

Report By:

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



Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 05/31/2024

PROJECT
06-03-24 WAWA #8443 HAZLET, NJ

3052 Rt 35

Hazlet, NJ 07730

Client

Wawa
260 West Baltimore Pike
Wawa, PA 19063

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.

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.

Ceiling Exhaust Fans

The ceiling exhaust fans were measured using a flow hood. If speed adjustment was provided, the fan speed was adjusted to within design tolerance. 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 and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.

CheckList List

- TECH - SITE PICTURES
- TECH - STEP 1: RTU's/AHU's
- TECH - STEP 2: LENNOX SETUP PARAMETERS
- TECH - STEP 3: SENSOR WIRING (LENNOX)
- TECH - STEP 4: EF'S
- TECH - STEP 5: CLOSEOUT CHECKS



06-03-24 WAWA #8443 HAZLET, NJ

CheckList Information

Name : TECH - SITE PICTURES **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/31/2024 - Brianna Biggs - National TAB
Completed Date : 06/07/2024 - Cody Collett - National TAB

CheckList Item Details

STORE FRONT

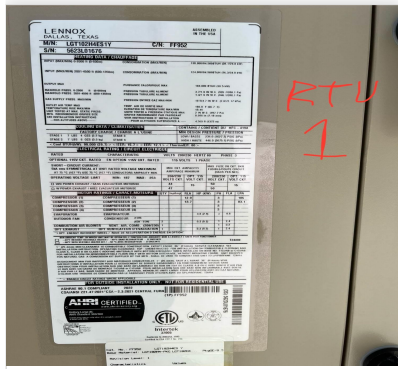
Comment:



IMG_0542
06/07/2024

RTU-1

Comment:



IMG_0525
06/07/2024



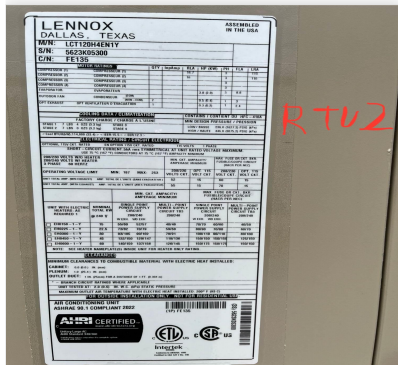
IMG_0529
06/07/2024



IMG_0526
06/07/2024

RTU-2

Comment:



IMG_0523
06/07/2024



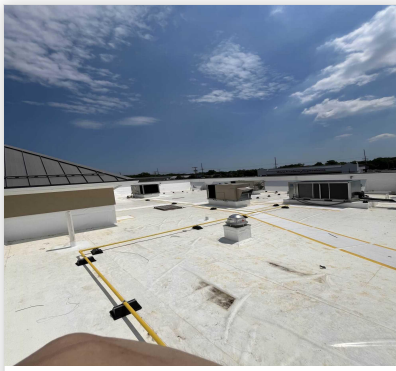
IMG_0524
06/07/2024

RTU-3

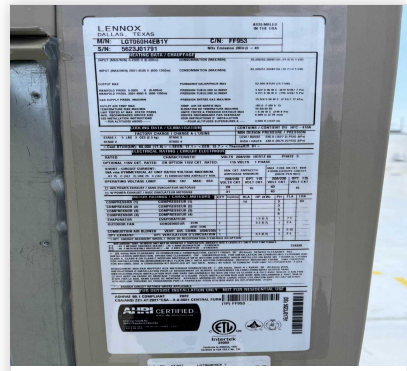
Comment:



IMG_0521
06/07/2024



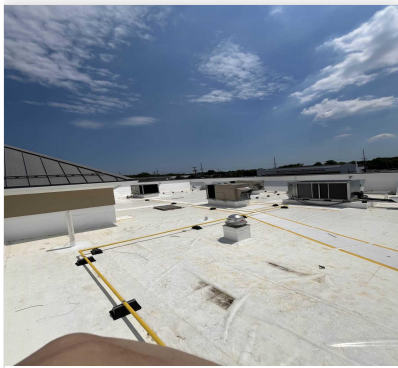
IMG_0528
06/07/2024



IMG_0522
06/07/2024

EF-1

Comment:



IMG_0528
06/07/2024

EF-2

Comment:



IMG_0528
06/07/2024



06-03-24 WAWA #8443 HAZLET, NJ

CheckList Information

Name : TECH - STEP 1: RTU's/AHU's **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/31/2024 - Brianna Biggs - National TAB
Completed Date : 06/06/2024 - Cody Collett - National TAB

CheckList Item Details

RTU's/AHU's

All diffusers and grilles are installed and match design? Pass

Comment:

Clean filters installed? Pass

Comment:

Economizers are assembled and functional? Pass

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:

Condensate drains are installed?

