Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 01/19/2026

Completed By: National TAB

PROJECT

01-26-26 QT #1400 TEMPE, AZ

2150 E UNIVERSITY DR

TEMPE, AZ

Client

QUIKTRIP

4705 SOUTH 129TH EAST AVENUE

TULSA, OK 74134

National TAB

Project: 01-26-26 QT #1400 TEMPE, AZ

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Project Summary

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

- GRD RTU-3 SGRD 3-1 and 3-2

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Project Issue Information

Issue Name :	GRD RTU-3 SGRD 3-1 and 3-2		
Description :	SGRD 3-1 and 3-2 weren't installed. Didn't affect the the balancing of the unit the 200 CFM was added to the other diffusers		
Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	InfoOnly	**Asset Tag :**	
Originated Date :	01/28/2026 - Ethan Van Orden - National TAB		

NATIONAL TAB

AIR BALANCE SCHEDULE

UNIT	AREA SERVED	HOOD ON OA		HOOD OFF OA		HOOD ON EXHAUST		HOOD OFF EXHAUST	
		DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
RTU 1	SALES	800	794	350	337				
RTU-2	SALES	800	878	350	358				
RTU-3	BOH/KITCHEN	800	836	350	365				
EF-1	WOMEN'S RR					225	219	225	219
EF-2	MEN'S RR					525	537	525	537
EF-3	HOOD					1350	1335	0	0
TOTALS		2400	2508	1050	1060	2100	2091	750	756

HOODS ON

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2508
TOTAL EXHAUST	2100	2091
NET AIRFLOW	300	417

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.002
SIDE	0.0033
REAR	0.0012
AVERAGE	**0.0022**

HOODS OFF

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1050	1060
TOTAL EXHAUST	750	756
NET AIRFLOW	300	304

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	0.0023
SIDE	0.0029
REAR	0.0017
AVERAGE	**0.0023**

NOTES:

CheckList List

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

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CheckList Information

Name :	01: RTU’s/AHU’s	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	01/16/2026 - Trinity Dodds - National TAB		

CheckList Item Details

RTU's/AHU's

Evaporator coils are clean?

Comment:

Condenser coils are clean?

Comment:

Gas piping is installed and valves are turned on?

Comment:

Unit free of noticeable noise and vibration

Comment:

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CheckList Information

Name :	02: Exhaust Fans	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	01/16/2026 - Trinity Dodds - National TAB		

CheckList Item Details

EF's

Hinge kit installed installed on hood fan?

Comment:

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

Comment:

No major leakage around the fan base

Comment:

Unit is free of noise and vibration

Comment:

01-26-26 QT #1400 TEMPE, AZ

CheckList Information

Name :	03: Hoods	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	01/16/2026 - 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:

01-26-26 QT #1400 TEMPE, AZ

CheckList Information

Name :	04: Final Tests	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	01/16/2026 - Trinity Dodds - National TAB		

CheckList Item Details

FINAL CHECKS

HOOD CAPTURE TEST

List kitchen equipment turned on for testing

Comment:

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:

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: 01-26-26 QT #1400 TEMPE, AZ

System/Unit: AHU/RTU

Asset: RT-1 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	201111-ANEL05899
Model Num	RN-015-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X22.5
Num Final Filter 1	2
Final Filter Size 1	44X20

Motor Data	
	Actual
Motor MFG	NL
Frame	NL
Horsepower	5
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	16.7

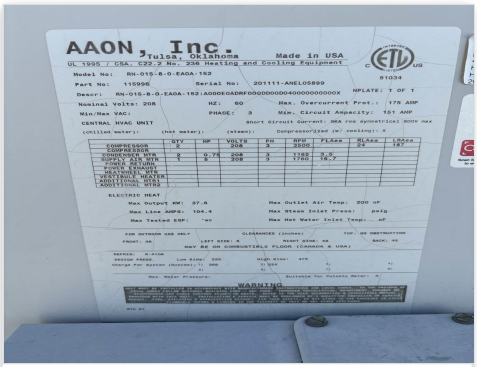
Test Data		
	Design	**Actual**
SF CFM	4200	4493
SF RPM	-	1173
OA CFM (Hoods On)	800	794
OA CFM (Hoods Off)	350	337
RL Voltage	-	115@VFD
RL Amperage	-	9.2@VFD
VFD Max SetPt	-	40HZ
VFD Min SetPt	-	24Hz
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	24%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.54”
Fan Suction SP	-	-0.66”
Fan Discharge SP	-	0.83”
Total ESP	-	1.37"
Fan Total SP	-	1.49"

