Report By:

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

NATIONAL TAB

Comfort. Under control.

Report: TAB Report
Function: Test, Adjust, & Balance
Date: 11/11/2022

PROJECT

11-07 WALGREENS #4133 - PASADENA, TX

3707 SPENCER HW

PASADENA , TX 77504

Client

Walgreens

200 WILMOT RD

DEERFIELD, IL 60015

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

Table Of Contents

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.

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11-07 WALGREENS #4133 - PASADENA, TX

Project Issue Information

Issue Name : ISSUE 1-COSTGARD

Description : COSTGARD CONDENSATE DRAINS ARE NOT PROPERLY SUPPORTED. ACCORDING TO COSTGARD INSTALLATION DOCUMENT PVC SHOULD BE SUPPORTED AT ARROWS IN PICTURE. TYPICAL OF ALL 4 UNITS.

Created By : National TAB **Assigned To :** National TAB - Wesley John

Status : Open

Originated Date : 11/11/2022 - Wesley John - National TAB

Project Issue File Details

IMG_0084.jpeg

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11-07 WALGREENS #4133 - PASADENA, TX

Project Issue Information

Issue Name : ISSUE 2-WRONG EVAP FILTER SIZE

Description : RTU-2 WRONG EVAPORATOR FILTER SIZE. DESIGN IS (4) 20x24x2. CURRENTLY THERE ARE (4)16x25x2.

Created By : National TAB **Assigned To :** National TAB - Wesley John

Status : Open

Originated Date : 11/11/2022 - Wesley John - National TAB

Project Issue File Details

IMG_0045.jpeg

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11-07 WALGREENS #4133 - PASADENA, TX

Project Issue Information

Issue Name : ISSUE 3-MISSING EF IN PHOTO LAB

Description : EF-5 IN PHOTO LAB IS NOT PRESENT.

Created By : National TAB **Assigned To :** National TAB - Wesley John

Status : Open

Originated Date : 11/11/2022 - Wesley John - National TAB

Project Issue File Details

IMG_0079.jpeg

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11-07 WALGREENS #4133 - PASADENA, TX

Project Issue Information

Issue Name : ISSUE 4-OFFICE EF INOPERABLE

Description : EF-4 IN OFFICE WAS NOT ABLE TO TURN ON AND WAS NOT BALANCED.

Created By : National TAB **Assigned To :** National TAB - Wesley John

Status : Open

Originated Date : 11/11/2022 - Wesley John - National TAB

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	SALES	5688	5773	5000	5124	688	649	12.1%	11.2%						
RTU-2	SALES	3250	3011	2600	2402	650	609	20.0%	20.2%						
RTU-3	PHARMACY	1625	1574	1525	1471	100	103	6.2%	6.5%						
RTU-4	STOCK ROOM	975	1024	875	930	100	94	10.3%	9.2%						
EF-1	LOUNGE													300	281
EF-2	MEN RR													240	23
EF-3	WOMENS RR													240	209
EF-4	OFFICE													300	0
EF-5	PHOTO													750	0
TOTALS		11538	11382	10000	9927	1538	1455			0	0	0	0	1830	513

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1538	1455
TOTAL EXHAUST	1830	513
NET AIRFLOW	-292	942

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.015
SIDE	-
REAR	0.016
AVERAGE	**0.0155**

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:

NO UPDATED DESIGN FOR EXHAUST FANS GIVEN. DESIGN NET AIRFLOW SHOWS NEGATIVE.

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11-07 WALGREENS #4133 - PASADENA, TX

CheckList Information

Name :	TECH - SITE PICTURES	**Status :**	Submitted
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

STORE FRONT

Image_2022_11_10T1804...

RTU-1

Image_2022_11_10T1804...

RTU-2

Image_2022_11_10T1804...

RTU-3

Image_2022_11_10T1805...

RTU-4

Image_2022_11_10T1805...

