Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 10/22/2025

Completed By: National TAB

PROJECT

10-20-25 QT #1111 SPARTANBURG, SC

LONE OAK & CHARISMA DR

SPARTANBURG, SC

Client

QUIKTRIP

4705 SOUTH 129TH EAST AVENUE

TULSA, OK 74134

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

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 are further details 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 was measured with a flow hood to establish total flow. The total flow was then adjusted via the VFD so that airflow fell within design tolerances. All diffusers on the kitchen RTU were balanced to the engineer's design flow. The diffusers on the sales floor were only adjusted when there were noticeable issues present like drafting or dampers that were found completely closed. The Hoods On outside air rate was set by first establishing the typical QT set point at the Emerson controller and then making manually adjustments on the roof. The hoods off airflow setpoint was found by adjusting the damper position at the Emerson controller until the design airflow was achieved. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. After completion of TAB all overrides were released.

Kitchen Exhaust Hood & Associated Fans
The 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.

Restroom Exhaust Fans
The restroom exhaust fans were measured with a flow hood. The total flow was balanced for the fan with the exception of the new grille over the combi-oven, which was balanced to the listed design.

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 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 Blocked
- EF-1 Speed Controller Not Working
- EF-2 Low Flow
- Kitchen diffusers on backorder
- KITCHEN HOOD BAD CIRCUIT BOARD
- RTU-3 Not on Emerson controls

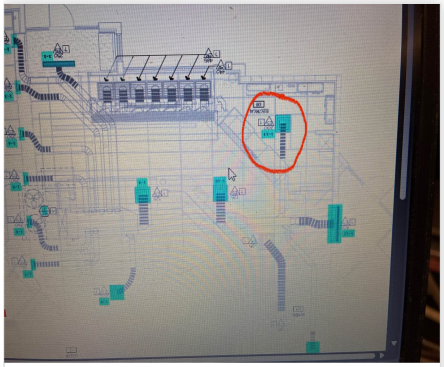
Project Issue Information

Issue Name : Diffuser Blocked

Description : The diffuser is in the correct location but is blocked by a ceiling tile. The air is being pushed elsewhere.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	InfoOnly	**Asset Tag :**	SGRD13
Originated Date :	10/22/2025 - Alex Bauer - National TAB		

Project Issue File Details



10/22/2025

10/22/2025

10/22/2025

10-20-25 QT #1111 SPARTANBURG, SC

Project Issue Information

Issue Name : EF-1 Speed Controller Not Working

Description : EF-1 speed controller not functioning properly. Exhaust only runs at max speed. High flow.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	Low	**Asset Tag :**	EF1
Originated Date :	10/23/2025 - Alex Bauer - National TAB		

Project Issue File Details

10/23/2025

10-20-25 QT #1111 SPARTANBURG, SC

Project Issue Information

Issue Name : EF-2 Low Flow
Description : EF-2 low flow. The speed dial is set to max.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	InfoOnly	**Asset Tag :**	EF2
Originated Date :	10/24/2025 - Alex Bauer - National TAB		

Project Issue File Details

10/24/2025

10-20-25 QT #1111 SPARTANBURG, SC

Project Issue Information

Issue Name : Kitchen diffusers on backorder
Description : Kitchen diffusers on backorder

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	InfoOnly	**Asset Tag :**	RT-3
Originated Date :	10/24/2025 - Jearod Ferrette - National TAB		

Project Issue File Details

10/24/2025

10-20-25 QT #1111 SPARTANBURG, SC

Project Issue Information

Issue Name :	KITCHEN HOOD BAD CIRCUIT BOARD		
Description :	Per the GC the kitchen hood has a bad circuit bad. Pending replacement for TAB		
Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	High	**Asset Tag :**	HD1
Originated Date :	10/24/2025 - Jearod Ferrette - National TAB		

