Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 11/26/2025

Completed By: National TAB

PROJECT

12-08-25 QT #1130 PIEDMONT, SC

3450 HWY 153

PIEDMONT, SC

Client

QUIKTRIP

4705 SOUTH 129TH EAST AVENUE

TULSA, OK 74134

National TAB

Project: 12-08-25 QT #1130 PIEDMONT, SC

Table Of Contents

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

- RTU 2 low flow

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Project Issue Information

Issue Name : RTU 2 low flow

Description : RTU 2 is having flow issues. At 43Hz the unit was barely doing 3,000cfm. After troubleshooting most likely the unit's fan is spinning in the wrong direction. At that speed the unit was overamping, left low until issue is fixed.

Created By :	National TAB	**Assigned To :**	National TAB - Dan Hertenstein
Status :	Open		
Priority :	High	**Asset Tag :**	RT-2
Originated Date :	12/08/2025 - Christian Moller - National TAB		

Project Issue File Details

12/08/2025

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	813	350	367				
RTU-2	SALES	800	810	350	343				
RTU-3	BOH/KITCHEN	800	824	350	348				
EF-1	WOMEN'S RR					225	213	225	213
EF-2	MEN'S RR					525	507	525	507
EF-3	HOOD					1350	1422	0	
TOTALS		2400	2447	1050	1058	2100	2142	750	720

HOODS ON

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2400	2447
TOTAL EXHAUST	2100	2142
NET AIRFLOW	300	305

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	
SIDE	
REAR	
AVERAGE	**0.006**

HOODS OFF

NET AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1050	1058
TOTAL EXHAUST	750	720
NET AIRFLOW	300	338

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS
FRONT	
SIDE	
REAR	
AVERAGE	**0.009**

NOTES:

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CheckList List

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

12-08-25 QT #1130 PIEDMONT, SC

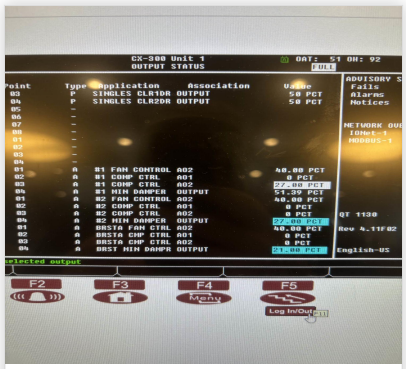
CheckList Information

Name :	01: RTU's/AHU's	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	11/26/2025 - Trinity Dodds - National TAB		
Completed Date :	12/08/2025 - Christian Moller - National TAB		

CheckList Item Details

RTU's/AHU's

12/08/2025



12/08/2025

Evaporator coils are clean?	Pass
Comment:	
Condenser coils are clean?	Pass
Comment:	
Gas piping is installed and valves are turned on?	Pass
Comment:	

Unit free of noticeable noise and vibration	Pass

Comment:

12-08-25 QT #1130 PIEDMONT, SC

CheckList Information

Name :	02: Exhaust Fans	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	11/26/2025 - Trinity Dodds - National TAB		
Completed Date :	12/08/2025 - Christian Moller - 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	Pass
Comment:	
Unit is free of noise and vibration	Pass
Comment:	

12-08-25 QT #1130 PIEDMONT, SC

CheckList Information

Name :	03: Hoods	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	11/26/2025 - Trinity Dodds - National TAB		
Completed Date :	12/08/2025 - Christian Moller - National TAB		

CheckList Item Details

HOODS

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

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12-08-25 QT #1130 PIEDMONT, SC

CheckList Information

Name :	04: Final Tests	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	11/26/2025 - Trinity Dodds - National TAB		
Completed Date :	12/10/2025 - Christian Moller - National TAB		

CheckList Item Details

FINAL CHECKS

HOOD CAPTURE TEST

List kitchen equipment turned on for testing

Comment:

None

List smoke candle type used

Comment:

S102 - 45 Second candles

Smoke test capture % - Perimeter of hood

Comment:

100%

Smoke test capture % - Top of cooking surface

Comment:

100%

WITNESS

Date test was completed	12/08/2025

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Comment:

TAB tech name / Firm

Comment:

Christian Moller / NTAB

Site super name / Firm

Comment:

Ryan Abbott / QT

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)	N/A

Comment:

Building was not fully enclosed, could not take a pressure.