Pass

Comment:

Unit free of noticeable noise and vibration

Pass

Comment:

Final outside air damper position is marked with permanent marker?

Pass

Comment:

No alarms present?

Pass

Comment:

Any noticeable duct leakage?

Fail

Comment:

Noticeable leakage around various diffuser and connection points, and dampers. Total airflow meets design airflow.

Total supply and OA flows are balanced within +/-5% and supply & return diffusers within +/-10%?

Pass

Comment:

With the exception of RTU-1 to be balanced at a later date. RTU-1 meets design totals diffuser balance still required to be done.

IN TEST MODE, TEST THE FOLLOWING:

Cooling mode is operational? Record EAT/LAT for each unit:

Pass

Comment:

Rtu 3 cool let 51.5 eat 69.2 Rtu 2 cool let 49.7 eat 67.8 Rtu 1 cool let 62.2 eat 67.4

Heating mode is operational? Record EAT/LAT for each unit:

Pass

Comment:

Rtu 3 Heat let 112 eat 74.4 Rtu 2 Heat no heat installed Rtu 1 Heat let 90.5 eat 76.3

Dehumidification mode is operational? (Feel dehumidification coil with your hand. Is it hot?)
Record EAT/LAT for each unit:

Pass

Comment:

Did not check at this time.

TRAVERSE READINGS (AFTER DIFFUSER BALANCING COMPLETE)

RTU-1 Supply / Return

Comment:

NA

RTU-2 Supply / Return

Comment:

NA

RTU-3 Supply / Return

Comment:

NA



06-03-24 WAWA #8443 HAZLET, NJ

CheckList Information

Name : TECH - STEP 2: LENNOX SETUP PARAMETERS **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 05/31/2024 - Brianna Biggs - National TAB

Completed Date : 06/06/2024 - Cody Collett - National TAB

CheckList Item Details

UNIT ID CONFIGURATIONS

BACNET CONFIGURATION: GO TO SETTINGS>GENERAL>CONFIGURATION ID1 POSITION 5 SET TO "B". Pass

Comment:

NETWORK CONFIGURATION: GO TO SETUP>NETWORK INTEGRATION, SET TO BACNET Pass

Comment:

CONTROL MODE: SET CONTROL MODE TO ROOM SENSOR: CO2, TEMP & HUMIDITY (PER UNIT, AS NEEDED). Pass

Comment:

INDIVIDUAL PARAMETER CONFIGURATIONS (MECHANICAL CONTRACTOR TO DEFINE / AS APPLICABLE):

PARAMETER 105 DEHUMID MODE: 7 NO CONDITIONS Pass

Comment:

PARAMETER 106 DEHUMID SETPOINT: 50, THIS IS A CENTERED SET POINT (+/-) Yes

Comment:

PARAMETER 107 DEHUMID DEADBAND: 3 (DEFAULT) THIS IS THE ACTUAL +/- VALUE

Pass

Comment:

PARAMETER 117 CO2 START OPEN PPM: 1200

N/A

Comment:

Parameter 117 was not "start open PPM"

PARAMETER 118 CO2 START OPEN PPM: 1500

Pass

Comment:

PARAMETER 137 OCCHET SET POINT: 68 (BACK UP)

Pass

Comment:

PARAMETER 139 OCC COOLING SET POINT: 72 (BACK UP)

Pass

Comment:

PARAMETER 154 OCC BLOWER MODE: ON-CONTINUOUS 1

Pass

Comment:

PARAMETER 131 SET TO THE SAME % AS THE MINMIUM OA DAMPER SETPOINT

Pass

Comment:

CFM VALUES / MSAV FAN SPEEDS (AIR BALANCER TO DEFINE / IF APPLICABLE):

OA DAMPER SET TO SAME POSITION IN ALL FAN SPEEDS?

