

Report By:

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



Report: TAB Report
Function: Test, Adjust, & Balance
Date: 08/01/2024
Completed By: National TAB

PROJECT
10-21-24 WAWA #5413 SARASOTA, FL

7707 24TH COURT E

SARASOTA, FL 34243

Client

Wawa
260 West Baltimore Pike
Wawa, PA 19063

National TAB

Project: 10-21-24 WAWA #5413 SARASOTA, FL

Table Of Contents

Section	Page #
Summary	3
Balance Schedule	4
Remarks	5
Checklists	10
AHU/RTU	25
FAN - Exhaust	31
GRD Layout	34

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.

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.

MUA (Make Up Air Unit) w/ PSP

Total flow for the MAU (Make-up Air Unit) unit was measured by readings taken at the discharge of the hood's perforated supply plenum. Readings taken with a velocity matrix were averaged and multiplied by a manufacturer's corrected area. Adjustments to the fan speed were made in order to bring the unit to within design tolerance. Any MUA'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.

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	RETAIL	3400	3393	2790	2785	610	608	17.9%	17.9%						
RTU-2	FOOD SERVICE	5000	4932	4100	4028	900	904	18.0%	18.3%						
RTU-3	RETAIL	3000	3088	2460	2567	540	521	18.0%	16.9%						
EF-1														1550	1519
EF-2														60	61
TOTALS		11400	11413	9350	9380	2050	2033			0	0	0	0	1610	1580

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2050	2033
TOTAL EXHAUST	1610	1580
NET AIRFLOW	440	453

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.004
SIDE	0.005
REAR	0.002
AVERAGE	0.0037

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:

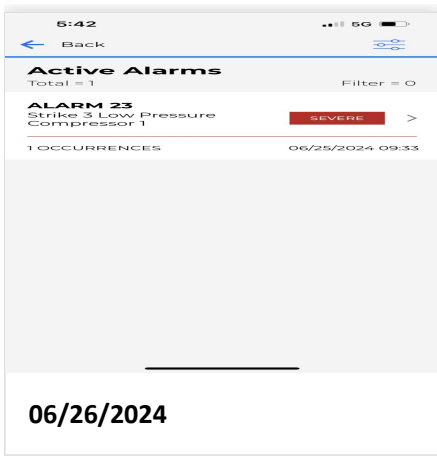
Issue List

- RTU 1 - compressor 1 fault
- RTU turning vane installation

Project Issue Information

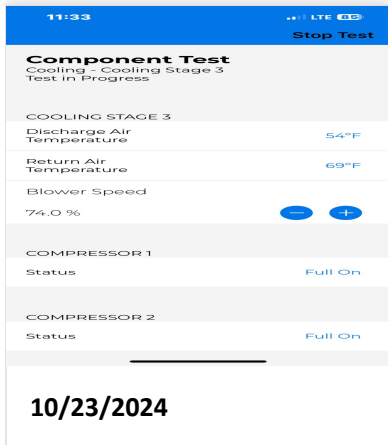
Issue Name : RTU 1 - compressor 1 fault
Description : RTU 1 has a persistent error on the CORE interface, stating that compressor 1 is not running as intended. Recommend inspecting compressor for possible damage.
Created By : National TAB **Assigned To :** National TAB - Mark Johnson
Status : Closed
Priority : High **Asset Tag :**
Originated Date : 06/26/2024 - Mark Johnson - National TAB

Project Issue File Details



Project Issue Response Details

- **10/23/2024 National TAB - Kristopher Passley**
 - Issue is resolved. Compressor is operational, and no alarms are on the unit at this time.