12/10/2025

National TAB

Project: 12-08-25 QT #1130 PIEDMONT, SC

System/Unit: AHU/RTU

Asset: RT-1 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	201409-ANEK11010
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X25

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

Test Data		
	Design	**Actual**
SF CFM	4200	4567
SF RPM	-	DD
OA CFM (Hoods On)	800	813
OA CFM (Hoods Off)	350	367
RL Voltage	-	209/209/208
RL Amperage	-	5.5/5.3/6.0
VFD Max SetPt	-	37.2Hz
VFD Min SetPt	-	24Hz
OA Damper Position (Hoods On)	-	51.39%
OA Damper Position (Hoods Off)	-	27%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.40"
Fan Suction SP	-	-0.55"
Fan Discharge SP	-	0.53"
Total ESP	-	0.95"
Fan Total SP	-	1.08"

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

Completed By: Christian Moller on 12/08/2025

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Unit Data - PHOTO LOG

12/08/2025

National TAB

Project: 12-08-25 QT #1130 PIEDMONT, SC

System/Unit: AHU/RTU

Asset: RT-2 AREA:SALES FLOOR

Unit Data	
	Actual
MFG	AAON
Serial Num	201409-ANEK11009
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X25

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

Test Data		
	Design	**Actual**
SF CFM	4200	2422
SF RPM	-	DD
OA CFM (Hoods On)	800	810
OA CFM (Hoods Off)	350	343
RL Voltage	-	209/209/208
RL Amperage	-	8.1/7.5/7.0
VFD Max SetPt	-	38.2Hz
VFD Min SetPt	-	24Hz
OA Damper Position (Hoods On)	-	51.39%
OA Damper Position (Hoods Off)	-	27%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.03"
Fan Suction SP	-	-0.06"
Fan Discharge SP	-	0.06"
Total ESP	-	0.09"
Fan Total SP	-	0.12"

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

Completed By: Christian Moller on 12/08/2025

Notes:
RECOMMEND ROTATION IS VERIFIED. MOTOR WAS OVERAMPING AT DESIGN.

Written By: Michael McDonnell on 12/15/2025

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Unit Data - PHOTO LOG

12/08/2025

National TAB

Project: 12-08-25 QT #1130 PIEDMONT, SC

System/Unit: AHU/RTU

Asset: RT-3 AREA:BOH/KITCHEN

Unit Data	
	Actual
MFG	AAON
Serial Num	201409-ANEK11008
Model Num	RN-013-8-0-EA0A-152
Num OA Filters 1	1
OA Filter Size 1	45X25

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

Test Data		
	Design	**Actual**
SF CFM	4200	4502
SF RPM	-	DD
OA CFM (Hoods On)	800	824
OA CFM (Hoods Off)	350	348
RL Voltage	-	209/208/208
RL Amperage	-	4.5/4.3/4.7
VFD Max SetPt	-	33Hz
VFD Min SetPt	-	24Hz
OA Damper Position (Hoods On)	-	51.39%
OA Damper Position (Hoods Off)	-	21%

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.23"
Fan Suction SP	-	-0.36"
Fan Discharge SP	-	0.34"
Total ESP	-	0.59"
Fan Total SP	-	0.70"

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

Completed By: Christian Moller on 12/08/2025

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Unit Data - PHOTO LOG

12/08/2025

National TAB

Project:12-08-25 QT #1130 PIEDMONT, SC

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	SUPPORT SERVICE	SI	12"	800	1	678	834	834	104.3
SGRD2	SUPPORT SERVICE	SI	12"	800	1	739	861	861	107.6
SGRD3	SUPPORT SERVICE	SI	12"	800	1	620	842	842	105.3
SGRD4	SUPPORT SERVICE	SI	12"	800	1	492	869	869	108.6
SGRD5	DOCK	ES	12"	750	1	727	823	823	109.7
SGRD6	WORKROOM	ES	8"	250	1	303	273	273	109.2
Total				4200		3559	4502	4502	107.19%