Pass

Comment:

ALL FAN SPEEDS SET TO THE SAME CFM VALUE (ENTER SETPOINTS BELOW)

Pass

Comment:

HEAT CFM VALUE: PER THE HVAC SCHEDULE

Pass

Comment:

HIGH COOL CFM VALUE: THE HIGH COOL CFM VALUE

Pass

Comment:

LOW COOL CFM VALUE: MATCH THE HIGH COOL CFM VALUE

Pass

Comment:

VENTILATION CFM VALUE: MATCH THE HIGH COOL CFM VALUE

Pass

Comment:



06-03-24 WAWA #8443 HAZLET, NJ

CheckList Information

Name : TECH - STEP 3: SENSOR WIRING (LENNOX) **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/31/2024 - Brianna Biggs - National TAB
Completed Date : 06/07/2024 - Cody Collett - National TAB

CheckList Item Details

COMBINATION TEMPERATURE/HUMIDITY SENSOR

Sensors are installed where shown on the drawing? Pass

Comment:

2 conductor shielded cable has one wire landed to Vin, one to GND, and the shield wire is not connected. Pass

Comment:

For second shielded cable, one wire is landed to Vout and the shield wire is not connected. Pass

Comment:

Verify that the CORE or Prodigy controller is sensing a relative humidity (record the reading) N/A

Comment:



06-03-24 WAWA #8443 HAZLET, NJ

CheckList Information

Name : TECH - STEP 4: EF'S **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/31/2024 - Brianna Biggs - National TAB
Completed Date : 06/06/2024 - Cody Collett - National TAB

CheckList Item Details

EF's

Rotation is correct? Pass

Comment:

Belts are tight (if applicable)? N/A

Comment:

Speed controller installed and functional (if applicable)? Pass

Comment:

There is no major leakage around base of fan? Pass

Comment:

Is the motor operating below the motor FLA rating? Pass

Comment:

Back draft damper installed and can it fully open? Pass

Comment:

Unit free of noticeable noise and vibration?

Pass

Comment:

Total exhaust flow balanced within +/-5% and grilles are within +/-10%?

Pass

Comment:



06-03-24 WAWA #8443 HAZLET, NJ

CheckList Information

Name : TECH - STEP 5: CLOSEOUT CHECKS **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 05/31/2024 - Brianna Biggs - National TAB
Completed Date : 06/07/2024 - Cody Collett - National TAB

CheckList Item Details

SPACE COMFORT

Is space free of drafting? Pass

Comment:

Is space comfortable in all areas? Pass

Comment:

Is the space free of ventilation noise? Pass

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) Fail

Comment:

Net building airflow meets positive design airflow. Building pressure is within negative with average pressure of -0.0057.

National TAB

Project: 06-03-24 WAWA #8443 HAZLET, NJ

System/Unit: AHU/RTU



Asset: RTU1

AREA:RETAIL

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5623L01676
Model Num	LGT102H4E	LGT102H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	23"x14"
Num Final Filter 1	-	4
Final Filter Size 1	-	20"x25"x2"

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	NL
Horsepower	3.75	3.8
Motor Rpm	-	NL
Phase	3	3
Rated Voltage	208	200/240
Rated Amperage	-	8.8
Service Factor	-	NL

Test Data		
	Design	Actual
SF CFM	3400	3535
SF RPM	-	NA
MOTOR RPM	-	NA
RA CFM	2875	3006
OA CFM	525	529
RL Voltage	-	206/207/209
RL Amperage	-	4.75/4.76/4.78
SF System SetPt	-	77%
RA Damper Position	-	75%
OA Damper Position	-	25%
OA Damper Type	-	OPPOSED BLADE

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.77"
Fan Suction SP	-	-1.07
Fan Discharge SP	-	0.88"
Total ESP	0.5"	1.65
Fan Total SP	-	1.95

Completed By: Cody Collett on 06/06/2024

Notes:
Unit total in design, diffusers not balanced due to issues and time constraints.

