trouble shoot the units return sensors.

Created By : National TAB **Assigned To :** National TAB - David Annan

Status : Open

Priority : Medium **Asset Tag :**

Originated Date : 08/06/2024 - David Annan - National TAB

Project Issue File Details

08/06/2024

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	3350	3465	2780	2913	570	552	17.0%	15.9%						
RTU-2	KITCHEN	3275	2983	2620	2309	655	674	20.0%	22.6%						
MUA-1	COOKLINE									1976	1905				
KEF-1	KITCHEN HD											2381	2396		
CEF-1	WOMENS RR													100	113
CEF-2	MENS RR													100	101
TOTALS		6625	6448	5400	5222	1225	1226			1976	1905	2381	2396	200	214

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	3201	3131
TOTAL EXHAUST	2581	2610
NET AIRFLOW	620	521

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.0059
SIDE	-
REAR	0.0017
AVERAGE	**0.0038**

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:

CheckList List

- TECH - SITE PICTURES

07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

CheckList Information

Name :	TECH - SITE PICTURES	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	07/31/2024 - David Annan - National TAB		

CheckList Item Details

STORE FRONT

Comment:

07/31/2024

RTU-1

Comment:

07/31/2024

RTU-2

Comment:

07/31/2024

KEF-1

Comment:

07/31/2024

CEF-1

Comment:

07/31/2024

CEF-2

Comment:

07/31/2024

MUA-1

Comment:

07/31/2024

HD-1

Comment:

07/31/2024

CheckList List

- FIV - EF'S
- FIV - HVAC DUCTWORK
- FIV - RTU'S
- FIV – HOODS
- FIV – MUA
- FPT - BUILDING PRESSURE AND HOOD CONTAINMENT
- FPT - KEF'S
- FPT - RTU's
- FPT – MUA

07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

CheckList Information

Name :	FIV - EF'S	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	07/31/2024 - David Annan - National TAB		

CheckList Item Details

Unit Tag matches the design and submittal MFG and Model	Pass
Comment:	
Each exhaust fan is proper tagged for proper identification with tags sized and placed on the fan for visual ease	Fail
Comment:	
Fans are installed in the correct location and orientation	Pass
Comment:	
All packing, material and debris has been removed from the blower/wheel housing and the motor compartment	Pass
Comment:	
Fan wheels turn easily by hand (turn power off prior to testing)	Pass
Comment:	
Fans grease duct curb top plate is properly transitioned to the fan inlet and flush on top of the curb, sealed to the fan base to prevent leakage	Pass
Comment:	

Exhaust fans have external disconnects and are connected to allow full hinging of each exhaust fan	Pass
Comment:	

Fan is properly hinged and supported when hinged fully back for grease duct access (for Halton fans, ensure the base mounted disconnect is not hitting the fan base/curb when fully hinged back)	Pass
Comment:	

Grease cups are properly installed and connected to the fan base grease drain to prevent spilling outside of the grease cup	Pass
Comment:	

Exhaust fans are located 5ft from parapet wall and 10ft from any fresh air intake.	Fail
Comment:	

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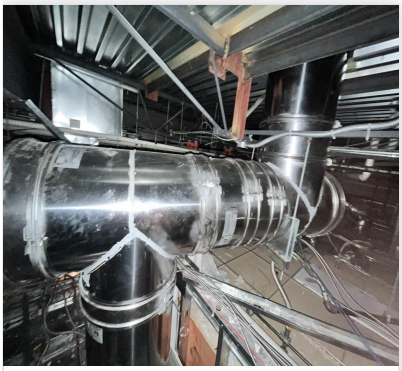
CheckList Information

Name :	FIV - HVAC DUCTWORK	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	08/06/2024 - David Annan - National TAB		

CheckList Item Details

KVS - GREASE DUCT (HOOD SYSTEM)

Grease duct is sized and routed per plan	Pass
Comment:	
Grease duct is properly supported	Pass
Comment:	
Grease duct has code required negative pitch from fan inlet back to the hood riser connection	Pass
Comment:	
Grease duct has required clean-out doors installed, labeled, and accessible for removal/cleaning. Doors are located as required by code	N/A
Comment:	
Grease duct is the Captiveaire round duct	