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

Completed By: Ethan Van Orden on 01/28/2026

Unit Data - PHOTO LOG



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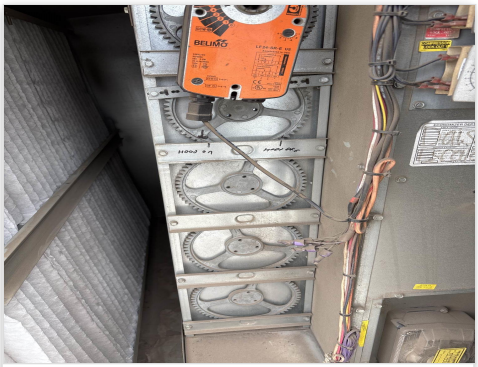

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Project: 01-26-26 QT #1400 TEMPE, AZ

System/Unit: AHU/RTU

Asset: RT-2 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	201111-ANEL05900
Model Num	RN-015-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X22.5
Num Final Filter 1	2
Final Filter Size 1	44X20

Motor Data	
	Actual
Motor MFG	NL
Frame	NL
Horsepower	5
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	16.7

Test Data		
	Design	**Actual**
SF CFM	4200	4181
SF RPM	-	1114
OA CFM (Hoods On)	800	878
OA CFM (Hoods Off)	350	358
RL Voltage	-	103@VFD
RL Amperage	-	8.5@VFD
VFD Max SetPt	-	38HZ
VFD Min SetPt	-	24HZ
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	26%

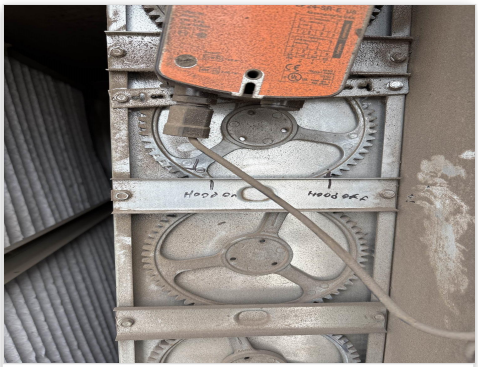
Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.46”
Fan Suction SP	-	-0.64”
Fan Discharge SP	-	0.38”
Total ESP	-	0.84"
Fan Total SP	-	1.02"

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

Completed By: Ethan Van Orden on 01/28/2026

Unit Data - PHOTO LOG

01/28/2026



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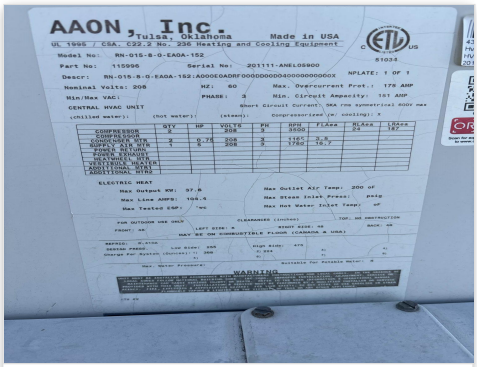

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Project: 01-26-26 QT #1400 TEMPE, AZ

System/Unit: AHU/RTU

Asset: RT-3 AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	201111-ANEK05901
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X22.5
Num Final Filter 1	2
Final Filter Size 1	44X20

Motor Data	
	Actual
Motor MFG	NL
Frame	NL
Horsepower	3
Motor Rpm	1760
Phase	3
Rated Voltage	208
Rated Amperage	10.6

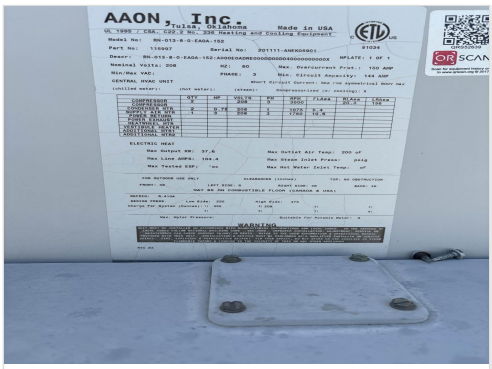
Test Data		
	Design	**Actual**
SF CFM	4200	4216
SF RPM	-	1026
OA CFM (Hoods On)	800	836
OA CFM (Hoods Off)	350	365
RL Voltage	-	90@VFD
RL Amperage	-	7@VFD
VFD Max SetPt	-	35HZ
VFD Min SetPt	-	24HZ
OA Damper Position (Hoods On)	-	46%
OA Damper Position (Hoods Off)	-	24%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.38”
Fan Suction SP	-	-0.51”
Fan Discharge SP	-	0.31”
Total ESP	-	0.69"
Fan Total SP	-	0.82"