10-20-25 QT #1111 SPARTANBURG, SC

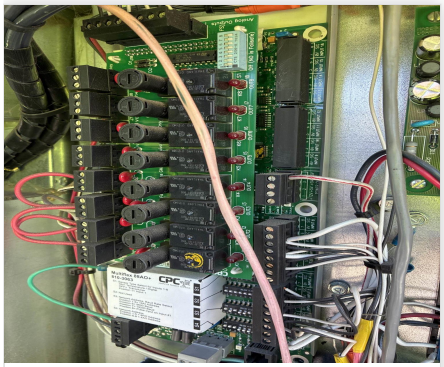
Project Issue Information

Issue Name : RTU-3 Not on Emerson controls

Description : RTU-3 not on Emerson controls. OA set manually.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	Medium	**Asset Tag :**	RT-3
Originated Date :	10/23/2025 - Alex Bauer - National TAB		

Project Issue File Details



10/23/2025

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

- Open QT_Balance_Schedule.xlsx

CheckList List

- 01: RTU’s/AHU’s
- 02: Exhaust Fans
- 03: Hoods
- 04: Final Tests

10-20-25 QT #1111 SPARTANBURG, SC

CheckList Information

Name :	01: RTU’s/AHU’s	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	09/19/2025 - Trinity Dodds - National TAB		
Completed Date :	10/28/2025 - Alex Bauer - National TAB		

CheckList Item Details

RTU's/AHU's

Evaporator coils are clean?	Pass
Comment:	
Condenser coils are clean?	Pass
Comment:	
Gas piping is installed and valves are turned on?	N/A
Comment:	
Unit free of noticeable noise and vibration	Pass
Comment:	

10-20-25 QT #1111 SPARTANBURG, SC

CheckList Information

Name :	02: Exhaust Fans	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	09/19/2025 - Trinity Dodds - National TAB		

CheckList Item Details

EF's

Hinge kit installed installed on hood fan?	Pass
Comment:	
Flex conduit is long enough so that fan can be completely tilted back?	Pass
Comment:	
No major leakage around the fan base	
Comment:	
Unit is free of noise and vibration	
Comment:	

10-20-25 QT #1111 SPARTANBURG, SC

CheckList Information

Name :	03: Hoods	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	09/19/2025 - Trinity Dodds - National TAB		

CheckList Item Details

HOODS

Hood is free of alarms?	
Comment:	
Hood is free of damage?	
Comment:	
End panels are installed per prototype?	
Comment:	

10-20-25 QT #1111 SPARTANBURG, SC

CheckList Information

Name :	04: Final Tests	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	09/19/2025 - Trinity Dodds - National TAB		

CheckList Item Details

FINAL CHECKS

HOOD CAPTURE TEST

List kitchen equipment turned on for testing

Comment:

OVEN, FRYER.

List smoke candle type used

Comment:

Smoke test capture % - Perimeter of hood

Comment:

Smoke test capture % - Top of cooking surface

Comment:

WITNESS

Date test was completed

Comment:

TAB tech name / Firm

Comment:

ALEX BAUER/NTAB

Site super name / Firm

Comment:

Owner representative name / Firm (if Applicable)

Comment:

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:

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

System/Unit: AHU/RTU

Asset: RT-1 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	201109-ANEK05349
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5X22.5

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	NA
Motor Rpm	NA
Phase	3
Rated Voltage	208
Rated Amperage	NA

Test Data		
	Design	**Actual**
SF CFM	4200	4340
SF RPM	-	DD/40 Hz
OA CFM (Hoods On)	800	862
OA CFM (Hoods Off)	350	369
RL Voltage	-	124 VFD
RL Amperage	-	8.20 VFD
VFD Max SetPt	-	40 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	26%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.50"
Fan Suction SP	-	-0.64"
Fan Discharge SP	-	0.80"
Total ESP	-	1.14"
Fan Total SP	-	1.44"

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

Completed By: Alex Bauer on 10/22/2025

Unit Data - PHOTO LOG

10/22/2025

10/22/2025

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

System/Unit: AHU/RTU

Asset: RT-2 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	201109-ANEK05348
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5X22.5