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Grease duct clean-out doors are secured using tool less fasteners and seal fully when hand tightened	N/A
Comment:	
Grease duct is centered in the curb and transitions as required to ensure the fan inlet is fully covered by the grease duct opening. Duct top plate flanges to the edges of the curb and is secured and flat so that the fan sits flush and square.	Pass
Comment:	
Grease duct is wrapped if welded duct, or is double wall round duct?	N/A
Comment: CAPTIVEAIRE duct was used	
KVS - MUA DUCT (HOOD SYSTEM)	
MUA duct is routed and sized as per plan	Pass
Comment:	
MUA duct is properly supported	Pass
Comment:	
MUA duct seams are sealed air tight using proper sealant and application for SMACNA pressure rating of duct systems	Yes
Comment:	
MUA duct is externally insulated and taped to prevent vapor barrier from being breached	Pass

Comment:	
MUA duct drop box and transitions are done to encourage laminar flow and avoid restrictions	Pass
Comment:	
Branch take-off's have accessible dampers exposed for the TAB team to adjust each line as necessary	Pass
Comment:	
Flex duct (if used) is supported and straight with no more than one (1) hard 90 degree elbow and less than 5ft in total length	N/A
Comment:	
Connection to the hood MUA plenum is secured and foil taped to prevent air leakage	Pass
Comment:	
RESTROOM DUCT	
Restroom duct is routed and sized per plan	N/A
Comment: Unable to determine. Location uses ceiling mounted fans	
Restroom duct is properly supported	N/A
Comment:	
Duct seams are sealed	N/A
Comment:	
Dampers are accessible to TAB team for balancing	N/A
Comment:	
Flex duct (if used) is supported and straight with no more than one (1) hard 90 degree elbow and less than 5ft in total length	N/A
Comment:	
Duct is secured to exhaust register	N/A

Comment:

Unable to determine. Location uses ceiling mounted fans

Gravity damper is installed, opens and closes freely, and is sealed to prevent air leakage	N/A

Comment:

Unable to determine. Location uses ceiling mounted fans

Duct to curb transition is centered and sized to ensure it covers the entire fan inlet. Curb top plate is flush and secured to the ends of the curb.	N/A

Comment:

HVAC DUCT

Kitchen and Dining room duct is routed and sized as per plan	Pass

Comment:

Ducts are properly supported	Pass

Comment:

Ductwork is externally insulated	Yes

Comment:

Duct seams are sealed air tight using proper sealant and application for SMACNA pressure rating of duct systems	Pass

Comment:

Ducts are securely insulated as per specificatins and foil taped to prevent air barrier from being breached	Pass

Comment:

Takeoffs are installed to serve required terminal diffusers and are equipped with accessible dampers for TAB team access and can be opened or closed fully with no impingements	Pass

Comment:

Flex duct (if used) is supported and straight with no more than one (1) hard 90 degree elbow and less than 5ft in total length	Pass

Comment:

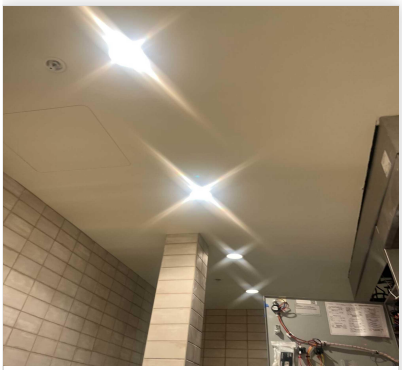
Takeoff to diffuser is installed securely to prevent slippage and air leakage	Pass

Comment:

All diffuser neck or opening sizes are installed as planned	Fail

Comment:

There is a missing supply diffuser in the kitchen



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Supply and Return duct transitions to top of RTU curb, sized to full width and length of opening and is flashed fully to the sides of the curb.	Pass

Comment:

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CheckList Information

Name :	FIV - RTU'S	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	08/06/2024 - David Annan - National TAB		

CheckList Item Details

RTU IDENTIFICATION, ORIENTATION & LOCATION

Each RTU is tagged for proper identification with tags sized and placed on the fan for visual ease	Pass
Comment:	
Identify and ensure the RTU label information and size is correct	Pass
Comment:	
Ensure proper location of unit	Pass
Comment:	
Ensure orientation of curb & RTU is per plan	Pass
Comment:	
Ensure Packing in the blower compartment has been removed	Pass
Comment:	