Written By: Cody Collett on 06/06/2024

National TAB

Project:06-03-24 WAWA #8443 HAZLET, NJ

AHU/RTU



Diffuser Supply (GRD)

RTU1/RETAIL

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	RETAIL	LD1	10"	380	.96	436	107	114	30.0
SGRD2	RETAIL	LD1	10"	380	.96	292	467	503	132.4
SGRD3	RETAIL	LD1	10"	380	.96	292	447	476	125.3
SGRD4	RETAIL	LD1	10"	400	.96	594	401	398	99.5
SGRD5	ASSOCIATES	CD1	8"	150	1	250	169	168	112.0
SGRD6	OFFICE	CD1	8"	150	1	299	51	50	33.3
SGRD7	RETAIL	LD1	10"	380	.96	491	402	412	108.4
SGRD8	RETAIL	LD1	10"	380	.96	66	455	490	128.9
SGRD9	RETAIL	LD1	10"	400	.96	610	450	462	115.5
SGRD10	RETAIL	LD1	10"	400	.96	150	442	462	115.5
Total				3400		3480	3391	3535	103.97%

Completed By: Cody Collett on 06/06/2024

National TAB

Project: 06-03-24 WAWA #8443 HAZLET, NJ

System/Unit: AHU/RTU



Asset: RTU2

AREA:FOOD SERVICE

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5623K05300
Model Num	LCT120H4E	LCT120H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	23"x14"
Num Final Filter 1	-	4
Final Filter Size 1	-	20"x25"x2"

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Horsepower	3.75	3.8
Phase	3	3
Rated Voltage	208	300/240
Rated Amperage	-	8.8

Test Data		
	Design	Actual
SF CFM	4000	3950
RA CFM	3325	3253
OA CFM	675	697
RL Voltage	-	207/209/208
RL Amperage	-	4.79/4.79/4.88
SF System SetPt	-	78%
RA Damper Position	-	71%
OA Damper Position	-	29%

Performance Data		
	Design	Actual
MA Plenum SP	-	-.54"
Fan Suction SP	-	-.93"
Fan Discharge SP	-	.68"
Total ESP	0.5"	1.22"
Fan Total SP	-	1.61"

Completed By: Cody Collett on 06/06/2024

National TAB
 Project:06-03-24 WAWA #8443 HAZLET, NJ
AHU/RTU



Diffuser Supply (GRD)

RTU2/FOOD SERVICE

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	BACKROOM	LD1	10"	350	0.96	426	426	365	104.3
SGRD2	BACKROOM	LD1	10"	350	0.96	500	500	341	97.4
SGRD3	BACKROOM	LD1	10"	350	0.96	252	252	352	100.6
SGRD4	BACKROOM	LD1	10"	350	0.96	323	323	351	100.3
SGRD5	BACKROOM	LD1	10"	350	0.96	317	317	330	94.3
SGRD6	BACKROOM	LD1	10"	350	0.96	483	483	334	95.4
SGRD7	BACKROOM	CD1	10"	300	1	471	471	305	101.7
SGRD8	BACKROOM	CD1	10"	350	1	444	444	351	100.3
SGRD9	BACKROOM	CD1	10"	350	1	360	360	350	100.0
SGRD10	BACKROOM	CD1	10"	350	1	340	340	376	107.4
SGRD11	ELECTRICAL RM	CD1	12"	550	1	422	422	495	90.0
Total				4000		4338	4338	3950	98.75%

Completed By: Cody Collett on 06/06/2024

National TAB

Project: 06-03-24 WAWA #8443 HAZLET, NJ

System/Unit: AHU/RTU



Asset: RTU3

AREA:RETAIL

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5623J01791
Model Num	LGT060H4E	LGT060H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29x14
Num Final Filter 1	-	4
Final Filter Size 1	-	20"x20"x2"

Test Data		
	Design	Actual
SF CFM	2000	1959
RA CFM	1700	1646
OA CFM	300	313
RL Voltage	-	206
RL Amperage	-	6.9
SF System SetPt	-	72%
RA Damper Position	-	76%
OA Damper Position	-	24%

Motor Data		
	Design	Actual
Motor MFG	-	NL
Frame	-	NL
Horsepower	1	1.0
Motor Rpm	-	NL
Phase	3	1
Rated Voltage	208	208
Rated Amperage	-	7.4
Service Factor	-	NL

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.60"
Fan Suction SP	-	0-.80"
Fan Discharge SP	-	-0.39"
Total ESP	0.5"	0.99"
Fan Total SP	-	1.19

Completed By: Cody Collett on 06/06/2024

Notes:

Return duct damper lever closest to front entrance held in place with tape as the mechanical contractor did not actually fix it and damper swings freely and wingnut will not attach.