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Project: 12-08-25 QT #1130 PIEDMONT, SC

System/Unit: FAN - Exhaust

Asset: EF1 AREA:WOMEN'S RR

Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	90 ACEH 90C150H
Serial Num	-	050SF34827-00/0000701
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	COOK
Frame	-	NL
Horsepower	-	0.125
Motor Rpm	-	1550
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	1.7
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	225	213
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	SPEED CONTROLLER / HIGH SPEED
RL Voltage	-	114
RL Amperage	-	0.8
Total ESP	-	0.22"
Fan Inlet SP	-	-0.22"
Fan Discharge SP	-	ATM

Completed By: Christian Moller on 12/08/2025

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Unit Data - PHOTO LOG

12/08/2025

National TAB

Project: 12-08-25 QT #1130 PIEDMONT, SC

System/Unit: FAN - Exhaust

Asset: EF2 AREA:MEN'S RR/COMBI

Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	120 ACE 120C130
Serial Num	-	050SC34327-00/0002201
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	COOK
Frame	-	NL
Horsepower	-	0.25
Motor Rpm	-	1550
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	3.3
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	525	507
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	SPEED CONTROLLER / HIGH SPEED
RL Voltage	-	114
RL Amperage	-	2.2
Total ESP	-	0.23"
Fan Inlet SP	-	-0.23"
Fan Discharge SP	-	ATM

Completed By: Christian Moller on 12/08/2025

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Unit Data - PHOTO LOG

12/08/2025

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	123	148	148	98.7
Total				150		123	148	148	98.67%

National TAB

Project: 12-08-25 QT #1130 PIEDMONT, SC

System/Unit: FAN - Exhaust

Asset: EF3 AREA:KITCHEN HD

Unit Data		
	Design	**Actual**
MFG	NA	CAPTIVEAIRE
Model Num	NA	DU50HFA
Serial Num	-	7632113
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	CAPTIVEAIRE
Frame	-	NL
Horsepower	1/2	0.5
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	208
Amperage (rated)	-	3.6
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	1350	1422
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	HMI/55.8Hz
RL Voltage	-	206
RL Amperage	-	2.7
Total ESP	-	0.34"
Fan Inlet SP	-	-0.34"
Fan Discharge SP	-	ATM

Completed By: Christian Moller on 12/08/2025

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Unit Data - PHOTO LOG

12/08/2025

National TAB

Project: 12-08-25 QT #1130 PIEDMONT, 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	-	7632113
Type	-	UPBLAST
Hood length	-	120"
Hood Width	-	60"

Test Data Exhaust		
	Design	**Actual**
Filter Type	-	BAFFLE FILTERS
Filter Size 1	-	16X20
Filter Qty 1	-	6
Filter AK factor size 1	-	2.08
Filter Total AK Area	-	12.48
Filter1 FPM	-	106
Filter2 FPM	-	113
Filter3 FPM	-	123
Filter4 FPM	-	117
Filter5 FPM	-	114
Filter6 FPM	-	113
Filter Ave FPM(corr)	-	114
CFM	1350	1422