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	NA
Motor Rpm	NA
Phase	3
Rated Voltage	208
Rated Amperage	NA

Test Data		
	Design	**Actual**
SF CFM	4200	4496
SF RPM	-	DD/40 Hz
OA CFM (Hoods On)	800	834
OA CFM (Hoods Off)	350	327
RL Voltage	-	124 VFD
RL Amperage	-	8.20 VFD
VFD Max SetPt	-	40 Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	33%

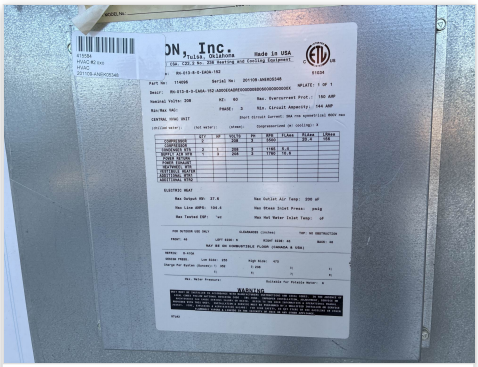
Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.52"
Fan Suction SP	-	-0.66"
Fan Discharge SP	-	0.73"
Total ESP	-	1.25"
Fan Total SP	-	1.39"

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

Completed By: Alex Bauer on 10/22/2025

Unit Data - PHOTO LOG

10/22/2025



10/22/2025

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

System/Unit: AHU/RTU

Asset: RT-3 AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	201109-ANEK05347
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	44.5X22.5

Motor Data	
	Actual
Motor MFG	NA
Frame	NA
Horsepower	NA
Motor Rpm	NA
Phase	3
Rated Voltage	208
Rated Amperage	NA

Test Data		
	Design	**Actual**
SF CFM	4200	4096
SF RPM	-	DD/49 Hz
OA CFM (Hoods On)	800	839
OA CFM (Hoods Off)	350	
RL Voltage	-	182 VFD
RL Amperage	-	10.8 VFD
VFD Max SetPt	-	49 Hz
OA Damper Position (Hoods On)	-	0.75"
OA Damper Position (Hoods Off)	-	0.25"

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.74"
Fan Suction SP	-	-0.91"
Fan Discharge SP	-	1.32"
Total ESP	-	1.65"
Fan Total SP	-	2.23"

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

Completed By: Alex Bauer on 10/23/2025

Unit Data - PHOTO LOG

10/22/2025

10/22/2025

Diffuser Supply (GRD)

RT-3/BOH/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	SUPPORT SERVICE	SI		800	1	665	847	821	102.6
SGRD2	SUPPORT SERVICE	SI		800	1	685	869	836	104.5
SGRD3	SUPPORT SERVICE	SI		800	1	626	785	746	93.3
SGRD4	SUPPORT SERVICE	SI		800	1	495	618	793	99.1
SGRD5	DOCK	ES		750	1	806	695	675	90.0
SGRD6	WORKROOM	ES		250		167	238	225	90.0
Total				4200		3444	4052	4096	97.52%

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

System/Unit: FAN - Exhaust

Asset: EF1 AREA:WOMEN'S RR

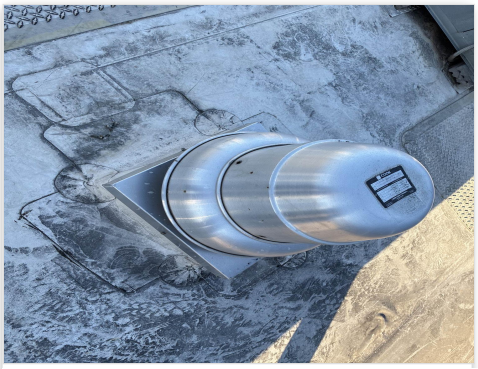
Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	90 ACEH 90C15DH
Serial Num	-	418SD82032-00/0000701
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	MAVRIK
Frame	-	48Y
Horsepower	-	0.125
Motor Rpm	-	1600
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	1.7
Service Factor	-	1