RTU - INSTALLATION DETAILS

With disconnect switch "off" spin the indoor and outdoor fan wheel's by hand and ensure they spin freely	Pass

Comment:

Ensure Roof Curb is fully flashed by roofing material and secured and curb is level	Pass

Comment:

Inspect the interior of the supply heat exchange compartment and return air compartment - validate that the duct is flashed and sealed to the top of the curb to prevent leakage or short cycling	Pass

Comment:

Hail guards installed on outdoor condenser coils	Fail

Comment:

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RTU - ACCESSORIES

Power connected & disconnect installed	Pass

Comment:

Gas line connected per specification (size, painting, supports, shut-off valves, traps)	Pass

Comment:

OA hood & filters installed	Pass

Comment:

Economizer wired to control board	Pass

Comment:

Evaporator coil filters are properly installed with specified MERV rating	Fail

Comment:

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Economizer damper is installed properly	Pass

Comment:

Economizer OA temperature / enthalpy sensors installed and wired	Pass

Comment:

Thermostat and humidity (if applicable) control wires wired to RTU terminals	N/A

Comment:

Condensate drain installed per specification	Fail

Comment:

Condensate line drains away from unit to a approved roof drain	N/A

Comment:

There are no condensate lines at this location

Belts are tight?	N/A

Comment:

Units are direct drive

Pulleys aligned?	N/A
Comment:	
MERV rated filters are installed and are clean?	Fail
Comment: Construction filters installed	

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CheckList Information

Name :	FIV – HOODS	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	08/01/2024 - David Annan - National TAB		

CheckList Item Details

HOOD INSTALLATION DETAILS

Kitchen hoods tags match design and submitted information	Pass
Comment:	
Kitchen hoods are hung Level using 1/2" threaded rod	Pass
Comment:	
Kitchen hoods are supported using beam clamps and/or Unistrut per required structural and local AHJ requirements	Pass
Comment:	
Kitchen hoods are hung level front to back and side to side	Pass
Comment:	
Kitchen hoods are hung at 80" AFF	Pass
Comment:	
Kitchen Hoods are flush against the wall along the bottom and each of it's side walls.	Pass
Comment:	

Caulk is applied (less than 1/8" thick) from the hood against all wall surfaces or between connecting side to side hoods to prevent grease accumulation inside any crevice.	Pass
Comment:	

There are no penetrations into the hood canopy other than fire system nozzles	Pass
Comment:	

The hood is in "As New" condition with no visible damage, rust, pitting, or other blemishes	Pass
Comment:	

All protective film has been peeled away from the wall or other areas of impingement to assure it can be easily and fully removed prior to cleaning.	Pass
Comment:	

HOOD ACCESSORIES

End panels are installed	Fail
Comment:	

End panel is not installed

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Hood filters are installed	Pass
Comment:	

Grease cups are installed	Pass

Comment:	
Ceiling Wrappers are installed and the ceiling grid is fixed to the top of the ceiling wrappers	Pass
Comment:	
Hood control panel has been identified and is located as per plan, is accessible, and contains all components and temperature sensors to meet local interlock (normal and abnormal conditions) and heat auto on/off functionality.	Pass
Comment:	

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CheckList Information

Name :	FIV – MUA	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	07/30/2024 - David Annan - National TAB		

CheckList Item Details

MUA Tag information matches design and submittal criteria	Pass
Comment:	
MUA Fan has a permanent tag for identification located on the unit located and sized for visual ease	Pass
Comment:	
MUA is installed in the proper location and orientation	Pass
Comment:	
MUA intake is a minimum 10ft from any exhaust, roof vent or dirty air source	Pass
Comment:	
Blower compartment and internal heater area is free of packing material, debris, and dirt	Fail
Comment:	
Blower wheel turns freely by hand (turn power off prior to testing)	Pass
Comment:	
All MUA compartment and control doors are fully accessible, minimum 36" clearance for service allowing the doors to fully open without restriction	Pass