Cooking Equipment	
	Actual
Item 1	FRYER
Item 2	PIZZA OVEN

Completed By: Christian Moller on 12/08/2025

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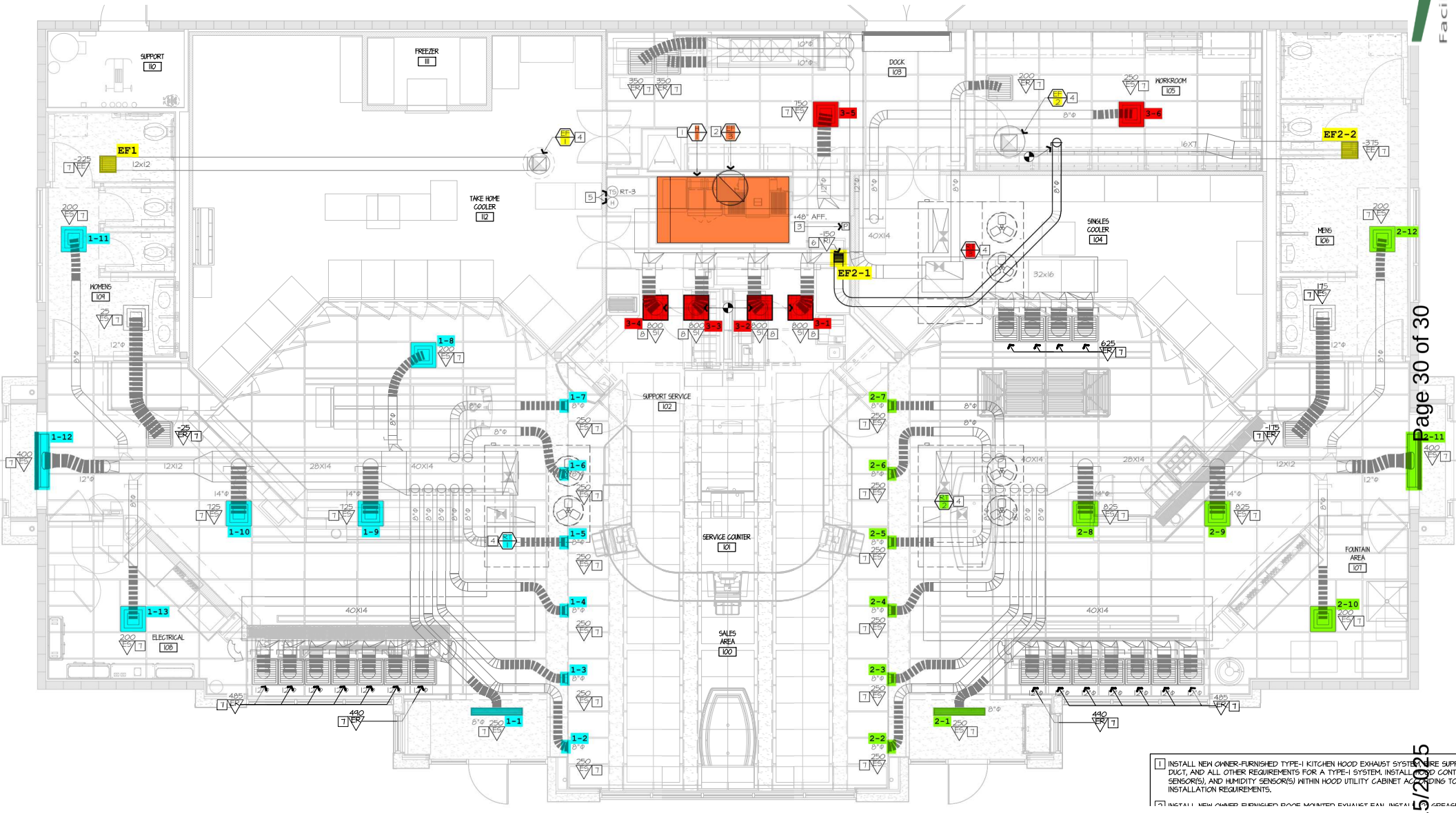
Unit Data - PHOTO LOG

12/08/2025



1. INSTALL NEW OWNER-FURNISHED TYPE-I KITCHEN HOOD EXHAUST SYSTEM. FIRE SUPP DUCT, AND ALL OTHER REQUIREMENTS FOR A TYPE-I SYSTEM. INSTALL HOOD CONT SENSOR(S), AND HUMIDITY SENSOR(S) WITHIN HOOD UTILITY CABINET ACCORDING TO INSTALLATION REQUIREMENTS.

2. INSTALL NEW OWNER-FURNISHED ROOF-MOUNTED EXHAUST FAN. INSTALL GREASE

Date: 12/15/2025