Test Data		
	Design	**Actual**
CFM	225	573
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	MAX
RL Voltage	-	NA
RL Amperage	-	NA
Fan Inlet SP	-	-0.22"
Fan Discharge SP	-	ATMO

Completed By: Alex Bauer on 10/23/2025

Unit Data - PHOTO LOG



10/22/2025

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

System/Unit: FAN - Exhaust

Asset: EF2 AREA:MEN'S RR/SUPPORT SERVICE

Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	120 ACE 120C13D 33
Serial Num	-	418SD82032-00/0002101
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	FASCO
Frame	-	NL
Horsepower	-	0.25
Motor Rpm	-	1550
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	3.2
Service Factor	-	1

Test Data		
	Design	**Actual**
CFM	525	253
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	MAX ON DAIL
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.17”
Fan Inlet SP	-	-0.17”
Fan Discharge SP	-	ATMO

Completed By: Alex Bauer on 10/24/2025

Unit Data - PHOTO LOG

10/22/2025

Diffuser Ret/Exh (GRD)

EF2/MEN'S RR/SUPPORT SERVICE

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	MEN'S RR	EE		375	1	255		300	80.0
Total				375		255	0	300	80%

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

System/Unit: FAN - Exhaust

Asset: EF3 AREA:KITCHEN HD

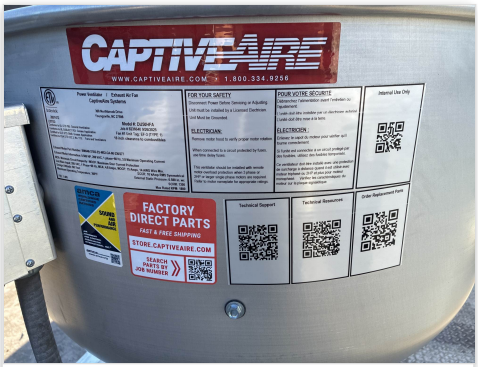
Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	8236640
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	CAPTIVE AIRE
Frame	-	48
Horsepower	1/2	0.5
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	208
Amperage (rated)	-	
Service Factor	-	1

Test Data		
	Design	**Actual**
CFM	1350	
Fan RPM	-	
Fan Rotation	-	
Motor RPM	-	
System SetPt	-	
RL Voltage	-	
RL Amperage	-	
Total ESP	-	
Fan Inlet SP	-	
Fan Discharge SP	-	