• **08/05/2024 National TAB - Stephen Tassinaro**

- MC was working on resolving compressor issues when NTi was on site 8/1.
-

Project Issue Information

Issue Name : RTU turning vane installation
Description : The turning vanes located in the supply drops of the RTUs are not fully installed, sitting loose inside the duct. Recommend installing.
Created By : National TAB **Assigned To :** National TAB - Mark Johnson
Status : Open
Priority : InfoOnly **Asset Tag :**
Originated Date : 06/30/2024 - Mark Johnson - National TAB

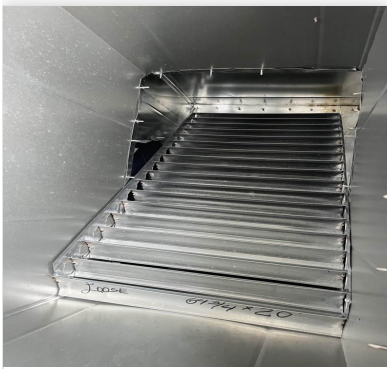
Project Issue File Details



Project Issue Response Details

- **11/11/2024 National TAB - Will Turnbough**
 - General contractor sent images showing the turning vanes are secured. The location of the turning vanes is not standard practice, however airflow is within design so no further changes are necessary.

- **10/23/2024 National TAB - Kristopher Passley**
 - Issue is still present. Turning vanes appear to be secured to duct but do not transition the air around the 90 degree turns for all units.



10/23/2024



10/23/2024



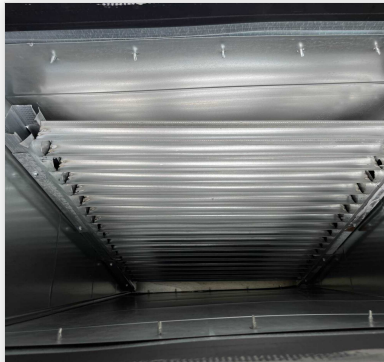
10/23/2024

• **08/05/2024 National TAB - Stephen Tassinaro**

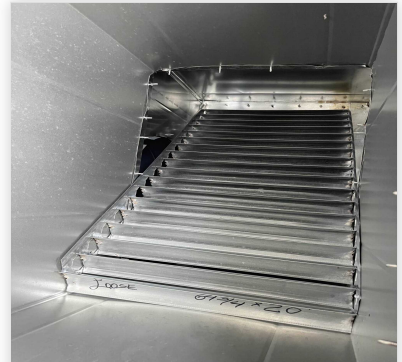
- Turning vanes are confirmed to be screwed into the ducts. However, they do not appear to smoothly transition the air around the 90 degree turns. Recommend EOR review.



08/05/2024



08/05/2024



08/05/2024

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



10-21-24 WAWA #5413 SARASOTA, FL

CheckList Information

Name : TECH - SITE PICTURES **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 06/24/2024 - Brianna Biggs - National TAB

Completed Date : 06/24/2024 - Mark Johnson - National TAB

CheckList Item Details

STORE FRONT

Comment:



06/24/2024

RTU-1

Comment:



06/24/2024

RTU-2

Comment:



06/24/2024

RTU-3

Comment:



06/24/2024

EF-1

Comment:



06/24/2024

EF-2

Comment:



06/24/2024



10-21-24 WAWA #5413 SARASOTA, FL

CheckList Information

Name : TECH - STEP 1: RTU's/AHU's **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 06/24/2024 - Brianna Biggs - National TAB
Completed Date : 10/23/2024 - Kristopher Passley - 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:

DD

If direct drive unit is the speed controller working? Pass

Comment:

Is gas piping installed and valves turned on?

N/A

Comment:

Electric heating

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:

RTU 1 has "Alarm 23 - Strike 3 Low Pressure Compressor 1" occurring intermittently.(ISSUE WAS RESOLVED)

Any noticeable duct leakage?

Pass

Comment:

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

Pass

Comment:

IN TEST MODE, TEST THE FOLLOWING:

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

Pass

Comment:

RTU 1: DAT=54 deg, RAT=70 deg RTU 2: DAT=57 deg, RAT=67 deg RTU 3: DAT=52 deg, RAT=73 deg

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

Pass

Comment:

RTU 1: DAT=80 deg, RAT=71 deg RTU 2: N/A RTU 3: DAT=75 deg, RAT=74 deg

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

Pass

Comment:

RTU 1: DAT=71 deg, RAT=72 deg RTU 2: DAT=73 deg, RAT=70 deg RTU 3: DAT=70 deg, RAT=73 deg