UNIT DESIGN 2000CFM
DIFFUSER DESIGN 1980CFM

Written By: Cody Collett on 06/06/2024

National TAB

Project:06-03-24 WAWA #8443 HAZLET, NJ

AHU/RTU



Diffuser Supply (GRD)

RTU3/RETAIL

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	FRONT VESTIBULE	CD2	10"	290	1	245	276	293	101.0
SGRD2	WOMENS RR	CD3	6"	50	1	88	90	53	106.0
SGRD3	MENS RR	CD3	6"	50	1	77	91	55	110.0
SGRD4	RETAIL	LD1	8"	250	0.96	192	212	274	109.6
SGRD5	RETAIL	LD1	8"	250	0.96	129	161	227	90.8
SGRD6	RETAIL	LD1	8"	250	0.96	164	165	225	90.0
SGRD7	RETAIL		8"	150	1	249	165	146	97.3
SGRD8	RETAIL	LD1	8"	215	0.96	166	183	232	107.9
SGRD9	RETAIL	LD1	8"	215	0.96	208	236	196	91.2
SGRD10	DELIVERY RM	CD1	8"	160	1	175	178	154	96.3
SGRD11	REAR VESTIBULE	CD3	6"	100	1	107	101	104	104.0
Total				1980		1800	1858	1959	98.94%

Completed By: Cody Collett on 06/06/2024

National TAB

Project: 06-03-24 WAWA #8443 HAZLET, NJ

System/Unit: FAN - Exhaust



Asset: EF1

AREA:

Unit Data		
	Design	Actual
MFG	PENNBARRY	PENNBARRY
Model Num	DX10R	DX10R
Serial Num	-	L23AG85369
Type	DOWNBLAST	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	FASCO
Frame	-	NL
Horsepower	1/12	1/6
Motor Rpm	-	1550
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	1.8
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	300	303
Fan RPM	1550	NA
Fan Rotation	-	CCW
Motor RPM	-	NA
System SetPt	-	NA
RL Voltage	-	NA
RL Amperage	-	1.43
Total ESP	0"	0.45
Fan Inlet SP	-	-0.45"
Fan Discharge SP	-	ATM

Completed By: Cody Collett on 06/06/2024

National TAB

Project:06-03-24 WAWA #8443 HAZLET, NJ

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF1/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	WOMENS RR	G3	6"	100				94	94.0
EGRD2	JANITOR	G3	6"	50				48	96.0
EGRD3	MENS RR	G3	6"	150				161	107.3
Total				300		0	0	303	101%

Completed By: Cody Collett on 06/06/2024

National TAB

Project: 06-03-24 WAWA #8443 HAZLET, NJ

System/Unit: FAN - Exhaust



Asset: EF2

AREA:

Unit Data		
	Design	Actual
MFG	PENNBARRY	PENNBARRY
Model Num	DX13Q	DX13Q
Serial Num	-	NL
Type	DOWNBLAST	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	NL
Horsepower	1/4	1/4
Motor Rpm	-	1725
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	3.8
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	900	868
Fan RPM	1725	NA
Fan Rotation	-	CCW
Motor RPM	-	NA
System SetPt	-	NA
RL Voltage	-	NA
RL Amperage	-	4.43
Total ESP	-	1.06"
Fan Inlet SP	-	-1.06"
Fan Discharge SP	-	ATM

Completed By: Cody Collett on 06/06/2024

National TAB

Project:06-03-24 WAWA #8443 HAZLET, NJ

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF2/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	BACKROOM	G1	10"	300	1	334	295	310	103.3
EGRD2	BACKROOM	G1	10"	500	1	501	462	466	93.2
EGRD3	STAGING RM	G1	6"	100	1	142	142	92	92.0
Total				900		977	899	868	96.44%