Comment:	
MUA Electrical disconnect is external to the unit and properly wired	Pass
Comment:	
Outdoor air awning is installed and fitted with proper OA mesh filters	
Comment:	
Condensate drain is installed (for cooling MUA's) with proper traps, clean-outs, and drain away from the unit to an acceptable roof drain	Pass
Comment:	
Refrigeration line sets are installed and connected properly with adequate supports per specifications	Fail
Comment:	
Condenser is installed away from any grease producing exhaust fans and located as per roof plan	
Comment:	
Condenser's electrical disconnect is external to the unit and properly wired (if applicable)	Fail
Comment:	
Condenser hail guards are installed (if applicable)	Pass
Comment:	
All Condenser compartment and control doors are fully accessible, minimum 36" clearance for service allowing the doors to fully open without restriction (if applicable)	Pass
Comment:	
Gas line is installed per specification and properly supported	Pass
Comment:	
Gas line is installed per specification and properly supported and contains maintenance shut-off valve, trap, and regulator (if line pressure requires it). MUA is equipped with inlet gas pressure gauge to validate incoming gas pressure is suitable	Pass

Comment:

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CheckList Information

Name :	FPT - BUILDING PRESSURE AND HOOD CONTAINMENT	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	08/06/2024 - David Annan - National TAB		

CheckList Item Details

FINAL TESTS

HOOD CAPTURE TEST

List equipment turned on for testing

Comment:

None, equipment startup was not completed yet

List smoke candle type used

Comment:

S102 45 sec emitter

Smoke test capture - Perimeter of hood (%)

Comment:

100%

Smoke test capture - Top of cooking surface (%)

Comment:

100%

WITNESS

Date test was completed	07/30/2024

Comment:

TAB tech name / Firm

Comment:

David Annan/ National TAB

Site super name / Firm

Comment:

Jerry Jansens / Russco Inc.

Owner representative name / Firm (if Applicable)

Comment:

N/A

BUILDING PRESSURE

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

Comment:

Yes

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CheckList Information

Name :	FPT - KEF'S	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	07/30/2024 - David Annan - National TAB		

CheckList Item Details

Exhaust fans wheel rotation is correct	Pass
Comment:	
TAB firm has balanced the exhaust fans to proper design levels	Fail
Comment:	
All motor and electrical readings are below the full load rating of each fan	Pass
Comment:	
Exhaust Fans do not have any unusual noise or vibration while operating	Pass
Comment:	
Smoke and Grease from exhaust fans appear to properly elevate above the parapet wall and off the roof.	Pass
Comment:	
Hoods have been started up by the manufacturers rep?	Pass
Comment:	
Hoods free of alarms?	Pass

Comment:	
Exhaust fans modulate to high speed when kitchen equipment is on and at cooking temperatures? If not, adjust modulation/offset down.	Pass
Comment:	

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CheckList Information

Name :	FPT - RTU's	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	08/06/2024 - David Annan - National TAB		

CheckList Item Details

THERMOSTAT PROGRAMMING AND CALIBRATION

Time is correct on the thermostats	Pass
Comment:	
Occupied Time = 7:30 AM	Pass
Comment:	
Occupied Heat setpoint = 68	Pass
Comment:	
Occupied Cooling setpoint = 72	Pass
Comment:	
Dehumidification Setpoint = 55%	N/A
Comment:	
Units do not have dehumidification	
Occupied Fan = On	Pass
Comment:	

Unoccupied Time = 12:00AM	Pass
Comment:	

Unoccupied Heat setpoint = 60	Pass
Comment:	

Occupied Cooling setpoint = 80	Pass
Comment:	

Unoccupied Fan = Auto	Pass
Comment:	

Actual measured temperature is within +/-1 degree of temperature displayed on thermostat. If not calibrate the sensor	Pass
Comment:	

Actual measured RH is within +/-3 % of displayed RH at RTU or thermostat. If not calibrate the sensor	N/A
Comment: There are no humidity sensors for this location	

CONTROL WIRING VALIDATION

Economizer Dry Bulb sensor wired	Pass
Comment:	

Economizer Dry Bulb sensor operational	Pass
Comment:	