10-21-24 WAWA #5413 SARASOTA, FL

CheckList Information

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

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 06/24/2024 - Brianna Biggs - National TAB

Completed Date : 06/27/2024 - Mark Johnson - National TAB

CheckList Item Details

UNIT ID CONFIGURATIONS

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

Comment:

NETWORK CONFIGURATION: GO TO SETUP>NETWORK INTEGRATION, SET TO BACNET IP 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 DAMPER MAX OPEN: 50%

Pass

Comment:

PARAMETER 118 CO2 START OPEN PPM: 1500

Pass

Comment:

PARAMETER 119 CO2 MAX OPEN PPM: 1500

Pass

Comment:

PARAMETER 137 OCCHET SET POINT: 68 (BACK UP)

Pass

Comment:

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

Pass

Comment:

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

Pass

Comment:

PARAMETER 154 OCC BLOWER MODE: ON-CONTINUOUS 1

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:

RTU 1: 67% RTU 2: 87% RTU 3: 68%

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:



10-21-24 WAWA #5413 SARASOTA, FL

CheckList Information

Name : TECH - STEP 3: SENSOR WIRING (LENNOX) **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 06/24/2024 - Brianna Biggs - National TAB
Completed Date : 06/27/2024 - Mark Johnson - 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) Pass

Comment:

RTU 1: 56% RTU 2: 53% RTU 3: 58%



10-21-24 WAWA #5413 SARASOTA, FL

CheckList Information

Name : TECH - STEP 4: EF'S **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 06/24/2024 - Brianna Biggs - National TAB
Completed Date : 08/05/2024 - Stephen Tassinaro - 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:



10-21-24 WAWA #5413 SARASOTA, FL

CheckList Information

Name : TECH - STEP 5: CLOSEOUT CHECKS **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 06/24/2024 - Brianna Biggs - National TAB
Completed Date : 10/23/2024 - Kristopher Passley - 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) Pass

Comment:

Building Pressure: Front door: 0.027" Back Door: 0.010"

National TAB

Project: 10-21-24 WAWA #5413 SARASOTA, FL

System/Unit: AHU/RTU



Asset: RTU1

AREA:RETAIL

Unit Data		
	Design	Actual
MFG	LENNOX ENLIGHT	LENNOX
Serial Num	-	5623M03511
Model Num	LCT102H4E	LCT102H4EG1Y
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	23x14
Num Final Filter 1	-	4
Final Filter Size 1	-	20x25x2

Test Data		
	Design	Actual
SF CFM	3400	3393
SF RPM	-	1628
MOTOR RPM	-	1628
RA CFM	2730	2782
OA CFM	610	611
RL Voltage	-	205/204/206
RL Amperage	-	4.2/4.2/4.1
SF System SetPt	-	74%
OA Damper Position	-	37%
OA Damper Type	-	SINGLE BLADE

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	N/A
Horsepower	3.75	3.80
Motor Rpm	-	2200
Phase	3	3
Rated Voltage	208	200-240
Rated Amperage	-	8.7
Service Factor	-	N/A

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.43"
Fan Suction SP	-	-0.81"
Fan Discharge SP	-	0.49"
Total ESP	0.5"	0.92"
Fan Total SP	-	1.30"

