

Report By:

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



Report: TAB Report
Function: Test, Adjust, & Balance
Date: 10/17/2023

PROJECT

**10-02-23 WALGREENS #3870 - HOUSTON,
TX**

4995 HWY 6N

HOUSTON, TX

Client

Walgreens
200 WILMOT RD
DEERFIELD, IL 60015

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.

Commissioning Activities

Equipment was inspected to ensure that the installation meets Walgreens requirements. Control and equipment setpoints were checked and after balancing was completed performance of each unit was verified. The full list of items that were verified along with any that failed are contained in the checklists in this report.

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 per Walgreens standards. Each outlet was then adjusted to within tolerance. 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. 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.

Issue List

- EF-1 (Employee RR), EF-2 (Men's RR), EF-3 (Women's RR) low on flow
- EF-4 (Office) is not operational
- EF-4 (Office) Speed Controller
- RTU Outside Air Filters
- RTU-2 cd2 Alarm on VFD
- Sales floor RH slightly above 60%.



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Project Issue Information

Issue Name : EF-1 (Employee RR), EF-2 (Men's RR), EF-3 (Women's RR) low on flow
Description : Airflow is below design for all three fans. They are single speed direct drive fans and are running at high speed.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Originated Date : 10/27/2023 - Will Turnbough - National TAB



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Project Issue Information

Issue Name : EF-4 (Office) is not operational
Description : EF-4 is not operating and could not be tested.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Originated Date : 10/03/2023 - Wesley John - National TAB

Project Issue File Details



EF-4
10/03/2023



10-02-23 WALGREENS #3870 - HOUSTON, TX

Project Issue Information

Issue Name : EF-4 (Office) Speed Controller
Description : EF-4 is missing speed controller. Recommend installing.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Originated Date : 10/03/2023 - Wesley John - National TAB

Project Issue File Details



SPEED_CONTROLLER
10/03/2023



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Project Issue Information

Issue Name : RTU Outside Air Filters
Description : All RTU outside air filters are damaged. Recommend repair/replacement.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Originated Date : 10/02/2023 - Wesley John - National TAB



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Project Issue Information

Issue Name : RTU-2 cd2 Alarm on VFD
Description : RTU-2 flow was measured initially. Amperage was over FLA. Opened motor compartment. Drive is now under cd2 alarm and will not drive motor. Unable to complete testing on RTU-2.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Originated Date : 10/03/2023 - Wesley John - National TAB

Project Issue File Details



RTU-2(1)
10/03/2023



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Project Issue Information

Issue Name : Sales floor RH slightly above 60%.
Description : Sales floor RH measured as 61%. Likely due to RTU-2 not running at the end of testing.
Created By : National TAB **Assigned To :** National TAB - Will Turnbough
Status : Open
Originated Date : 10/27/2023 - Will Turnbough - National TAB

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	MAIN SALES	5250	5344	4200	4325	1050	1019	20.0%	19.1%						
RTU-2	SALES/BREAK ROOM	4375	0	3500	0	875	0	20.0%	#DIV/0!						
RTU-3	PHARMACY	1750	1791	1750	1791	0	0	0.0%	0.0%						
RTU-4	STOCK ROOM	1050	1107	840	888	210	219	20.0%	19.8%						
EF-1	BREAK ROOM													300	170
EF-2	MENS RR													240	161
EF-3	WOMENS RR													240	173
EF-4	OFFICE													300	0
EF-5	PHOTO													750	0
TOTALS		12425	8242	10290	7004	2135	1238			0	0	0	0	1830	504

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2135	1238
TOTAL EXHAUST	1830	504
NET AIRFLOW	305	734

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.003
SIDE	-
REAR	0.004
AVERAGE	0.0035

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:

CheckList List

- TECH - 01 RTU INSTALLATION CHECKLIST
- TECH - 02 EXHAUST FANS INSPECTIONS
- TECH - 03 START-UP CONTROLS PROGRAMMING
- TECH - 04 EMS/SENSOR VALIDATION
- TECH - 05 TAB CHECKLIST
- TECH - 06 FUNCTIONAL TESTS
- TECH - 07 TEMPERATURE SETPOINTS
- TECH - SITE PICTURES



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CheckList Information

Name : TECH - 01 RTU INSTALLATION CHECKLIST **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 09/20/2023 - Brianna Biggs - National TAB
Completed Date : 10/10/2023 - Wesley John - National TAB

CheckList Item Details

General / Exterior Inspections

Verify all required equipment has been replaced per TA and BOM. Pass

Comment:

All units are installed in the proper locations Pass

Comment:

Units are labeled correctly Pass

Comment:

RTU-3&4 LABELS SWITCHED BY NTAB.

Asset tag installed Pass

Comment:

Roof is clear of debris. Pass

Comment:

Maintenance access for all unit access panels is acceptable and panels open freely. Pass

Comment:

Cabinet and general installation is complete.

Pass

Comment:

Unit is secure to curb and level horizontally and vertically.

Pass

Comment:

Access doors close tightly with no leaks

Pass

Comment:

Condensate and gas piping is properly supported.

Pass

Comment:

Costguard is installed per scope of work and piping unions are cemented.

Pass

Comment:

Additional Comments

Comment:

Interior Inspections

Fan rotation is correct

Pass

Comment:

Pulleys are correctly aligned and both motor and fan sheave pins are tightened in place.

Pass

Comment:

Return air and outside air dampers close tightly with no gaps

Pass

Comment:

Cabinet and coils are not damaged and in like new condition.

Pass

Comment:

Inside of unit is clean and clear of debris.

Pass

Comment:

Validate condensate is piped to splash block, draing, or roof drain per code requirements

Pass

Comment:

Verify filters are installed, clean and of proper size. Verify there is no air by-pass around filters.

Pass

Comment:

Curb is sealed with no air leakage.

Pass

Comment:

Additional Comments:

Comment:

Fire/Smoke Alarm Systems

In duct smoke detectors are installed

Pass

Comment:

Fire alarm panel status (visual inspection where possible)

Comment:

PASS

Additional Comments:

Comment:

Electrical

Electrical wiring is complete with no visible damage

Pass

Comment:

Electrical connections are tight with sealtight around any unit penetrations.

Pass

Comment:

Disconnect switch is installed in accessible location near or on unit.

Pass

Comment:

Verify overcurrent protection is HACR type, installed and sized correctly and labeled in panel.

Pass

Comment:

Maintenance electrical outlet is installed and functional.

Pass

Comment:

Main distribution panel is labeled correctly.

Pass

Comment:

Unit ground wire is secured.

Pass

Comment:

Additional Comments:

Comment:



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CheckList Information

Name : TECH - 02 EXHAUST FANS INSPECTIONS **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 09/20/2023 - Brianna Biggs - National TAB
Completed Date : 10/10/2023 - Wesley John - National TAB

CheckList Item Details

Fan rotation is correct Pass

Comment:

EF-4&5 NOT RUNNING. FAN ROTATION CANNOT BE VERIFIED. EF-1 THROUGH EF-3 ARE ROTATING CORRECTLY.

Pulleys are aligned and belts are tensioned properly

Comment:

ALL EFs ARE DIRECT DRIVE

Speed controller installed and functional (direct drive)

Comment:

CEILING MOUNTED EFs ARE SINGLE SPEED. ROOFTOP EXHAUST FANS ARE MISSING SPEED CONTROLLERS. (SEE ISSUE DATA)

Fan is secured to the curb Pass

Comment:

Back draft damper is installed and functional Pass

Comment:

No exterior damage to the fan Pass

Comment:

No unusual noise or vibration

Pass

Comment:

EF-4&5 INDETERMINATE.

Controls are functional

Pass

Comment:

CANNOT DETERMINE CONTROLS FOR EF-4&5.

Additional Comments:

Comment:



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CheckList Information

Name : TECH - 03 START-UP CONTROLS PROGRAMMING **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 09/20/2023 - Brianna Biggs - National TAB

Completed Date : 10/10/2023 - Wesley John - National TAB

CheckList Item Details

Programming: SE 3.3, 3.4, 4.0

Controller-Network-Address: RTU number + 3 Pass

Comment:

Controller-Network-FCBusMode = Wired Field Bus Pass

Comment:

Controller-Network-BaudRate = Auto Pass

Comment:

Controller-Network-Device ID = RTU number + 3 Pass

Comment:

Details-Occ-OffDurUnocc = No Pass

Comment:

Details-Clg-Setup-Clg-En = Yes Pass

Comment:

Details-Clg-Setup-ClgAdapTunEn = Yes

Pass

Comment:

Details-Htg-Setup-Htg-En = Yes

Pass

Comment:

Details-Htg-Setup-#HtgStgs = 2 Stages

Pass

Comment:

Details-Htg-Setup-HtgAdapTunEn = Yes

Pass

Comment:

Details-Htg-Setup-#GasVlvs = 1 (Set to 0 for Hp and Elect Heat)

Pass

Comment:

Details-Fan-Setup-Fan Ctl-Type = No VFD select "Single Speed", W/VFD select "Fixed Variable"

Pass

Comment:

Details-Fan-Setup-FanOnOcc = Yes

Pass

Comment:

Details-Fan-Setup-FanOnDlyHeat = 30s (Set to 0 for HP or Electric Heat)

Pass

Comment:

Details-Fan-Setup-FanOnly-%Cmd = 50%

Pass

Comment:

Details-Fan-Setup-1ClgStg-%Cmd = 70%

Pass

Comment:

Details-Fan-Setup-2Clgstg-%Cmd = 100% (2stage Unit) or 80% (3 and 4 stage)

Pass

Comment:

Details-Fan-Setup-3ClStg-%Cmd = 100% (3 stage unit) or 90% (4 stage)

Pass

Comment:

Details-Fan-Setup-4ClStg-%Cmd = 100% (4 Stage unit)

Pass

Comment:

Details-Fan-Setup-1HtgStg-%Cmd = 100%

Pass

Comment:

Details-Fan-Setup-2HtgStg-%Cmd = 100%

Pass

Comment:

Details-Econ-Setup-Econ-En = Yes

Pass

Comment:

Details-Econ-Setup-Econ-MinPos = Set to minimum outside air requirements.

Pass

Comment:

Details-Econ-Setup-LowSpdFan-MinPos = Set minimum 1% above EconMinPos

Pass

Comment:

Details-Econ-Setup-FreeClg-Sel = Single Enthalpy

Pass

Comment:

Details-Econ-Setup-EconOAEnth-Sp 4= 24 Btu/lb

Pass

Comment:

Details-Econ-Setup-Dvent-Mode = Enable

Pass

Comment:

Details-Econ-Setup-DventMaxEconPos = 50%

Pass

Comment:

Details-Econ-Setup-DventIAP-Sp = 1000

Pass

Comment:

Details-Econ-Setup-EconFltDetectEn = Enable

Pass

Comment:

Additional Comments:

Comment:

Non ZR Units only:

Details-HGR-Setup-HGR-En = No

Pass

Comment:

Details-HGR-Setup-HGRAIt-En = No

Pass

Comment:

Details - HGR-Setup-HGRUnocc-En = No

Pass

Comment:

Details-HGR-Setup-Mode = No

Pass

Comment:

Additional Comments:

Comment:

ZR Units - Reheat Units only:

Details-HGR-Setup-HGR-En = Yes

N/A

Comment:

Details-HGR-Setup-HGRAIt-En = Yes

N/A

Comment:

Details - HGR-Setup-HGRUnocc-En = Yes

N/A

Comment:

Details-HGR-Setup-Mode = No

N/A

Comment:

Additional Comments:

Comment:



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CheckList Information

Name : TECH - 04 EMS/SENSOR VALIDATION **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 09/20/2023 - Brianna Biggs - National TAB
Completed Date : 10/10/2023 - Wesley John - National TAB

CheckList Item Details

RTU supply air temp sensor location located per start-up binder. Pass

Comment:

RTU return air temp sensor location located per start-up binder. Pass

Comment:

RTU return air smoke detector (when applicable) is located per start-up binder. Pass

Comment:

Space temperature sensor has been replaced and location meets requirements. Pass

Comment:

Space humidity sensor has been replaced and location meets requirements. Pass

Comment:

Unit is being controlled by a space temperature sensor or thermostat. Pass

Comment:

EMS has been connected and validated with TOC or Gridpoint. Screen shot is available. Pass

Comment:

No splicing of EMS/Sensor/Thermostat wiring is visible

Pass

Comment:

(If Applicable) 2 Stage Thermostat to SE Board Control Wiring meets detail in start-up binder.

Comment:

N/A

(If Applicable) 2 Stage Thermostat to 4 Stage Unit meets detail in start-up binder.

Comment:

N/A

(If Applicable) 4 Stage Thermostat to 4 Stage Unit meets detail in start-up binder.

Comment:

N/A

(If Applicable) 3 Stage Thermostat wiring meets detail in start-up binder.

Comment:

N/A

(If Applicable) 3 Stage Thermostat with Humidity sensor wiring meets detail in start-up binder.

Comment:

N/A

(If Applicable) EH Thermostat with SCR control wiring meets detail in start-up binder.

Comment:

N/A

Temperature setpoints are set for correction region and space (see ASHRAE / temperature setpoint chart in procedure)

Pass

Comment:

Additional Comments:

Comment:



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CheckList Information

Name : TECH - 05 TAB CHECKLIST **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 09/20/2023 - Brianna Biggs - National TAB
Completed Date : 10/17/2023 - Wesley John - National TAB

CheckList Item Details

Outside air damper set to minimum air flow requirement and damper position marked. Pass

Comment:

RTU-2 UNABLE TO BE SET DUE TO ALARM ON DRIVE.

Total Supply, return, and outside air volumes meet design tolerances (+/-10%) Pass

Comment:

Enclosed area diffusers (Pharmacies, manager office, employee room, restrooms, electrical rooms) balanced within +/-10%? Pass

Comment:

Open area diffusers (Sales floor and stock room) balanced within +/-25% of design? Pass

Comment:

Store pressure meets tolerances (see formula in balance schedule). Make sure to account for existing exhaust fans airflows as shown on original drawings that are non-functioning. Pass

Comment:

Outside air and return air dampers modulate freely. Pass

Comment:

Start-up report from the installing contractor is reviewed and all information if filled out. All required measurements are within typical ranges. Pass

Comment:

(If Applicable) VFD is set-up and operational. (N/A = not applicable)

Comment:

RTU-2 VFD HAS ALARM THAT WILL NOT CLEAR. SEE ISSUES LIST.

Verify amp draw of motor is within unit specification, not operating in overramped condition. Pass

Comment:

Sales floor temperature and humidity measurement

Comment:

72.5 F / 61.9%

Pharmacy temperature and humidity measurement

Comment:

71.1 F / 57.6%

Stock Room temperature and humidity measurement

Comment:

73.2 F / 59.2%

Outdoor air temperature and humidity measurement

Comment:

80.1 F / 88.3%

Additional Comments:

Comment:

SALES FLOOR HUMIDITY READING ABOVE 60%. LIKELY DUE TO RTU-2 NOT RUNNING.



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CheckList Information

Name : TECH - 06 FUNCTIONAL TESTS **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 09/20/2023 - Brianna Biggs - National TAB
Completed Date : 10/17/2023 - Wesley John - National TAB

CheckList Item Details

Cooling Functional Test

Overwrite the thermostat or sensor to put the unit into cooling mode. Pass

Comment:

Compressors enable. Pass

Comment:

If fan has VFD, the fan increases speed. Pass

Comment:

RTU-2 DRIVE IS NOT OPERATIONAL.

Document the discharge air temperature.

Comment:

RTU-1 54.7 F / 82.4% RTU-2 N/A RTU-3 54.2 F / 81.8% RTU-4 54.6 F / 82.2%

After 10 minutes, Discharge air temperature is below 55 degrees. Pass

Comment:

Cooling mode is operational Pass

Comment:

Additional Comments:

Comment:

Heating Functional Test

Overwrite the thermostat or sensor to put the unit into heating mode.

N/A

Comment:

Heat exchanger enables.

N/A

Comment:

If fan has VFD, the fan increases speed.

N/A

Comment:

Document the discharge air temperature.

Comment:

After 10 minutes, Discharge air temperature is above 85 degrees.

N/A

Comment:

Heating mode is operational

N/A

Comment:

Additional Comments

Comment:

OUTDOOR TEMPERATURE TOO HIGH TO TEST HEATING.

Dehumidification Functional Test

Overwrite the humidistat to put the unit into dehumidification mode.

Pass

Comment:

Compressors enable.

Pass

Comment:

Hot Gas Reheat Valve opens

N/A

Comment:

If fan has VFD, the fan increases speed.

Pass

Comment:

Document the discharge air temperature.

Comment:

RTU-1 56.9 F / 80.9% RTU-2 N/A RTU-3 57.4 F / 81.1% RTU-4 57.0 F / 79.8%

Dehumidification Mode is operational. (Pass/Fail/NA)

Comment:

PASS

Additional Comments:

Comment:

Economizer Functional Test

Overwrite the humidistat to put the unit into economizer mode.

Pass

Comment:

Economizer modulates from minimum position to 100% open. (Pass/Fail/NA)

Comment:

PASS

Additional Comments:

Comment:



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CheckList Information

Name : TECH - 07 TEMPERATURE SETPOINTS **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 09/20/2023 - Brianna Biggs - National TAB
Completed Date : 10/10/2023 - Wesley John - National TAB

CheckList Item Details

Temperature setpoints must be set using provided charts are based on state and space that each RTU serves. Confirm with controls company that these are set correctly Pass

Comment:



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CheckList Information

Name : TECH - SITE PICTURES **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 10/05/2023 - Brianna Biggs - National TAB
Completed Date : 10/10/2023 - Wesley John - National TAB

CheckList Item Details

STORE FRONT

Comment:



STORE_FRONT
10/10/2023

RTU-1

Comment:



RTU-1
10/10/2023

RTU-2

Comment:



RTU-2(1)
10/10/2023

RTU-3

Comment:



RTU-3(2)
10/10/2023

RTU-4

Comment:



RTU-4
10/10/2023

EF-4&5

Comment:



EF-4and5
10/10/2023

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: AHU/RTU



Asset: RTU1

AREA:MAIN SALES

Unit Data			Test Data		
	Design	Actual		Design	Actual
MFG	YORK	YORK	SF CFM	5250	5344
Serial Num	-	N2G3760765	SF RPM	932	928
Model Num	AW15N3DQ4S1ARS32A2	AW15N3DQ4S1CQS32A2	RA CFM	4200	4325
Type	RTU	RTU	OA CFM	1050	1019
Configuration	VERTICAL DISCHARGE	VERTICAL DISCHARGE	RL Voltage	-	486/488/488
Num OA Filters 1	-	2	RL Amperage	-	5.8/5.6/5.8
OA Filter Size 1	-	18x32x1	SF Rotation	-	CCW
Num Final Filter 1	-	9	RA Damper Position	-	78%
Final Filter Size 1	-	16x25x2	Min OA Damper Position	-	22%

Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	184TZ
Horsepower	5	5.25
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	6.7

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VM50
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	5.0 TURNS OPEN
Fan Sheave Size	-	1B5V74
Fan Sheave Bore	-	1 7/16"
Belt CL Distance	-	12 1/2"
Num of Belts	-	1
Belt Size	-	BX40
Belt Alignment	-	CORRECT

Min OA Damper Type	-	PARALLEL BLADE
OA Enthalpy Setpt	-	24 BTU/LB

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.81"
Fan Suction SP	-	-1.09"
Fan Discharge SP	-	0.53"
Total ESP	1.0"	1.34"
Fan Total SP	-	1.62"

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

Completed By: Wesley John on 10/10/2023

Notes:
DRIVE TOP SPEED REDUCED TO 90% (54 Hz).

Written By: Wesley John on 10/10/2023

National TAB

Project:10-02-23 WALGREENS #3870 - HOUSTON, TX

AHU/RTU



Diffuser Supply (GRD)

RTU1/MAIN SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES		24X6	150	1.0	230	182	178	118.7
SGRD2	SALES		24X6	150	1.0	162	124	167	111.3
SGRD3	SALES		24X6	150	1.0	139	119	163	108.7
SGRD4	SALES		24X6	150	1.0	138	210	180	120.0
SGRD5	SALES		24X6	150	1.0	265	260	173	115.3
SGRD6	SALES		24X6	150	1.0	307	257	164	109.3
SGRD7	CUSTOMER SERVICE		9X9	204	1.0	152	126	211	103.4
SGRD8	PASSAGE 2		12X12	315	1.0	550	461	329	104.4
SGRD9	ELECTRICAL ROOM		12X12	315	1.0	655	527	319	101.3
SGRD10	PHOTO		18X18	615	1.0	1392	1108	642	104.4
SGRD11	OFFICE		15X15	365	1.0	229	191	397	108.8
SGRD12	SALES		18X18	634	1.0	842	682	694	109.5
SGRD13	SALES		18X18	634	1.0	537	447	594	93.7
SGRD14	SALES		18X18	634	1.0	563	453	579	91.3
SGRD15	SALES		18X18	634	1.0	529	439	554	87.4
Total				5250		6690	5586	5344	101.79%

Completed By: Wesley John on 10/10/2023

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: AHU/RTU



Asset: RTU2

AREA:SALES/BREAKROOM

Unit Data			Test Data		
	Design	Actual		Design	Actual
MFG	YORK	YORK	SF CFM	4375	3850
Serial Num	-	N2E3656566	SF RPM	1260	N/A
Model Num	ZT150N18R4B5HAE2A2	ZT150N18R4B5GCE2R2	RA CFM	3500	-
Type	RTU	RTU	OA CFM	875	-
Configuration	VERTICAL DISCHARGE	VERTICAL DISCHARGE	RL Voltage	-	N/A
Num OA Filters 1	-	1	RL Amperage	-	N/A
OA Filter Size 1	-	22x30x1	SF Rotation	-	CCW
Num Final Filter 1	-	4	RA Damper Position	-	N/A
Final Filter Size 1	-	20x24x2	Min OA Damper Position	-	N/A
			Min OA Damper Type	-	PARALLEL BLADE
			OA Enthalpy Setpt	-	N/A

Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	184T
Horsepower	5	5
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	6.5

Performance Data		
	Design	Actual
MA Plenum SP	-	N/A
Fan Suction SP	-	N/A
Fan Discharge SP	-	N/A
Total ESP	0.6"	N/A
Fan Total SP	-	N/A

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP56
Motor Bore Size	-	1 1/8"
Motor Sheave SetPt	-	N/A
Fan Sheave Size	-	BK77
Fan Sheave Bore	-	1"
Belt CL Distance	-	19 1/2"
Num of Belts	-	1
Belt Size	-	BX56
Belt Alignment	-	CORRECT

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

Completed By: Wesley John on 10/10/2023

Notes:
UNIT SHUT OFF AFTER INITIAL READ. DRIVE IS IN ALARM. CANNOT CLEAR.

Written By: Wesley John on 10/17/2023

National TAB

Project:10-02-23 WALGREENS #3870 - HOUSTON, TX

AHU/RTU



Diffuser Supply (GRD)

RTU2/SALES/BREAKROOM

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES		18X8	656	1.0	577			-
SGRD2	SALES		18X8	660	1.0	618			-
SGRD3	SALES		18X8	660	1.0	588			-
SGRD4	PASSAGE 1		12X12	255	1.0	353			-
SGRD5	EMPLOYEE RM		9X9	116	1.0	147			-
SGRD6	VALUABLE RM		6X6	52	1.0	110			-
SGRD7	SALES		18X8	660	1.0	510			-
SGRD8	SALES		18X8	660	1.0	464			-
SGRD9	SALES		18X8	656	1.0	483			-
Total				4375		3850	0	0	0%

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: AHU/RTU



Asset: RTU3

AREA:PHARMACY

Unit Data			Test Data		
	Design	Actual		Design	Actual
MFG	YORK	YORK	SF CFM	1750	1791
Serial Num	-	N2E3656496	SF RPM	1045	1046
Model Num	ZJ061N08D4B5HAA2A4	ZJ061N08D4B5GCA2R4	RA CFM	1750	1791
Type	RTU	RTU	OA CFM	0	0
Configuration	VERTICAL DISCHARGE	VERTICAL DISCHARGE	RL Voltage	-	488/487/487
Num OA Filters 1	-	1	RL Amperage	-	2.4/2.6/2.5
OA Filter Size 1	-	22x30x1	SF Rotation	-	CCW
Num Final Filter 1	-	4	RA Damper Position	-	OPEN
Final Filter Size 1	-	16x24x2	Min OA Damper Position	-	CLOSED

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	2	2
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	3.4

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP40
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	CLOSED
Fan Sheave Size	-	AK74
Fan Sheave Bore	-	1"
Belt CL Distance	-	17"
Num of Belts	-	1
Belt Size	-	AX50
Belt Alignment	-	CORRECT

Min OA Damper Type	-	PARALLEL BLADE
OA Enthalpy Setpt	-	N/A

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.61"
Fan Suction SP	-	-0.87"
Fan Discharge SP	-	0.47"
Total ESP	1.2"	1.08"
Fan Total SP	-	1.34"

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

Completed By: Wesley John on 10/10/2023

Notes:
MOTOR PULLEY FIELD CHANGED FROM 1VP56 TO BRING AIRFLOW TO WITHIN TOLERANCE.

Written By: Wesley John on 10/10/2023

National TAB

Project:10-02-23 WALGREENS #3870 - HOUSTON, TX

AHU/RTU



Diffuser Supply (GRD)

RTU3/PHARMACY

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	PHARMACY WAITING		9X9	180	1.0	193	137	169	93.9
SGRD2	PHARMACY		12X12	255	1.0	315	244	261	102.4
SGRD3	PHARMACY		12X12	255	1.0	305	235	254	99.6
SGRD4	PHARMACY		12X12	255	1.0	339	271	277	108.6
SGRD5	PHARMACY		12X15	255	1.0	359	287	258	101.2
SGRD6	TECH ROOM		15X15	500	1.0	794	668	519	103.8
SGRD7	PRIVATE HEALTH ROOM		12X12	50	1.0	0	0	53	106.0
Total				1750		2305	1842	1791	102.34%

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: AHU/RTU



Asset: RTU4

AREA: STOCK ROOM

Unit Data			Test Data		
	Design	Actual		Design	Actual
MFG	YORK	YORK	SF CFM	1050	1107
Serial Num	-	N2F3699310	SF RPM	940	806
Model Num	ZJ037N06D4B5HAA2A4	ZJ037N06D4B5GCA2R4	RA CFM	840	888
Type	RTU	RTU	OA CFM	210	219
Configuration	VERTICAL DISCHARGE	VERTICAL DISCHARGE	RL Voltage	-	487/488/488
Num OA Filters 1	-	1	RL Amperage	-	1.7/1.6/1.6
OA Filter Size 1	-	22x30x1	SF Rotation	-	CCW
Num Final Filter 1	-	4	RA Damper Position	-	85%
Final Filter Size 1	-	16x24x2	Min OA Damper Position	-	15%
			Min OA Damper Type	-	PARALLEL BLADE
			OA Enthalpy Setpt	-	24 BTU/LB

Motor Data		
	Design	Actual
Motor MFG	-	CENTURY
Frame	-	56HZ
Horsepower	1.5	1.5
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	2.5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.43"
Fan Suction SP	-	-0.68"
Fan Discharge SP	-	0.44"
Total ESP	1.2"	0.87"
Fan Total SP	-	1.12"

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP34
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	4.5 TURNS OPEN
Fan Sheave Size	-	AK69
Fan Sheave Bore	-	1"
Belt CL Distance	-	16 1/2"
Num of Belts	-	1
Belt Size	-	A47
Belt Alignment	-	CORRECT

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

Completed By: Wesley John on 10/10/2023

Notes:
MOTOR PULLEY FIELD CHANGED FROM 1VP44 TO BRING AIRFLOW TO WITHIN TOLERANCE.

Written By: Wesley John on 10/10/2023

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: FAN - Exhaust



Asset: EF1

AREA:EMPLOYEE ROOM

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-127	NA
Serial Num	-	NA
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	CEILING	CEILING

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	190W	NA
Motor Rpm	-	NA
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	2.6
Service Factor	-	NA

Test Data		
	Design	Actual
CFM	300	170
Fan RPM	1580	DIRECT DRIVE
Fan Rotation	-	CCW
Motor RPM	-	DIRECT DRIVE
RL Voltage	-	122
RL Amperage	-	0.94
Suction ESP	-	N/A
Discharge ESP	-	N/A
Total ESP	0.125"	N/A

Completed By: Wesley John on 10/10/2023

Notes:
UNIT OPERATES AT SINGLE SPEED AND MEASURED AT 56% OF DESIGN AIR FLOW.

Written By: Wesley John on 10/17/2023

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: FAN - Exhaust



Asset: EF2

AREA:MENS RR

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-150	NA
Serial Num	-	NA
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	CEILING	CEILING

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	120W	NA
Motor Rpm	-	NA
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	2.6
Service Factor	-	NA

Test Data		
	Design	Actual
CFM	240	161
Fan RPM	-	DIRECT DRIVE
Fan Rotation	-	CCW
Motor RPM	-	DIRECT DRIVE
RL Voltage	-	122
RL Amperage	-	0.90
Suction ESP	-	N/A
Discharge ESP	-	N/A
Total ESP	0.375"	N/A

Completed By: Wesley John on 10/10/2023

Notes:
UNIT OPERATES AT SINGLE SPEED AND MEASURED AT 67% OF DESIGN AIR FLOW.

Written By: Wesley John on 10/17/2023

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: FAN - Exhaust



Asset: EF3

AREA:WOMENS RR

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-150	NA
Serial Num	-	NA
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	CEILING	CEILING

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	120W	NA
Motor Rpm	-	NA
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	2.6
Service Factor	-	NA

Test Data		
	Design	Actual
CFM	240	173
Fan RPM	-	DIRECT DIVE
Fan Rotation	-	CCW
Motor RPM	-	DIRECT DRIVE
RL Voltage	-	122
RL Amperage	-	0.91
Suction ESP	-	N/A
Discharge ESP	-	N/A
Total ESP	0.375"	N/A

Completed By: Wesley John on 10/10/2023

Notes:
UNIT OPERATES AT SINGLE SPEED AND MEASURED AT 72% OF DESIGN AIR FLOW.

Written By: Wesley John on 10/17/2023

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: FAN - Exhaust



Asset: EF4

AREA:OFFICE

Unit Data		
	Design	Actual
MFG	GREENHECK	PENN BARRY
Model Num	G-85-G	DX11Q
Serial Num	-	B23AX05417
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	DOWNBLAST	DOWNBLAST

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	NL
Horsepower	0.20	0.20
Motor Rpm	-	1725
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	3.0
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	300	0
Fan RPM	1300	DIRECT DRIVE
Fan Rotation	-	CCW
Motor RPM	-	DIRECT DRIVE
RL Voltage	-	N/A
RL Amperage	-	N/A
Suction ESP	-	N/A
Discharge ESP	-	N/A
Total ESP	0.125"	N/A

Completed By: Wesley John on 10/10/2023

Notes:
COULD NOT TURN UNIT ON.

Written By: Wesley John on 10/17/2023

National TAB

Project: 10-02-23 WALGREENS #3870 - HOUSTON, TX

System/Unit: FAN - Exhaust



Asset: EF5

AREA:PHOTO

Unit Data		
	Design	Actual
MFG	GREENHECK	PENN BARRY
Model Num	G-100-B	DX11Q
Serial Num	-	B23AX05419
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	DOWNBLAST	DOWNBLAST

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	NL
Horsepower	1/6	0.20
Motor Rpm	-	1725
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	3.0
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	750	0
Fan RPM	1140	DIRECT DRIVE
Fan Rotation	-	CCW
Motor RPM	-	DIRECT DRIVE
RL Voltage	-	N/A
RL Amperage	-	N/A
Suction ESP	-	N/A
Discharge ESP	-	N/A
Total ESP	0.250"	N/A

Completed By: Wesley John on 10/10/2023