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

Completed By: Ethan Van Orden on 01/28/2026

Unit Data - PHOTO LOG



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Project:01-26-26 QT #1400 TEMPE, AZ

AHU/RTU

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	SALES	ES	12"	100					-
SGRD2	SALES	ES	12"	100					-
SGRD3	SUPPORT SERVICE	SI	12"	800	1	1063	873	875	109.4
SGRD4	SUPPORT SERVICE	SI	12"	800	1	857	708	803	100.4
SGRD5	SUPPORT SERVICE	SI	12"	800	1	1146	942	857	107.1
SGRD6	SUPPORT SERVICE	SI	12"	800	1	1212	972	837	104.6
SGRD7	DOCK	ES	12"	650	1	712	597	682	104.9
SGRD8	WORKROOM	ES	8"	150	1	319	268	162	108.0
Total				4200		5309	4360	4216	100.38%

Completed By: Ethan Van Orden on 01/28/2026

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Project: 01-26-26 QT #1400 TEMPE, AZ

System/Unit: FAN - Exhaust

Asset: EF1 AREA:WOMEN'S RR

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	G-090-D-X
Serial Num	-	12657638 1110
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	-	NL
Voltage (rated)	-	NL
Amperage (rated)	-	NL
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	225	219
Fan RPM	-	NA
Fan Rotation	-	CCW
Motor RPM	-	NA
System SetPt	-	LOW
RL Voltage	-	NA
RL Amperage	-	1.12
Total ESP	-	0.26”
Fan Inlet SP	-	-0.26”
Fan Discharge SP	-	ATMS

Completed By: Ethan Van Orden on 01/28/2026

Unit Data - PHOTO LOG

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Project: 01-26-26 QT #1400 TEMPE, AZ

System/Unit: FAN - Exhaust

Asset: EF2 AREA:MEN'S RR/COMBI

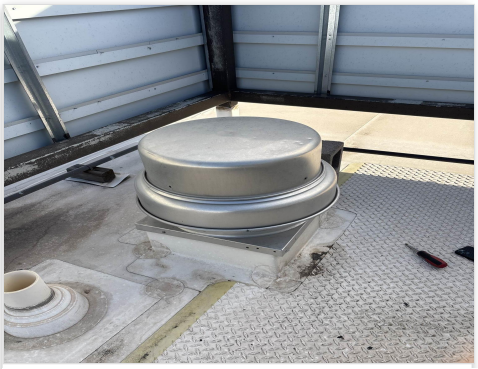
Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	G-123-B-X
Serial Num	-	1265763D 1110
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	48
Horsepower	-	1/4
Motor Rpm	-	1140
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	3.2
Service Factor	-	1.0

Test Data		
	Design	**Actual**
CFM	525	537
Fan RPM	-	NA
Fan Rotation	-	CCW
Motor RPM	-	NA
System SetPt	-	LOW
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.19”
Fan Inlet SP	-	-0.19”
Fan Discharge SP	-	ATMS

Completed By: Ethan Van Orden on 01/28/2026

Unit Data - PHOTO LOG



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Project:01-26-26 QT #1400 TEMPE, AZ

Diffuser Ret/Exh (GRD)

EF2/MEN'S RR/COMBI

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	SUPPORT SERVICE	RI	8"	150	1	155	155	155	103.3
Total				150		155	155	155	103.33%

Completed By: Ethan Van Orden on 01/28/2026

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Project: 01-26-26 QT #1400 TEMPE, AZ

System/Unit: FAN - Exhaust

Asset: EF3 AREA:KITCHEN HD

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	8257608
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NEMA
Frame	-	NL
Horsepower	1/2	0.500
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	208
Amperage (rated)	-	3.8
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	1350	1335
Fan RPM	-	1367
Fan Rotation	-	CCW
Motor RPM	-	1367
System SetPt	-	56.8HZ
RL Voltage	-	216
RL Amperage	-	2.7
Total ESP	-	0.33”
Fan Inlet SP	-	-0.33”
Fan Discharge SP	-	ATMS

Completed By: Ethan Van Orden on 01/28/2026

Unit Data - PHOTO LOG

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National TAB

Project: 01-26-26 QT #1400 TEMPE, AZ

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	-	8257608
Type	TYPE I CANOPY	TYPE I CANOPY
Hood length	108"	108”
Hood Width	60"	60”

Test Data Exhaust		
	Design	**Actual**
Filter Type	-	BAFFLE
Filter Size 1	-	16X20
Filter Qty 1	-	6
Filter AK factor size 1	-	2.08
Filter Total AK Area	-	12.48
Filter1 FPM	-	95
Filter2 FPM	-	119
Filter3 FPM	-	111
Filter4 FPM	-	107
Filter5 FPM	-	110
Filter6 FPM	-	103
Filter Ave FPM(corr)	-	107
CFM	1350	1335