Notes/Comments :

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11-07 WALGREENS #4133 - PASADENA, TX

CheckList Information

Name :	TECH - 01 RTU INSTALLATION CHECKLIST	**Status :**	Submitted
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

General / Exterior Inspections	
Verify all required equipment has been replaced per TA and BOM.	Pass
All units are installed in the proper locations	Pass
Units are labeled correctly	Pass
Asset tag installed	Pass
Roof is clear of debris.	Pass
Maintenance access for all unit access panels is acceptable and panels open freely.	Pass
Cabinet and general installation is complete.	Pass
Unit is secure to curb and level horizontally and vertically.	Pass
Access doors close tightly with no leaks	Pass
Condensate and gas piping is properly supported.	Pass
Costgaurd is installed per scope of work and piping unions are cemented.	Fail
Additional Comments	COSTGARD CONDENSATE DRAINS ARE NOT ADEQUATELY SUPPORTED. SEE PICS IN REMARKS SECTION.
Interior Inspections	
Fan rotation is correct	Pass

Pulleys are correctly aligned and both motor and fan sheave pins are tightened in place.	Pass
Return air and outside air dampers close tightly with no gaps	Pass
Cabinet and coils are not damaged and in like new condition.	Pass
Inside of unit is clean and clear of debris.	Pass
Validate condesate is piped to splash block, draing, or roof drain per code requirements	Pass
Verify filters are installed, clean and of proper size. Verify there is no air by-pass around filters.	Fail
Curb is sealed with no air leakage.	Pass
Additional Comments:	RTU-2 HAS WRONG EVAP FILTER SIZES. ACTUAL IS (4) 20x24x2. CURRENTLY THERE ARE (4) 16x25x2. SEE PICS IN REMARKS SECTION.
Fire/Smoke Alarm Systems	
In duct smoke detectors are installed	Pass
Fire alarm panel status (visual inspection where possible)	NOT ABLE TO VISUALLY INSPECT.
Additional Comments:	
Electrical	
Electrical wiring is complete with no visible damage	Pass
Electrical connections are tight with sealtight around any unit penetrations.	Pass
Disconnect switch is installed in accessible location near or on unit.	Pass
Verify overcurrent protection is HACR type, installed and sized correctly and labeled in panel.	Pass
Maintenance electrical outlet is installed and functional.	Pass
Main distribution panel is labeled correctly.	Pass
Unit ground wire is secured.	Pass
Additional Comments:	

Notes/Comments :

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11-07 WALGREENS #4133 - PASADENA, TX

CheckList Information

Name :	TECH - 02 EXHAUST FANS INSPECTIONS	**Status :**	Submitted
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

Fan rotation is correct	Pass
Pulleys are aligned and belts are tensioned properly	EXHAUST FANS ARE DIRECT DRIVE.
Speed controller installed and functional (direct drive)	CEILING FANS ARE SINGLE SPEED.
Fan is secured to the curb	Pass
Back draft damper is installed and functional	Pass
No exterior damage to the fan	Pass
No unusual noise or vibration	Pass
Controls are functional	Pass
Additional Comments:	NO EF INSTALLED IN PHOTO LAB. OFFICE EF DOES NOT OPERATE.

Notes/Comments :

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11-07 WALGREENS #4133 - PASADENA, TX

CheckList Information

Name :	TECH - 03 START-UP CONTROLS PROGRAMMING	**Status :**	Submitted
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

Programming: SE 3.3, 3.4, 4.0

Controller-Network-Address: RTU number + 3	Pass
Controller-Network-FCBusMode = Wired Field Bus	Pass
Controller-Network-BaudRate = Auto	Pass
Controller-Network-Device ID = RTU number + 3	Pass
Details-Occ-OffDurUnocc = No	Pass
Details-Clg-Setup-Clg-En = Yes	Pass
Details-Clg-Setup-ClgAdapTunEn = Yes	Pass
Details-Htg-Setup-Htg-En = Yes	Pass
Details-Htg-Setup-#HtgStgs = 2 Stages	Pass
Details-Htg-Setup-HtgAdapTunEn = Yes	Pass
Details-Htg-Setup-#GasVlvs = 1 (Set to 0 for Hp and Elect Heat)	Pass
Details-Fan-Setup-Fan Ctl-Type = No VFD select "Single Speed", W/VFD select "Fixed Variable"	Pass
Details-Fan-Setup-FanOnOcc = Yes	Pass
Details-Fan-Setup-FanOnDlyHeat = 30s (Set to 0 for HP or Electric Heat)	Pass
Details-Fan-Setup-FanOnly-%Cmd = 50%	Pass