OCP/OCC terminal wired correctly	Pass
Comment: OCP is jummered	

Thermostat Wired correctly (R,C,Y1,Y2,W1,W2)	Pass
Comment:	

Humidity Sensor Wired correctly	N/A

Comment:

Space does not have a humidity sensor

CALIBRATION & PROGRAMMING

RTU OA DB StPt, Reading Accuracy (+/- 2 degrees / 10 minute time to calibrate to actual reading)	Pass

Comment:

RTU MAT StPt, Reading Accuracy (+/- 2 degrees / 10 minute time to calibrate to actual reading)	Fail

Comment:

Return sensor was not functional

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RTU MAT Low StPt

Comment:

N/A

RTU Low T Lockout

Comment:

32 DEG F

Economizer set to 28 BTU/lb enthalpy setpoint.	N/A

Comment:

Temperature tests

Outside air temperature / humidity	
Comment: OA Temp: 87 DEG F RH: 65 %	
Full cooling LAT/H	
Comment: RTU-1: 52.9 DEG F / 31% RH RTU-2: 56.5 DEG F / 30% RH	
Full heating LAT/H	
Comment: RTU-1: 116.7 DEG F/ 19% RH RTU-2: 119.4 DEF F/ 19% RH	
OUTDOOR AIR / RELIEF DAMPER	
If power exhaust installed, set point is higher than the OA damper setpoint	N/A
Comment:	
If power exhaust installed, open the OA damper above the power exhaust setpoint and ensure that the power exhaust turns on	N/A
Comment:	
If relief damper is installed, ensure that it is installed properly and can open freely.	N/A
Comment:	
OCCUPANCY VALIDATION	
Place the thermostat in "unoccupied" - Does the OA damper close fully	Fail
Comment: Damper remains open	
Stage cooling and Heating in "unoccupied" - Does the unit properly stage and does the OA damper remain closed	Fail
Comment: Damper remains open	
Place the thermostat in "Occupied" - Does the OA damper open to the TAB preset minimum position in High speed	Pass
Comment:	

Place the thermostat in "Occupied" - Does the OA damper open to the TAB preset minimum position in Low speed (if applicable)	Pass

Comment:

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CheckList Information

Name :	FPT – MUA	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2024 - Brianna Biggs - National TAB		
Completed Date :	07/30/2024 - David Annan - National TAB		

CheckList Item Details

TAB firm has balanced the MUA to within proper design limits	Pass
Comment:	
Blower wheel rotation is correct	Pass
Comment:	
MUA does not have any unusual noise or vibration while operating	Pass
Comment:	
Motor and electrical measurements are below the full load rating	Pass
Comment:	
Startup has been completed by the manufacturers rep?	Pass
Comment:	
Heater tested and is functional?	Pass
Comment:	
Cooling is tested and is functional?	Yes

Comment:

National TAB

Project: 07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

System/Unit: AHU/RTU

Asset: RTU1 AREA:DINING

Unit Data		
	Design	**Actual**
MFG	CARRIER	CARRIER
Serial Num	-	2823P32671
Model Num	48FCEN12A2A5-6U4F0	48FCEM12A2A5A0A0A0
Type	RTU	RTU
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	2
OA Filter Size 1	-	18X24
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	**Actual**
Motor MFG	-	N/L
Frame	-	N/L
Horsepower	2.4	N/L
Motor Rpm	-	N/L
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	6.4

Drive Data	
	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	3350	3465
SF RPM	-	1246
RA CFM	2780	2913
OA CFM	570	552
RL Voltage	-	213/212/211
RL Amperage	-	0.6/0.7/0.7
SF Rotation	-	CCW
RA Damper Position	-	82%
Min OA Damper Position	-	18%
Min OA Damper Type	-	SBD

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.68"
Fan Suction SP	-	-1.00"
Fan Discharge SP	-	0.28"
Total ESP	1.0"	0.96"
Fan Total SP	-	1.28"

General	
	Actual
Fan Rotation Correct	Yes
Unit Filters Clean	Construction Filter
Condensate Drain Installed	Yes

Completed By: David Annan on 08/06/2024

National TAB

Project:07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

AHU/RTU

Diffuser Supply (GRD)