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

Completed By: Kristopher Passley on 10/23/2024

National TAB

Project:10-21-24 WAWA #5413 SARASOTA, FL

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"	300	1	451	351	278	92.7
SGRD2	RETAIL	LD1	10"	300	1	400	388	293	97.7
SGRD3	RETAIL	LD1	10"	300	1	400	350	287	95.7
SGRD4	RETAIL	LD1	10"	300	1	243	233	299	99.7
SGRD5	OFFICE	CD1	8"	150	1	190	193	149	99.3
SGRD6	ASSOCIATES	CD1	8"	150	1	229	213	153	102.0
SGRD7	RETAIL	LD1	10"	310	1	307	297	319	102.9
SGRD8	RETAIL	LD1	10"	310	1	390	355	332	107.1
SGRD9	RETAIL	LD1	10"	285	1	309	318	289	101.4
SGRD10	DELIVERY VESTIBULE	CD1	8"	200	1	186	160	192	96.0
SGRD11	RETAIL	LD1	10"	285	1	287	277	289	101.4
SGRD12	RETAIL	LD1	10"	285	1	308	278	293	102.8
SGRD13	REAR VESTIBULE	CD3	6"	100	1	116	91	91	91.0
SGRD14	MENS RR	CD3	6"	75	1	93	86	77	102.7
SGRD15	WOMENS RR	CD3	6"	50	1	83	82	52	104.0
Total				3400		3992	3672	3393	99.79%

Diffuser Ret/Exh (GRD)

RTU1/RETAIL

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU1-EGRD1	RETAIL AREA	G-1	14"	700	1	564	782	693	99.0
RTU1-EGRD2	RETAIL AREA	G-1	14"	700	1	731	775	686	98.0
RTU1-EGRD3	RETAIL AREA	G-1	14"	700	1	891	808	716	102.3
RTU1-EGRD4	RETAIL AREA	G-1	14"	690	1	959	776	687	99.6
Total				2790		3145	3141	2782	99.71%

Completed By: Kristopher Passley on 10/23/2024

National TAB

Project: 10-21-24 WAWA #5413 SARASOTA, FL

System/Unit: AHU/RTU



Asset: RTU2

AREA:FOOD SERVICE

Unit Data		
	Design	Actual
MFG	LENNOX ENLIGHT	LENNOX
Serial Num	-	5624C06207
Model Num	LCT150H4E	LCT150H4EN1Y
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	23x14
Num Final Filter 1	-	4
Final Filter Size 1	-	20x25x2

Test Data		
	Design	Actual
SF CFM	5000	4932
SF RPM	-	1759
MOTOR RPM	-	1759
RA CFM	4100	4020
OA CFM	900	912
RL Voltage	-	207/207/208
RL Amperage	-	5. 4/5.5/5.4
SF System SetPt	-	80%
OA Damper Position	-	33%
OA Damper Type	-	SINGLE BLADE

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	N/A
Horsepower	3.75	3.8
Motor Rpm	-	2200
Phase	3	3
Rated Voltage	208	200-240
Rated Amperage	-	8.7
Service Factor	-	N/A

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.56"
Fan Suction SP	-	-1.23"
Fan Discharge SP	-	0.40"
Total ESP	0.5"	0.96"
Fan Total SP	-	1.63"

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

Completed By: Kristopher Passley on 10/23/2024

National TAB

Project:10-21-24 WAWA #5413 SARASOTA, FL

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	FOOD SERVICE	LD1	12"	500	1	705	669	499	99.8
SGRD2	FOOD SERVICE	LD1	12"	500	1	581	509	462	92.4
SGRD3	FOOD SERVICE	LD1	12"	500	1	763	664	471	94.2
SGRD4	FOOD SERVICE	LD1	12"	500	1	809	739	522	104.4
SGRD5	FOOD SERVICE	LD1	12"	500	1	444	406	536	107.2
SGRD6	FOOD SERVICE	LD1	12"	500	1	807	703	527	105.4
SGRD7	FOOD SERVICE	CD1	12"	500	1	540	489	488	97.6
SGRD8	WASH ROOM	CD1	10"	375	1	317	275	398	106.1
SGRD9	WASH ROOM	CD1	12"	500	1	527	492	452	90.4
SGRD10	ELECTRICAL ROOM	CD1	12"	550	1	271	244	501	91.1
SGRD11	STAGING	CD1	6"	75	1	106	96	76	101.3
Total				5000		5870	5286	4932	98.64%

Diffuser Ret/Exh (GRD)

RTU2/FOOD SERVICE

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU2-EGRD1	FOOD SERVICE	G-1	14"	800	1	749	585	769	96.1
RTU2-EGRD2	FOOD SERVICE	G-1	14"	800	1	992	570	749	93.6
RTU2-EGRD3	FOOD SERVICE	G-1	14"	900	1	438	720	947	105.2
RTU2-EGRD4	FOOD SERVICE	G-1	14"	800	1	135	623	819	102.4
RTU2-EGRD5	FOOD SERVICE	G-1	14"	800	1	858	570	736	92.0
Total				4100		3172	3068	4020	98.05%

Completed By: Kristopher Passley on 10/23/2024

National TAB

Project: 10-21-24 WAWA #5413 SARASOTA, FL

System/Unit: AHU/RTU



Asset: RTU3

AREA:RETAIL

Unit Data		
	Design	Actual
MFG	LENNOX ENLIGHT	LENNOX
Serial Num	-	5624B04846
Model Num	LCT092H4E	LCT092H4EG1Y
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	23x14
Num Final Filter 1	-	4
Final Filter Size 1	-	20x25x2

Test Data		
	Design	Actual
SF CFM	3000	3088
SF RPM	-	1496
MOTOR RPM	-	1496
RA CFM	2460	2571
OA CFM	540	517
RL Voltage	-	207/206/207
RL Amperage	-	3.4/3.4/3.4
SF System SetPt	-	68%
OA Damper Position	-	30%
OA Damper Type	-	SINGLE BLADE

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	N/A
Horsepower	3.75	3.8
Motor Rpm	-	2200
Phase	3	3
Rated Voltage	208	200-240
Rated Amperage	-	8.7
Service Factor	-	N/A

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.34"
Fan Suction SP	-	-0.70"
Fan Discharge SP	-	0.79"
Total ESP	0.5"	1.13"
Fan Total SP	-	1.49"

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

Completed By: Kristopher Passley on 10/23/2024

National TAB

Project:10-21-24 WAWA #5413 SARASOTA, FL

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	12"	500	1	601	549	530	106.0
SGRD2	RETAIL	LD1	10"	350	1	401	362	356	101.7
SGRD3	RETAIL	LD1	10"	300	1	333	285	318	106.0
SGRD4	COFFEE/SPECIALTY	LD1	10"	300	1	296	380	317	105.7
SGRD5	COFFEE/SPECIALTY	LD1	10"	300	1	305	281	279	93.0
SGRD6	COFFEE/SPECIALTY	LD1	10"	300	1	374	329	315	105.0
SGRD7	RETAIL	LD1	10"	300	1	319	313	304	101.3
SGRD8	RETAIL	LD1	10"	300	1	252	336	307	102.3
SGRD9	RETAIL	LD1	10"	350	1	360	368	362	103.4
Total				3000		3241	3203	3088	102.93%

Diffuser Ret/Exh (GRD)

RTU3/RETAIL

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU3-EGRD1	RETAIL AREA	G-1	14"	820	1	722	821	821	100.1
RTU3-EGRD2	RETAIL AREA	G-1	14"	820	1	901	882	882	107.6
RTU3-EGRD3	RETAIL AREA	G-1	14"	820	1	881	868	868	105.9
Total				2460		2504	2571	2571	104.51%

Completed By: Kristopher Passley on 10/23/2024

National TAB

Project: 10-21-24 WAWA #5413 SARASOTA, FL

System/Unit: FAN - Exhaust



Asset: EF1

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	G-160	G-140-B-4-1-22-X
Serial Num	-	24866065
Type	DOWNBLAST	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	N/A
Frame	-	48Y
Horsepower	3/4	1/4
Motor Rpm	-	1140
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	3.2
Service Factor	-	1.00

Test Data		
	Design	Actual
CFM	1550	1519
Fan RPM	700	N/A
Fan Rotation	-	CW
Motor RPM	-	N/A
System SetPt	-	HIGH
RL Voltage	-	121
RL Amperage	-	3.1
Total ESP	0.250"	0.19"
Fan Inlet SP	-	0.19"
Fan Discharge SP	-	ATM

Completed By: Mark Johnson on 06/26/2024

National TAB
 Project:10-21-24 WAWA #5413 SARASOTA, FL
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	FOOD SERVICE	G1	10"	400	1	329	421	415	103.8
EGRD2	FOOD SERVICE	G1	12"	500	1	339	465	463	92.6
EGRD3	FOOD SERVICE	G1	12"	300	1	386	295	296	98.7
EGRD4	STAGING	G1	8"	100	1	323	114	98	98.0
EGRD5	MENS RR	G3	6"	100	1	83	101	103	103.0
EGRD6	MENS RR	G3	6"	50	1	0	43	52	104.0
EGRD7	WOMENS RR	G3	6"	100	1	86	93	92	92.0
Total				1550		1546	1532	1519	98%

National TAB

Project: 10-21-24 WAWA #5413 SARASOTA, FL

System/Unit: FAN - Exhaust



Asset: EF2

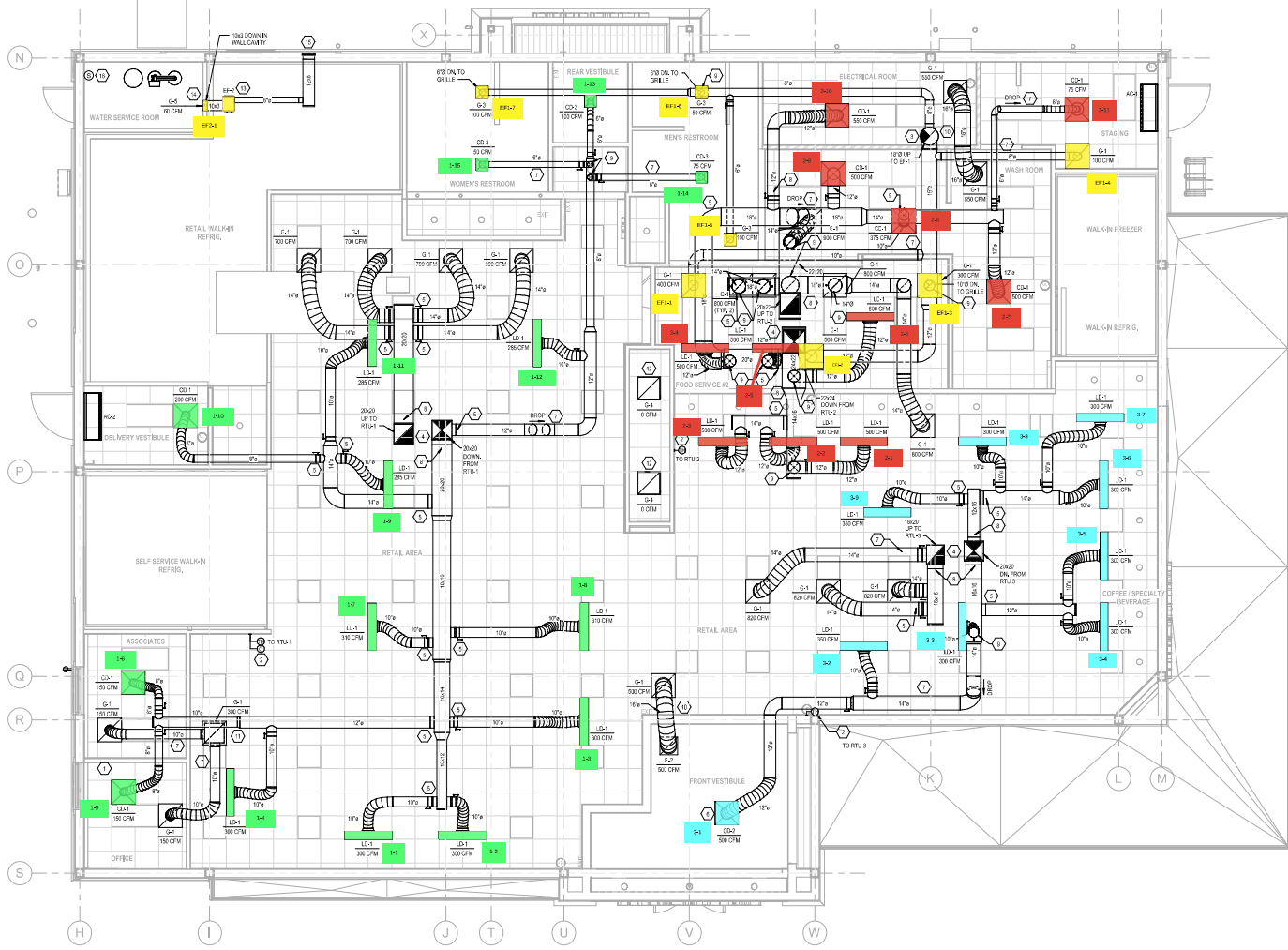
AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	CSP-B110	CSP-A110
Serial Num	-	24865003
Type	INLINE	INLINE
Configuration	HORIZONTAL	HORIZONTAL

Motor Data		
	Design	Actual
Motor MFG	-	GREENHECK
Frame	-	N/A
Horsepower	21W	N/A
Motor Rpm	-	950
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	0.19
Service Factor	-	N/A

Test Data		
	Design	Actual
CFM	60	61
Fan RPM	584	DD
Fan Rotation	-	CORRECT
Motor RPM	-	DD
System SetPt	-	SPEED CONTROLLER
RL Voltage	-	119.6
RL Amperage	-	0.1

Completed By: Stephen Tassinaro on 08/01/2024



1 HVAC FLOOR PLAN
1/4" = 1'-0"

KEY NOTES:

- REMOTE SMOKE DETECTOR TEST STATIONS FOR RTU-2, 3 & 4. TEST STATIONS TO BE MOUNTED ON THE WALKWAYS OR BALCONY. SECURITY CONTROLLER SHALL BE RETIARY VULNERABLE SMOKE DETECTORS TO SECURITY FIRE ALARM PANEL. MECHANICAL CONTRACTOR SHALL PROVIDE TEST STATION AND WIRE CONNECTIONS. COMPONENTS AS WELL AS WIRING TO BE SHOWN IN THE A/C FAN UP ON LOCATION OF THE SMOKE DETECTOR. ALL TO TEST THE SMOKE DETECTOR CONNECTIONS WITH THE WAVA PROJECT MANAGER.
- WALL MOUNTED SENSORS FOR EACH MECHANICAL UNIT PER ROOF TOP UNIT SCHEDULE ON SHEET M03. ALL SHALL BE INSTALLED IN THE LOCATION. MECHANICAL CONTRACTOR SHALL CONNECT TO MECHANICAL UNIT ONLY.
- COORDINATE EXACT LOCATION OF EXHAUST FAN PENETRATION WITH ARCHITECTURAL ROOF PLAN. INSTALL GAVNOR CONTACT FROM ROOM FROM MAINLINE CHIMNEY/ROOF SPACE AND CONNECT TO CEILING GRILLES.
- REFER TO TYPICAL DUCT PLAN DETAIL ON SHEET M04.
- COORDINATE START WITH ELECTRICAL IN THE LOCATION. COORDINATE TAKEOFF LOCATIONS WITH ANNEKED WEG LEADERS.
- PROVIDE SURFACE MOUNT ADAPTER FRAME TO ALLOW ACCESS TO CEILING ABOVE THROUGH ROOF PENETRATION. SEE AIR SERVICE SCHEDULE.
- POST EXHAUST AND STRUCTURAL MEMBERS AT THE LOCATION.
- DUCTWORK TO MAIN VENTURE LEAD SPECIAL MECHANICAL CONTRACTOR TO COORDINATE MECHANICAL WORK WITH ALL TRADES PRIOR TO INSTALLATION.
- DUCT TAKEOFF WITH CHAMFER FROM BOTTOM OF MAIN DUCT.
- TRANSFER DUCT ASSEMBLY.
- PROVIDE SEALED 3/16" PENUM BOX ASSEMBLY ABOVE TRANSFER OR LEAS TO ALLOW FOR TRANSFER DUCT CONNECTIONS.
- GRILLES OPEN TO ABOVE CEILING.
- INSTALL EXHAUST FAN ABOVE CEILING PER CEILING SHEET M04. FAN SHALL BE WIRED TO EMERGENCY SHUT-OFF SWITCH PROVIDED BY OTHER. REFERENCE ARCHITECTURAL AND ELECTRICAL DRAWINGS.
- MOUNT CENTER OF EXHAUST GRILLE AT 12" ABOVE FINISHED FLOOR. ROUTE DUCT BASED AS SHOWN FROM GRILLE. UP IN WALL COURTY TO ABOVE CEILING. THEN TO EXHAUST FAN AND OUT TO EXTERIOR WALL COURTY. COORDINATE DUCT ROUTING WITH ALL OTHER TRADES.
- 10" X 14" FAN FROM WALL. DOWN MODE. EXHAUSTS MANUFACTURED BY GREEN H-20. INSTALL PER MANUFACTURER REQUIREMENTS. SEE ALL FROM ROOF TOP UNIT. PROVIDE PROTECT ARCHITECTURAL 4" X 6" X 1/2" PLUNGE. PROVIDE ALUMINUM WALL TRIM.
- EMERGENCY SHUT-OFF SWITCH AND WALL PLUG TO INDICATE VENTILATION SYSTEMS. PROVIDE SHUT-OFF PROVIDED BY OTHER. REFERENCE ELECTRICAL AND ARCHITECTURAL DRAWINGS.

SHEET GENERAL NOTE:

- MECHANICAL CONTRACTOR SHALL ADJUST ALL LINEAR SLOT DIFFUSERS TO A GENERALLY VERTICAL FLOOR. ADJUSTMENT SHALL BE MADE SO AS TO AVOID AIRFLOW ON PERSONS. REFRIGERATION CASES, OR OPEN FOOD REFRIGERATION EQUIPMENT.

HVAC LEGEND	
SYMBOL	DESCRIPTION
	NEW RECTANGULAR OR ROUND DUCT
	FLEXIBLE DUCT
	SUPPLY AIR DUCTWORK UP THROUGH PLAN
	RETURN AIR DUCTWORK UP THROUGH PLAN
	EXHAUST AIR DUCTWORK UP THROUGH PLAN
	90° ELBOW WITH TURNING VANES
	MANUAL AIR VOLUME CONTROL DAMPER
	4 WAY SUPPLY DIFFUSER
	3 WAY SUPPLY DIFFUSER
	2 WAY OPPOSED SUPPLY DIFFUSER
	2 WAY CORNER SUPPLY DIFFUSER
	RETURN AIR DEVICE
	EXHAUST AIR DEVICE
	AIR CURTAIN
	LINEAR SLOT DIFFUSER WITH PLENUM
	COMBINATION TEMPERATURE/HUMIDITY SENSOR
	TEMPERATURE SENSOR
	CO2 SENSOR
	SWITCH
	TAG PLACEMENT
	CONDENSATE PIPING
	ROOF MOUNTED EXHAUST FAN
	INLINE EXHAUST FAN
	PACKAGED ROOFTOP AIR CONDITIONER

2666 Mathand Center Parkway
Suite #200
Mathand, FL 32751
P: (407) 881-9100
F: (407) 881-9101
www.cuhaci.com

**CUHACI
PETERSON**

PROJECT NO:
WAVA ESSEB 0213
STORE R5413
770 24TH COURT EAST,
SANDSTON, FL 33433

DATE: 11-24-2022
DRAWN BY: J. HANSEN
CHECKED BY: J. HANSEN

PROJECT MANAGER:
WAVA
300 WEST BALTIMORE PIKE
WAVA, PENNSYLVANIA 19083

PROJECT NO:
WAVA ESSEB 0213
STORE R5413
770 24TH COURT EAST,
SANDSTON, FL 33433

DATE: 11-24-2022
DRAWN BY: J. HANSEN
CHECKED BY: J. HANSEN

PROJECT MANAGER:
WAVA
300 WEST BALTIMORE PIKE
WAVA, PENNSYLVANIA 19083

PROJECT NO:
WAVA ESSEB 0213
STORE R5413
770 24TH COURT EAST,
SANDSTON, FL 33433

M1.0