Details-Fan-Setup-1ClgStg-%Cmd = 70%	Pass
Details-Fan-Setup-2Clgstg-%Cmd = 100% (2stage Unit) or 80% (3 and 4 stage)	Pass
Details-Fan-Setup-3ClStg-%Cmd = 100% (3 stage unit) or 90% (4 stage)	Pass
Details-Fan-Setup-4ClStg-%Cmd = 100% (4 Stage unit)	Pass
Details-Fan-Setup-1HtgStg-%Cmd = 100%	Pass
Details-Fan-Setup-2HtgStg-%Cmd = 100%	Pass
Details-Econ-Setup-Econ-En = Yes	Pass
Details-Econ-Setup-Econ-MinPos = Set to minimum outside air requirements.	Pass
Details-Econ-Setup-LowSpdFan-MinPos = Set minimum 1% above EconMinPos	Pass
Details-Econ-Setup-FreeClg-Sel = Single Enthalpy	Pass
Details-Econ-Setup-EconOAEnth-Sp 4= 24 Btu/lb	Pass
Details-Econ-Setup-Dvent-Mode = Enable	Pass
Details-Econ-Setup-DventMaxEconPos = 50%	Pass
Details-Econ-Setup-DventIAP-Sp = 1000	Pass
Details-Econ-Setup-EconFltDetectEn = Enable	Pass
Additional Comments:	
Non ZR Units only:	
Details-HGR-Setup-HGR-En = No	Pass
Details-HGR-Setup-HGRAlt-En = No	Pass
Details - HGR-Setup-HGRUnocc-En = No	Pass
Details-HGR-Setup-Mode = No	Pass
Additional Comments:	
ZR Units - Reheat Units only:	
Details-HGR-Setup-HGR-En = Yes	
Details-HGR-Setup-HGRAlt-En = Yes	

Details - HGR-Setup-HGRUnocc-En = Yes	
Details-HGR-Setup-Mode = No	
Additional Comments:	NO ZR UNITS AT THIS LOCATION.

Notes/Comments :

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11-07 WALGREENS #4133 - PASADENA, TX

CheckList Information

Name : TECH - 04 EMS/SENSOR VALIDATION **Status :** Submitted

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

RTU supply air temp sensor location located per start-up binder.	Pass
RTU return air temp sensor location located per start-up binder.	Pass
RTU return air smoke detector (when applicable) is located per start-up binder.	Pass
Space temperature sensor has been replaced and location meets requirements.	Pass
Space humidity sensor has been replaced and location meets requirements.	Pass
Unit is being controlled by a space temperature sensor or thermostat	Pass
EMS has been connected and validated with TOC or Gridpoint. Screen shot is available.	Pass
No splicing of EMS/Sensor/Thermostat wiring is visible	Pass
(If Applicable) 2 Stage Thermostat to SE Board Control Wiring meets detail in start-up binder.	N/A
(If Applicable) 2 Stage Thermostat to 4 Stage Unit meets detail in start-up binder.	N/A
(If Applicable) 4 Stage Thermostat to 4 Stage Unit meets detail in start-up binder.	N/A
(If Applicable) 3 Stage Thermostat wiring meets detail in start-up binder.	N/A
(If Applicable) 3 Stage Thermostat with Humidity sensor wiring meets detail in start-up binder.	N/A

(If Applicable) EH Thermostat with SCR control wiring meets detail in start-up binder.	N/A
Temperature setpoints are set for correction region and space (see ASHRAE / temperature setpoint chart in procedure)	Pass
Additional Comments:	

Notes/Comments :

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11-07 WALGREENS #4133 - PASADENA, TX

CheckList Information

Name :	TECH - 05 TAB CHECKLIST	**Status :**	Submitted
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

Outside air damper set to minimum air flow requirement and damper position marked.	Pass
Total Supply, return, and outside air volumes meet design tolerances (+/-10%)	Pass
Enclosed area diffusers (Pharmacies, manager office, employee room, restrooms, electrical rooms) balanced within +/-10%?	Pass
Open area diffusers (Sales floor and stock room) balanced within +/-25% of design?	Pass
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
Outside air and return air dampers modulate freely.	Pass
Start-up report from the installing contractor is reviewed and all information if filled out. All required measurements are within typical ranges.	Fail
(If Applicable) VFD is set-up and operational. (N/A = not applicable)	YES ON UNITS 1&2. UNITS 3&4 ARE N/A
Verify amp draw of motor is within unit specification, not operating in overamped condition.	Pass
Sales floor temperature and humidity measurement	73.4/63.1 (db/wb)
Pharmacy temperature and humidity measurement	71.9/61.2 (db/wb)
Stock Room temperature and humidity measurement	77.0/68.4 (db/wb) STOCK ROOM DOOR WAS OPEN DURING MEASUREMENT.