RTU1/DINING

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	DINING	E	10"	400	1	619	532	426	106.5
SGRD2	DINING	E	10"	400	1	401	529	423	105.8
SGRD3	DINING	E	10"	375	1	476	481	385	102.7
SGRD4	DINING	E	10"	350	1	664	458	366	104.6
SGRD5	DINING	E	10"	350	1	58	479	383	109.4
SGRD6	DINING	E	10"	300	1	459	356	285	95.0
SGRD7	DINING	E	10"	400	1	348	469	375	93.8
SGRD8	DINING	E	10"	375	1	670	417	341	90.9
SGRD9	CORRIDOR	D	8"	150	1	175	211	162	108.0
SGRD10	CORRIDOR	D	8"	150	1	50	207	160	106.7
SGRD11	RESTROOM	D	6"	75	1	134	108	82	109.3
SGRD12	RESTROOM	D	6"	75	1	107	101	77	102.7
Total				3400		4161	4348	3465	101.91%

Completed By: David Annan on 08/06/2024

National TAB

Project: 07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

System/Unit: AHU/RTU

Asset: RTU2 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	CARRIER	CARRIER
Serial Num	-	2823P32666
Model Num	48FCEN12A2A5-6U4F0	48FCEM12A2A50A0
Type	RTU	RTU
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	2
OA Filter Size 1	-	18X24
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	**Actual**
Motor MFG	-	N/L
Frame	-	N/L
Horsepower	2.4	N/L
Motor Rpm	-	N/L
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	6.4

Drive Data	
	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	3275	2983
SF RPM	-	1870
RA CFM	2620	2309
OA CFM	655	674
RL Voltage	-	210/212/212
RL Amperage	-	3.4/3.0/3.0
SF Rotation	-	CCW
RA Damper Position	-	95%
Min OA Damper Position	-	5%
Min OA Damper Type	-	SBD

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.98"
Fan Suction SP	-	-1.13"
Fan Discharge SP	-	0.52"
Total ESP	1.0"	1.50"
Fan Total SP	-	1.65"

General	
	Actual
Fan Rotation Correct	Yes
Unit Filters Clean	Construction Filter
Condensate Drain Installed	Yes

Completed By: David Annan on 08/06/2024

Notes:
Missing diffuser by the hood. Diffusers were balanced for comfort.

Written By: David Annan on 08/06/2024

National TAB

Project:07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

AHU/RTU

Diffuser Supply (GRD)

RTU2/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	KITCHEN	A	10"	225	1	110	175	210	93.3
SGRD2	KITCHEN	A	8"	200	1	194	159	191	95.5
SGRD3	KITCHEN	A	8"	200	1	205	167	212	106.0
SGRD4	KITCHEN	A	8"	200	1	187	157	199	99.5
SGRD5	OFFICE	A	8"	150	1	160	121	145	96.7
SGRD6	KITCHEN	B	10"	370	1	-	-		-
SGRD7	KITCHEN	ACPSP	140X8	728	1	674	589	707	97.1
SGRD8	KITCHEN	B	10"	400	1	457	370	444	111.0
SGRD9	KITCHEN	B	10"	400	1	338	381	457	114.3
SGRD10	KITCHEN	B	10"	400	1	290	349	418	104.5
Total				3273		2615	2468	2983	91.14%

Completed By: David Annan on 08/06/2024

National TAB

Project: 07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

System/Unit: FAN - Exhaust

Asset: CEF1 AREA:WOMEN RR

Unit Data		
	Design	**Actual**
MFG	COOK	COOK
Model Num	GC-148	GC-148
Serial Num	-	N/L
Type	CEILING	Ceiling
Configuration	VERTICAL	Vertical

Motor Data		
	Design	**Actual**
Motor MFG	-	QUEACE
Frame	-	N/L
Horsepower	-	15 W
Motor Rpm	-	1550
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	0.40
Service Factor	-	N/L

Test Data		
	Design	**Actual**
CFM	100	113
Fan RPM	-	1550
Fan Rotation	-	CCW
Motor RPM	-	1550
System SetPt	-	High Speed
RL Voltage	-	118
RL Amperage	-	0.1
Total ESP	0.3"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	NA

Completed By: David Annan on 07/30/2024

Notes:
Can not reduce airflow to low speed. Low speed airflow measures around 80-70 CFM. Design airflow is 100 CFM.