Unit Data - PHOTO LOG

10/22/2025



10/22/2025

National TAB

Project: 10-20-25 QT #1111 SPARTANBURG, SC

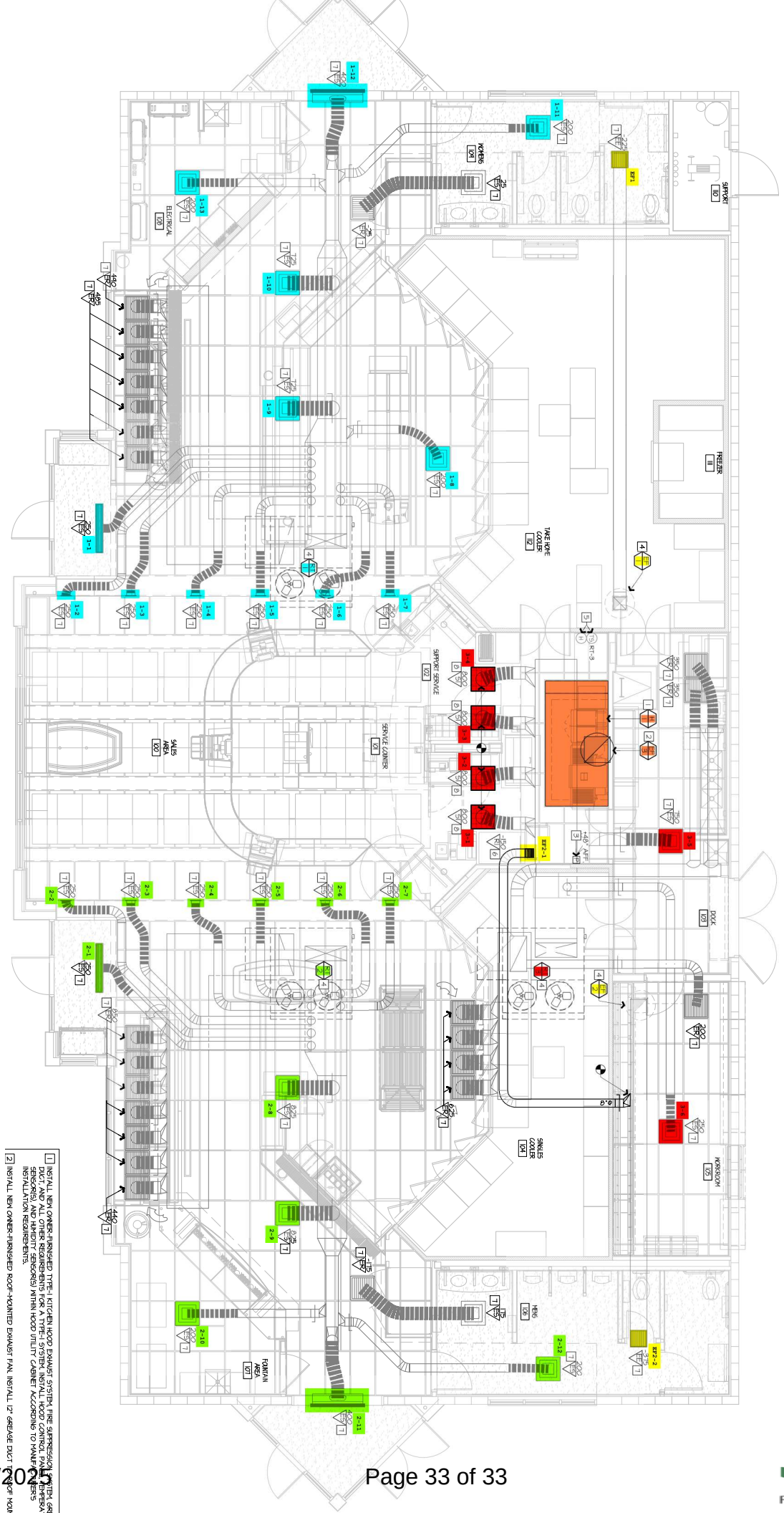
System/Unit: Kitchen Hood Type I

Asset: HD1 AREA:GRIDDLE

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	6030ND-2-F	6030ND-2-F
Job / Serial Num	-	8236640
Type	-	TYPE I CANOPY
Hood length	-	121
Hood Width	-	60

Test Data Exhaust		
	Design	**Actual**
Filter Type	-	CAPTRATE
Filter Size 1	-	16X20
Filter Qty 1	-	6
Filter AK factor size 1	-	2.08
Filter Total AK Area	-	12.48
Filter1 FPM	-	
Filter2 FPM	-	
Filter3 FPM	-	
Filter4 FPM	-	
Filter5 FPM	-	
Filter6 FPM	-	
Filter Ave FPM(corr)	-	
CFM	1350	

Cooking Equipment	
	Actual
Item 1	FRYER
Item 2	OVEN



[1] INSTALL NEW OWNER-FURNISHED TYPE-I KITCHEN HOOD EXHAUST SYSTEM, FIRE SUPPRESSION SYSTEM, GREASE DUCT AND ALL OTHER REQUIREMENTS FOR A TYPE-I SYSTEM. INSTALL HOOD CONTROL PANEL, TEMPERATURE SENSOR(S), AND HUMIDITY SENSOR(S) WITHIN HOOD UTILITY CABINET ACCORDING TO MANUFACTURER'S INSTALLATION REQUIREMENTS.

[2] INSTALL NEW OWNER-FURNISHED ROOF-MOUNTED EXHAUST FAN. INSTALL 12" GREASE DUCT TO ROOF MOUNTED