Cooking Equipment	
	Actual
Item 1	FRYER
Item 2	OVEN

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Unit Data - PHOTO LOG

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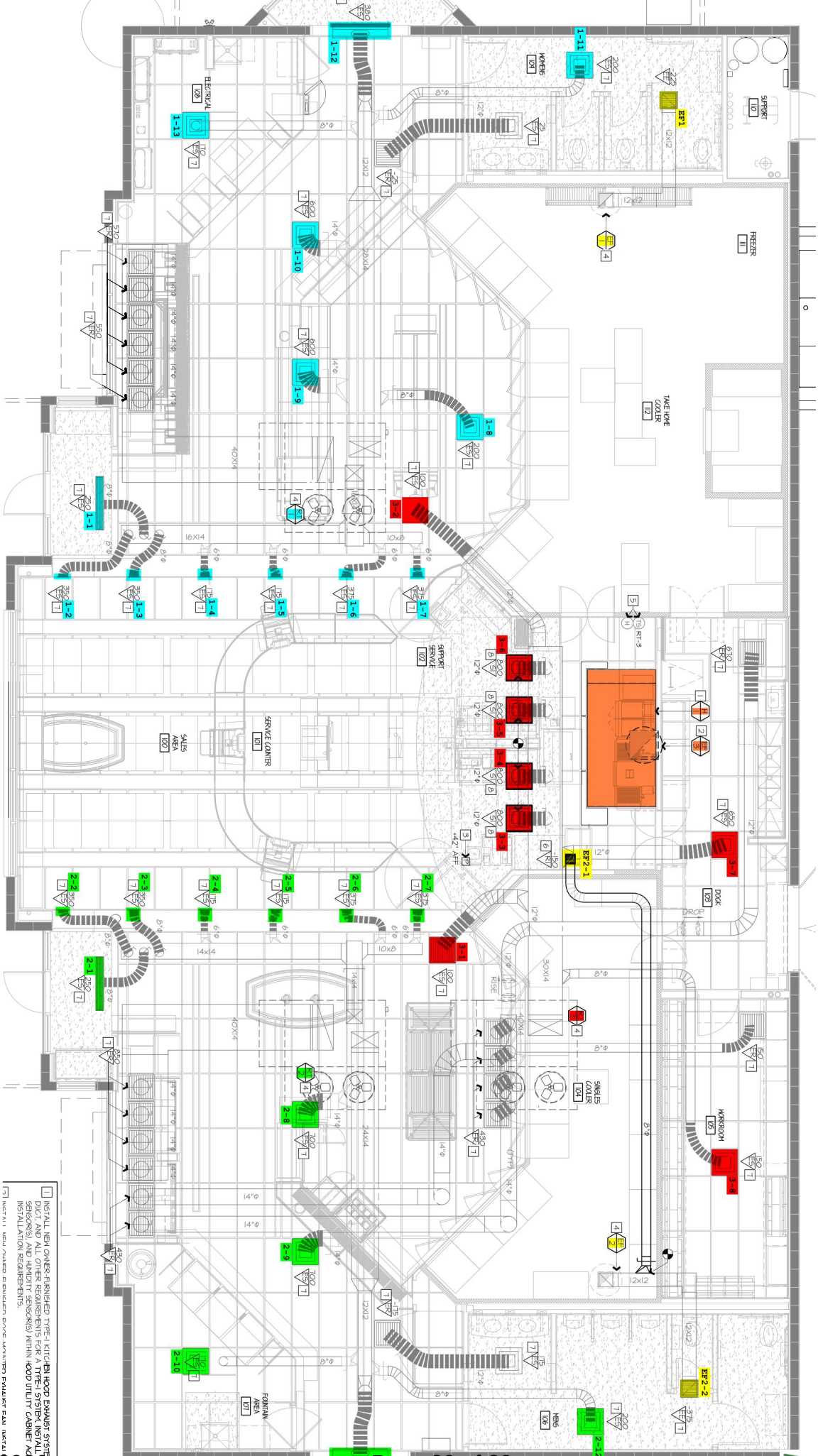

1. INSTALL NEW OWNER-FURNISHED TYPE-I KITCHEN HOOD EXHAUST SYSTEM. REFER SUPPLEMENTAL EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION. INSTALL CONTROLS, SENSOR(S), AND HUMIDITY SENSOR(S) WITHIN HOOD UTILITY CABINET ACCORDING TO MANUFACTURER'S INSTALLATION REQUIREMENTS.

5. INSTALL NEW OWNER-FURNISHED EXHAUST FAN (REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION).