

Report By:

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



Report: TAB

Function: Test, Adjust, & Balance

Date: 07/16/2025

Completed By: National TAB

PROJECT

07-14-25 FREDDY'S DENTON, TX

3812 Teasley Drive

Denton, TX 76210

Client

KT Ventures

National TAB

Project: 07-14-25 FREDDY'S DENTON, TX

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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.

DOAS w/ Diffusers

Each of the DOAS were measured at their terminal devices or via traverse to establish a total flow for that unit. Each DOAS 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.

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

- DIFFUSER 1-7
- DOAS UNIT
- No End/Side Panels

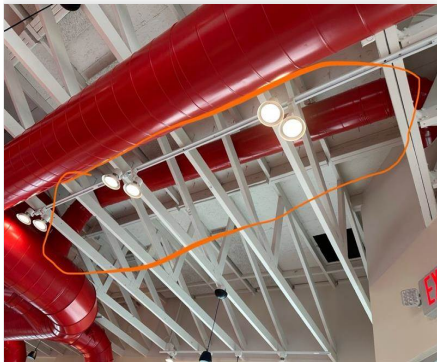


07-14-25 FREDDY'S DENTON, TX

Project Issue Information

Issue Name : DIFFUSER 1-7
Description : Airflow unable to reach this diffuser, possibly due to the transition coming off from the top of the duct or damper is closed inside. Both static pressure when the damper was opened and closed were -0.0011" before and after the damper. There appears to be a bit of leakage as well.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 07/16/2025 - Cavin Van - National TAB

Project Issue File Details



07/16/2025



07-14-25 FREDDY'S DENTON, TX

Project Issue Information

Issue Name : DOAS UNIT
Description : The DOAS unit has low airflow due to the transition from the drop to the duct flex having no turning vane, causing air to be turbulent and total airflow to be restricted at 88% total design airflow. The unit also has leakage around the drop in the ceiling.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 07/15/2025 - Cavin Van - National TAB

Project Issue File Details



07/15/2025



07/15/2025

Project Issue Response Details

- **07/15/2025 National TAB - Cavin Van**
 - Discharge (@drop before flex duct transition): 0.1389" Discharge (after drop in flex duct): 0.0467" Discharge (@unit): 0.373" Fan Suction: -0.6495" Mixed Air:-0.0946" Voltage: 204/205/204 Amps: 5.27/5.0/5.0 Fan RPM: 1739



07-14-25 FREDDY'S DENTON, TX

Project Issue Information

Issue Name : No End/Side Panels
Description : Currently there are no end/panels or side panels installed, so smoke captures fails.
Created By : National TAB **Assigned To :** National TAB - Cavin Van
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 07/16/2025 - Cavin Van - National TAB

Project Issue File Details



07/16/2025

National TAB

Project: 07-14-25 FREDDY'S DENTON, TX

- [Open](#) BALANCE_SCHEDULE_DENTON.xlsx

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 ROOM	5000	4992	4019	4000	981	992	19.6%	19.9%						
DOAS-1	KITCHEN	2790	2501		0	2790	2501	#REF!	100.0%						
KEF-1	GRIDDLE HOOD											1600	1676		
KEF-2	FRYER HOOD											775	792		
EF-1	WOMENS RR													75	79
EF-2	MENS RR													75	74
TOTALS		7790	7493	4019	4000	3771	3493			0	0	2375	2468	75	79

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	3771	3493
TOTAL EXHAUST	2450	2547
NET AIRFLOW	1321	946

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.0088
SIDE	0.0123
REAR	0.0147
AVERAGE	0.0119

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

- 01: RTU'S/AHU'S
- 02: EF'S
- 03: MUA
- 04: HOODS
- 05: FINAL TESTS



07-14-25 FREDDY'S DENTON, TX

CheckList Information

Name : 01: RTU'S/AHU'S **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 07/10/2025 - Tara Metcalf - National TAB

Completed Date : 07/16/2025 - Cavin Van - National TAB

CheckList Item Details

RTU's/AHU's

Thermostats installed and have power?	Pass
---------------------------------------	------

Comment:

All diffusers and grilles are installed and match design?	Pass
---	------

Comment:

Economizer blank plate is installed below the outside air intake (Trane only) (N/A = not applicable)	Pass
--	------

Comment:

Economizers are assembled and functional?	Pass
---	------

Comment:

Free cooling enthalpy set point set for lowest setting (Typically "D")	N/A
--	-----

Comment:

Motors are all operating below the FLA rating?	Pass
--	------

Comment:

Are belts tight?

N/A

Comment:

If direct drive unit is the speed controller working?

Pass

Comment:

Is gas piping installed and valves turned on?

Pass

Comment:

Unit free of noticeable noise and vibration

Pass

Comment:

Final outside air damper position is marked with permanent marker?

Pass

Comment:



07-14-25 FREDDY'S DENTON, TX

CheckList Information

Name : 02: EF'S **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 07/10/2025 - Tara Metcalf - National TAB
Completed Date : 07/16/2025 - Cavin Van - National TAB

CheckList Item Details

EF's

Rotation is correct? Pass

Comment:

Belts are tight? N/A

Comment:

Hinge kit installed installed on hood fan? Pass

Comment:

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

Comment:

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

Comment:

There is no major leakage around base of fans? Pass

Comment:

Is the motor operating below the motor FLA rating?

Pass

Comment:

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

N/A

Comment:

Unit free of noticeable noise and vibration?

Pass

Comment:

For direct drive fans, mark the final setting on the speed controller with permanent marker

N/A

Comment:



07-14-25 FREDDY'S DENTON, TX

CheckList Information

Name : 03: MUA **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 07/10/2025 - Tara Metcalf - National TAB
Completed Date : 07/16/2025 - Cavin Van - National TAB

CheckList Item Details

MUA

Rotation is correct?	Pass
----------------------	------

Comment:

Gas piping is installed and valves are in on position?	Pass
--	------

Comment:

Internal motorized damper is fully opening?	Pass
---	------

Comment:

Motor is operating below the FLA rating?	Pass
--	------

Comment:

Unit free of noticeable noise and vibration?	Pass
--	------

Comment:

If unit is heated is the heater functional? (If not heated put N/A)	Pass
---	------

Comment:

If unit has cooling, is cooling functional (If no cooling installed put N/A)	Pass
--	------

Comment:



07-14-25 FREDDY'S DENTON, TX

CheckList Information

Name : 04: HOODS **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 07/10/2025 - Tara Metcalf - National TAB

Completed Date : 07/16/2025 - Cavin Van - National TAB

CheckList Item Details

HOODS

All hood filters installed and accounted for? Pass

Comment:

Hoods are wired and have power? Pass

Comment:

Hood is free of alarms? Pass

Comment:

Hood is free of damage? Pass

Comment:

Quarter or full vertical end panels are installed if specified? Fail

Comment:

According to GC end panels would not fit on either hood, so end panels are not installed.



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CheckList Information

Name : 05: FINAL TESTS **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 07/10/2025 - Tara Metcalf - National TAB

Completed Date : 07/16/2025 - Cavin Van - National TAB

CheckList Item Details

FINAL CHECKS

Is space free of drafting? Pass

Comment:

Is space comfortable in all areas? Pass

Comment:

Is the space free of ventilation noise? Pass

Comment:

HOOD CAPTURE TEST

List kitchen equipment turned on for testing

Comment:

No kitchen equipment was ready to be turned on at time of testing.

List smoke candle type used

Comment:

45 second cartridge

Smoke test capture % - Perimeter of hood

Comment:

Smoke test for the fryer fails due to lack of side/end panel.

- [Open](#) IMG_8966_1094892462.MOV
07/16/2025
- [Open](#) IMG_8964_2133142471.MOV
07/16/2025

Smoke test capture % - Top of cooking surface

Comment:

- [Open](#) IMG_8966_1801564680.MOV
07/16/2025
- [Open](#) IMG_8964_1789366172.MOV
07/16/2025
- [Open](#) IMG_8966_1404572307.MOV
07/16/2025
- [Open](#) IMG_8964_1471090954.MOV
07/16/2025
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07/16/2025
- [Open](#) IMG_8966_758340133.MOV
07/16/2025
- [Open](#) IMG_8964_1460076326.MOV
07/16/2025

WITNESS

Date test was completed

07/16/2025

Comment:

TAB tech name / Firm

Comment:

CAVIN VAN / NATIONAL TAB INTELLIGENCE

Site super name / Firm

Comment:

Owner representative name / Firm (if Applicable)

Comment:

BUILDING PRESSURE

Building pressure at all doors:

Comment:

Front:0.0088" Side:0.0123" Rear:0.0147"

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

Pass

Comment:

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Project: 07-14-25 FREDDY'S DENTON, TX

System/Unit: AHU/RTU



Asset: DOAS1

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Serial Num	-	6776165
Model Num	CAS-HVAC3-I.200-15-15T	CAS-HVAC3-I.200-15-15T
Type	DOAS	DOAS
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	45.75"x33.75"
Num Final Filter 1	-	4
Final Filter Size 1	-	20x25x2

Motor Data		
	Design	Actual
Motor MFG	-	NEMA PREMIUM
Frame	-	145T
Horsepower	2	2
Motor Rpm	-	1745
Phase	3	3
Rated Voltage	208	230
Rated Amperage	-	5.64

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	2300	2501
SF RPM	-	1739
RA CFM	0	0
OA CFM	2300	2501
RL Voltage	-	204/205/204
RL Amperage	-	5.27/5.0/5.0
SF Rotation	-	CCW
SF System SetPt	-	59.8 Hz
RA Damper Position	-	0
Min OA Damper Position	-	100
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	N/A

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.0946
Fan Suction SP	-	-0.6495
Fan Discharge SP	-	0.373
Total ESP	.50"	0.2784
Fan Total SP	-	-0.2765

General	
	Actual
Fan Rotation Correct	CORRECT
Unit Filters Clean	CLEAN
Condensate Drain Installed	INSTALLED

Notes:
The diffuser total equates to more than schedule design. Unit was balanced to diffuser design.

Written By: Cavin Van on 07/16/2025

Unit Data - PHOTO LOG



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Project:07-14-25 FREDDY'S DENTON, TX

AHU/RTU



Diffuser Supply (GRD)

DOAS1/KITCHEN

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	KITCHEN	SD2	10"	330	1	246	290	248	75.2
SGRD2	KITCHEN	SD2	10"	330	1	366	410	340	103.0
SGRD3	KITCHEN	SD2	10"	330	1	271	309	256	77.6
SGRD4	KITCHEN	SD2	10"	150	1	65	58	124	82.7
SGRD5	KITCHEN	SD2	10"	330	1	330	366	322	97.6
SGRD6	KITCHEN	SD2	10"	330	1	370	402	376	113.9
SGRD7	KITCHEN	SD2	10"	330	1	288	324	268	81.2
SGRD8	KITCHEN	SD2	10"	330	1	279	309	261	79.1
SGRD9	KITCHEN	SD2	10"	330	1	48	50	306	92.7
Total				2790		2263	2518	2501	89.64%

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Project:07-14-25 FREDDY'S DENTON, TX

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	SD1	12"	470	1.408	901	485	463	98.5
SGRD2	DINING	SD1	12"	470	1.408	906	433	477	101.5
SGRD3	DINING	SD1	12"	470	1.408	940	332	466	99.1
SGRD4	DINING	SD1	12"	470	1.408	836	398	482	102.6
SGRD5	DINING	SD1	12"	470	1.408	650	352	509	108.3
SGRD6	DINING	SD1	12"	470	1.408	15	694	489	104.0
SGRD7	DINING	RG2	10X16	200	1	0	0	0	0.0
SGRD8	DINING	SD1	12"	470	1.408	525	499	466	99.1
SGRD9	DINING	SD1	12"	470	1.408	649	309	477	101.5
SGRD10	DINING	SD1	12"	470	1.408	563	297	495	105.3
SGRD11	DINING	SD1	12"	470	1.408	788	257	498	106.0
SGRD12	DINING	SD5	6"	50	1	72	82	55	110.0
SGRD13	DINING	SD5	6"	50	1	79	93	54	108.0
SGRD14		SD5	6"	50	1	79	346	61	122.0
Total				5050		7003	4577	4992	98.85%

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Project: 07-14-25 FREDDY'S DENTON, TX
System/Unit: FAN - Exhaust



Asset: EF1

AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	SP-A200-390	SP-A90-QD
Serial Num	-	27102254
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	75	79
Fan RPM	900	NA
Fan Rotation	-	NA
Motor RPM	-	NA
RL Voltage	-	111
RL Amperage	-	0.10/0.13
Suction ESP	-	NA
Discharge ESP	-	NA
Total ESP	.250"	NA

Motor Data		
	Design	Actual
Motor MFG	-	GREENHECK
Frame	-	N/A
Horsepower	.08	N/A
Motor Rpm	-	900
Phase	1	N/A
Voltage (rated)	0	115
Amperage (rated)	-	0.17
Service Factor	-	N/A

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

Unit Data - PHOTO LOG



07/16/2025

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Project: 07-14-25 FREDDY'S DENTON, TX
System/Unit: FAN - Exhaust



Asset: EF2

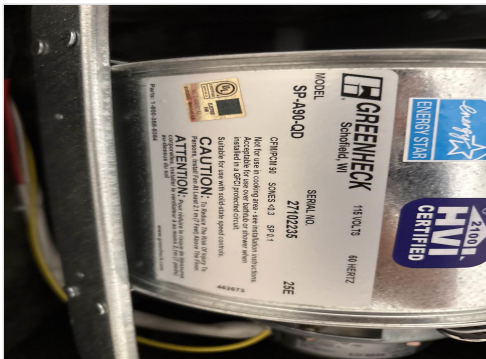
AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	SP-A00-390	SP-A90-QD
Serial Num	-	27102235
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	75	74
Fan RPM	900	NA
Fan Rotation	-	CW
Motor RPM	-	NA
System SetPt	-	N/A
RL Voltage	-	119
RL Amperage	-	0.13/0.10
Total ESP	.250"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	NA

Motor Data		
	Design	Actual
Motor MFG	-	GREENHECK
Frame	-	N/A
Horsepower	.08	N/A
Motor Rpm	-	900
Phase	1	1
Voltage (rated)	0	115
Amperage (rated)	-	0.17
Service Factor	-	N/A

Unit Data - PHOTO LOG



07/15/2025



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Project: 07-14-25 FREDDY'S DENTON, TX

System/Unit: FAN - Exhaust

Asset: KEF1

AREA:GRIDDLE HOOD FAN

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	CASRE18DD	CASRE18DD
Serial Num	-	6776165
Type	UTILITY	UTILITY
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	1600	1676
Fan RPM	1105	864
Fan Rotation	-	CW
Motor RPM	-	864
System SetPt	-	60.7
RL Voltage	-	202/203/202
RL Amperage	-	3.12/3.0/3.18
Total ESP	1.40"	[1]
Fan Inlet SP	-	[1]
Fan Discharge SP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	NEMA PREMIUM
Frame	-	145T
Horsepower	1	1
Motor Rpm	-	1150
Phase	3	3
Voltage (rated)	208	230
Amperage (rated)	-	3.44
Service Factor	-	1.15

Notes:

[1] UNABLE TO LIFT FAN TO OBTAIN FAN INLET SP.

Written By: Cavin Van on 07/14/2025

Unit Data - PHOTO LOG



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Project: 07-14-25 FREDDY'S DENTON, TX
System/Unit: FAN - Exhaust



Asset: KEF2

AREA:FRY HOOD FAN

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU50HFA	DU50HFA
Serial Num	-	6776165
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	775	801
Fan RPM	1532	846
Fan Rotation	-	CCW
Motor RPM	-	846
System SetPt	-	47%
RL Voltage	-	118
RL Amperage	-	1.39/1.42
Total ESP	1.250"	-0.288
Fan Inlet SP	-	-0.2885
Fan Discharge SP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	NEMA 48
Frame	-	N/A
Horsepower	.500	0.5
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	6.3
Service Factor	-	N/A

Unit Data - PHOTO LOG



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Project: 07-14-25 FREDDY'S DENTON, TX

System/Unit: Kitchen Hood Type I

Asset: HD1

AREA:GRIDDLE HOOD

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424-ND-2	5424-ND-2
Job / Serial Num	-	6776165
Type	TYPE I - CANOPY	TYPE I CANOPY
Hood length	96"	96"
Hood Width	54"	54"

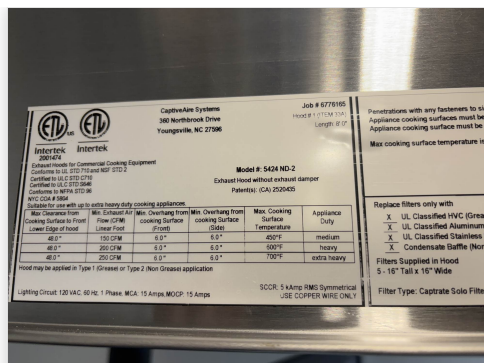
Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE SOLO FILTER	CAPTRATE SOLO FILTER
Filter Size 1	16X16	16X16
Filter Qty 1	5	5
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	8.10	8.10
Filter1 FPM	-	206
Filter2 FPM	-	213
Filter3 FPM	-	203
Filter4 FPM	-	208
Filter5 FPM	-	198
Filter Ave FPM(corr)	-	205
CFM	1600	1676

Cooking Equipment	
	Actual
Item 1	Griddle
Item 2	Griddle

Unit Data - PHOTO LOG



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National TAB

Project: 07-14-25 FREDDY'S DENTON, TX

System/Unit: Kitchen Hood Type I

Asset: HD2

AREA:FRY HOOD

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424-ND-2	5424-ND-2
Job / Serial Num	-	6776165
Type	TYPE I- CANOPY	TYPE I- CANOPY
Hood length	60"	60"
Hood Width	54"	54"

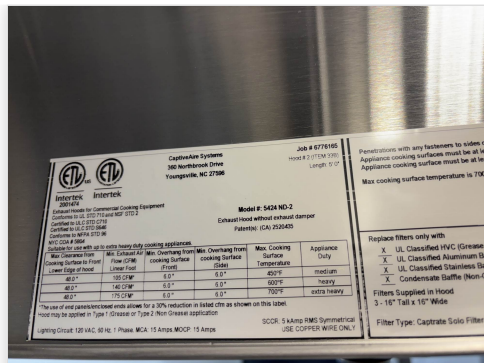
Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE SOLO FILTER	CAPTRATE SOLO FILTER
Filter Size 1	16X16	16X16
Filter Qty 1	3	3
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	4.86	4.86
Filter1 FPM	-	169
Filter2 FPM	-	175
Filter3 FPM	-	152
Filter Ave FPM(corr)	-	165
CFM	775	801

Cooking Equipment	
	Actual
Item 1	FRYER
Item 2	FRY HOLDING STATION

Unit Data - PHOTO LOG



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