Written By: David Annan on 08/06/2024

National TAB

Project: 07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

System/Unit: FAN - Exhaust

Asset: CEF2 AREA:MENS RR

Unit Data		
	Design	**Actual**
MFG	COOK	COOK
Model Num	GC-148	GC-148
Serial Num	-	N/L
Type	CEILING	Ceiling
Configuration	VERTICAL	Vertical

Motor Data		
	Design	**Actual**
Motor MFG	-	QUEQACE
Frame	-	N/L
Horsepower	-	15 W
Motor Rpm	-	1550
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	0.40

Test Data		
	Design	**Actual**
CFM	100	101
Fan RPM	-	1550
Fan Rotation	-	CCW
Motor RPM	-	1550
System SetPt	-	High Speed
RL Voltage	-	121
RL Amperage	-	0.1
Total ESP	0.3"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	

Completed By: David Annan on 07/30/2024

National TAB

Project: 07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

System/Unit: FAN - Exhaust

Asset: KEF1 AREA:KITCHEN HOOD

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU85HFA	DU85HFA
Serial Num	-	6272405
Type	UPBLAST	Upblast
Configuration	VERTICAL	Vertical

Motor Data		
	Design	**Actual**
Motor MFG	-	Telco Green
Frame	-	N/L
Horsepower	1.0	1
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	11.6
Service Factor	-	N/L

Test Data		
	Design	**Actual**
CFM	2381	2396
Fan RPM	1567	1674
Fan Rotation	-	CCW
Motor RPM	-	1674
System SetPt	-	72%
RL Voltage	-	122
RL Amperage	-	6.8
Total ESP	1.0"	0.97"
Fan Inlet SP	-	-0.97"
Fan Discharge SP	-	ATM

Completed By: David Annan on 08/01/2024

National TAB

Project: 07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

System/Unit: FAN - Supply

Asset: MUA1 AREA:COOKLINE

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	A1-D.250-15D-MPU	A1-D.250-15D-MPU
Serial Num	-	6272405
Type	MUA	MUA
Configuration	VERTICAL	Vertical

Motor Data		
	Design	**Actual**
Motor MFG	-	Westinghouse
Frame	-	145T
Horsepower	2.0	2.0
Motor Rpm	-	1745
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	6.1
Service Factor	-	1.0

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	-	0.38"

Test Data		
	Design	**Actual**
CFM	1905	1905
SF RPM	2098	1812
Motor RPM	-	1812
SF System SetPt	-	62.3 HZ
RL Voltage	-	206/205/205
RL Amperage	-	3.6 "VFD"
Total ESP	-	0.28"
Fan Discharge SP	-	0.28"

General	
	Actual
Fan Rotation Correct	Yes

Completed By: David Annan on 08/05/2024

National TAB

Project: 07-29-24 CAVA CHESTERFIELD, VA (IRONWILL CENTRE)

System/Unit: Kitchen Hood Type I

Asset: HD1 AREA:

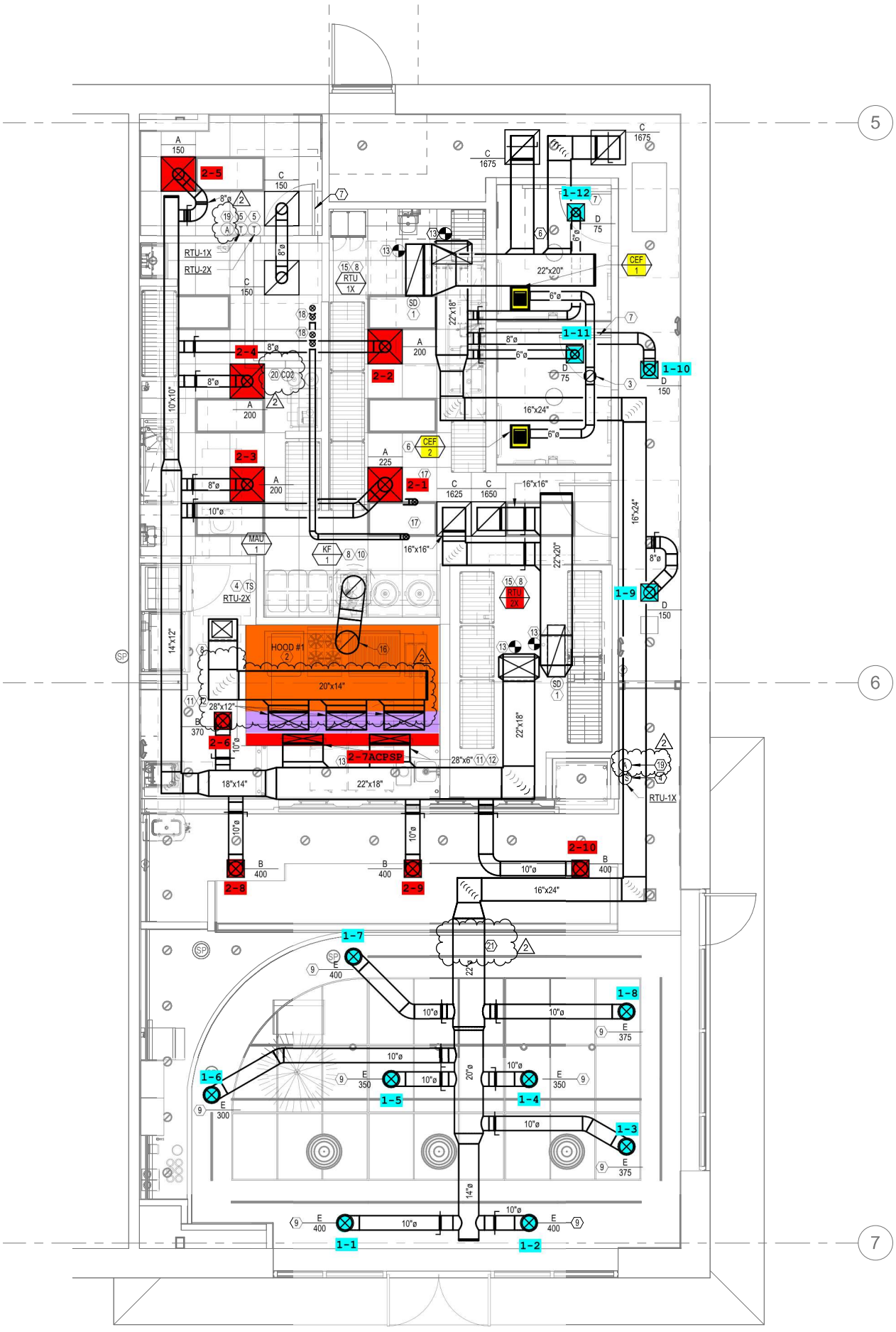
Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	6030 ND-2-ACPSP-F	6030 ND-2-ACPSP-F
Job / Serial Num	-	6272405
Type	TYPE I CANOPY	Type I
Hood length	127"	127"
Hood Width	60"	60"
Supply Plenum Type	-	ACPSP
Supply Plenum Width	14"	14"
Supply Plenum Length	140"	139"

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	Captrate Solo
Filter Size 1	16X20	16X20
Filter Qty 1	7	7
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	14.56	14.56
Filter1 FPM	-	156
Filter2 FPM	-	157
Filter3 FPM	-	180
Filter4 FPM	-	185
Filter5 FPM	-	170
Filter6 FPM	-	159
Filter7 FPM	-	145
Filter Ave FPM(corr)	-	165
CFM	2381	2396

Cooking Equipment	
	Actual
Item 1	Oven
Item 2	Griddle
Item 3	Stove
Item 4	Fryer

Test Data Supply		
	Design	**Actual**
Total AK Area	13.61	13.61
Kv factor (Vel)	0.89	0.89
Num of Readings	-	8
Reading1 FPM	-	207
Reading2 FPM	-	157
Reading3 FPM	-	168
Reading4 FPM	-	147
Reading5 FPM	-	107
Reading6 FPM	-	100
Reading7 FPM	-	124
Reading8 FPM	-	115
Ave FPM(corr)	-	
CFM	1976	1905

Completed By: David Annan on 08/01/2024



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MECHANICAL PLAN

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