Completed By: Cody Collett on 06/06/2024

National TAB

Project: 06-03-24 WAWA #8443 HAZLET, NJ

System/Unit: FAN - Exhaust



Asset: EF3

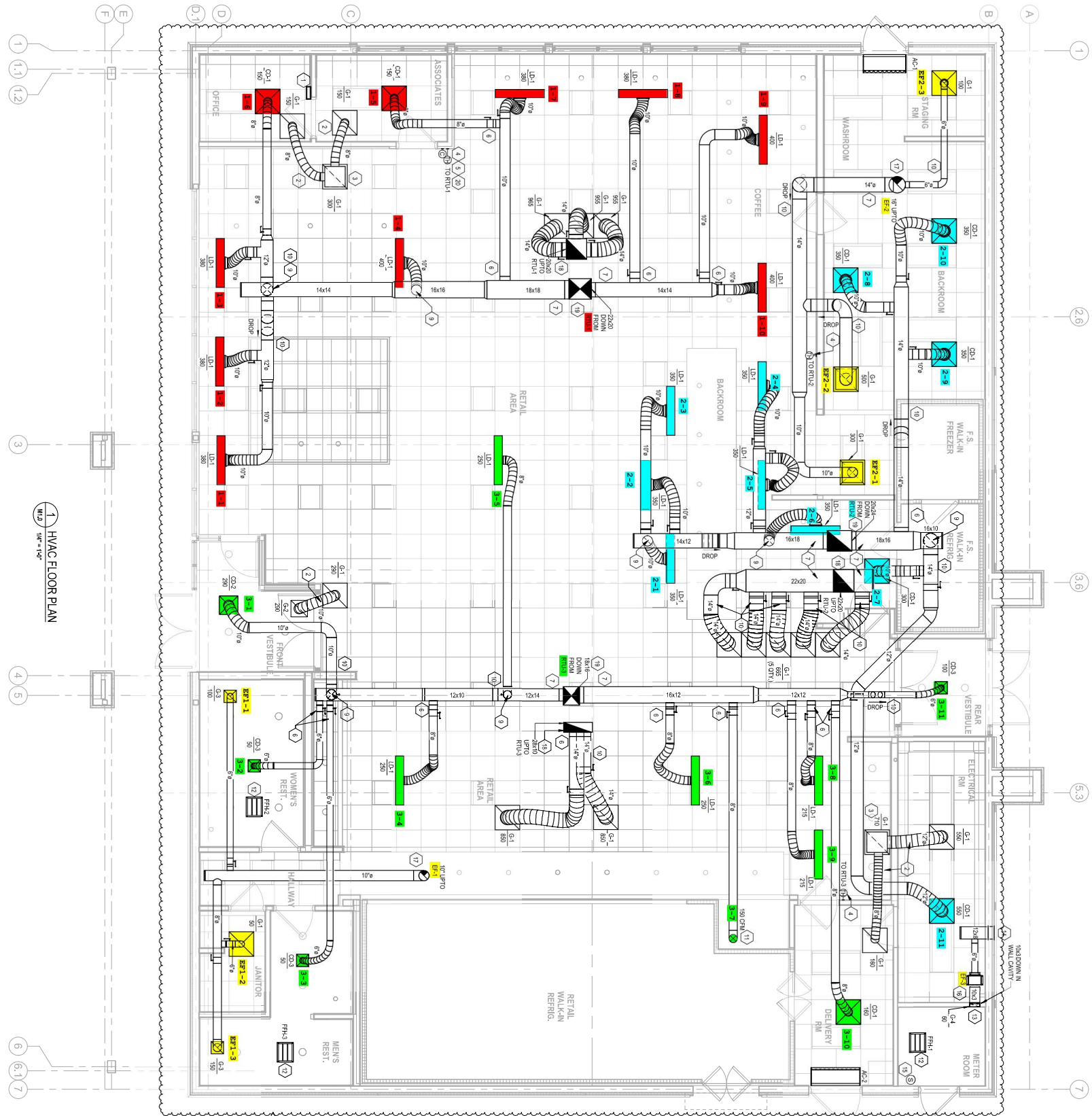
AREA:

Unit Data		
	Design	Actual
MFG	PENNBARRY	PENNBARRY
Model Num	Z3H	Z3H
Serial Num	-	
Type	INLINE	INLINE
Configuration	HORIZONTAL	

Test Data		
	Design	Actual
CFM	60	64
System SetPt	-	NA

Motor Data		
	Design	Actual
Horsepower	39W	
Motor Rpm	-	
Phase	1	
Voltage (rated)	120	
Amperage (rated)	-	

Completed By: Cody Collett on 06/06/2024



1 HVAC FLOOR PLAN
 M.D. 1/4" = 1'-0"