Outdoor air temperature and humidity measurement	85.2/71.0 (db/wb)
Additional Comments:	NO START UP REPORT IS AVAILABLE.

Notes/Comments :

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11-07 WALGREENS #4133 - PASADENA, TX

CheckList Information

Name : TECH - 06 FUNCTIONAL TESTS **Status :** Submitted

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

Cooling Functional Test	
Overwrite the thermostat or sensor to put the unit into cooling mode.	Pass
Compressors enable.	Pass
If fan has VFD, the fan increases speed.	Pass
Document the discharge air temperature.	RTU-1 54.8 F RTU-2 54.3 F RTU-3 54.5 F RTU-4 54.3 F
After 10 minutes, Discharge air temperature is below 55 degrees.	Pass
Cooling mode is operational	Pass
Additional Comments:	
Heating Functional Test	
Overwrite the thermostat or sensor to put the unit into heating mode.	Pass
Heat exchanger enables.	Pass
If fan has VFD, the fan increases speed.	Pass
Document the discharge air temperature.	RTU-1 90.1 F RTU-2 89.2 F RTU-3 87.8 F RTU-4 88.2 F
After 10 minutes, Discharge air temperature is above 85 degrees.	Pass
Heating mode is operational	Pass
Additional Comments	

Dehumidification Functional Test	
Overwrite the humidistat to put the unit into dehumidification mode.	Pass
Compressors enable.	Pass
Hot Gas Reheat Valve opens	Pass
If fan has VFD, the fan increases speed.	Pass
Document the discharge air temperature.	RTU-1 69.4 F RTU-2 71.3 F RTU-3 70.8 F RTU-4 70.2 F
Dehumidification Mode is operational. (Pass/Fail/NA)	PASS
Additional Comments:	
Economizer Functional Test	
Overwrite the humidistat to put the unit into economizer mode.	Pass
Economizer modulates from minimum position to 100% open. (Pass/Fail/NA)	PASS
Additional Comments:	

Notes/Comments :

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11-07 WALGREENS #4133 - PASADENA, TX

CheckList Information

Name : TECH - 07 TEMPERATURE SETPOINTS **Status :** Submitted

Assigned Organization : National TAB **Asset :**

Requesting Organization : 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

Notes/Comments :

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: AHU/RTU

Asset: RTU1 AREA:SALES

Unit Data		
	Design	**Actual**
MFG	YORK	YORK
Serial Num	-	N2E2504397
Model Num	ZT210N30R4B5GCB2C1	ZT210N30R4B5GCB2C1
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL DISCHARGE
Num OA Filters 1	-	6
OA Filter Size 1	-	16x28x1
Num Final Filter 1	-	8
Final Filter Size 1	-	16x20x2

Test Data		
	Design	**Actual**
SF CFM	6125	5773
SF RPM	-	1041
RA CFM	5437	5124
OA CFM	688	649
RL Voltage	-	495/498/495
RL Amperage	-	8.2/8.6/8.5
SF Rotation	-	CCW
RA Damper Position	-	82%
Min OA Damper Position	-	18%
Min OA Damper Type	-	PARALLEL BLADE
OA Enthalpy Setpt	-	24 BTU/LB

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	215T
Horsepower	11.50	10
Motor Rpm	3	1770
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	12.5

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.73"
Fan Suction SP	-	-1.06"
Fan Discharge SP	-	0.58"
Total ESP	2.0"	1.31"
Fan Total SP	-	1.64"

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VP60
Motor Bore Size	-	1 3/8"
Motor Sheave SetPt	-	3.0 TURNS OPEN
Fan Sheave Size	-	BK90
Fan Sheave Bore	-	1 3/16"
Belt CL Distance	-	28"
Num of Belts	-	1
Belt Size	-	BX75
Belt Alignment	-	CORRECT

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

Completed By: Wesley John

Notes:

Diffuser Supply (GRD)

RTU1/SALES

Asset							
Asset Name	Location	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES	156	1.0	214	231	184	117.9
SGRD2	SALES	156	1.0	177	194	172	110.3
SGRD3	SALES	156	1.0	150	160	169	108.3
SGRD4	SALES	156	1.0	169	184	189	121.2
SGRD5	SALES	156	1.0	186	202	180	115.4
SGRD6	SALES	156	1.0	162	177	186	119.2
SGRD7	SALES	156	1.0	192	203	167	107.1
SGRD8	SALES	752	1.0	696	772	807	107.3
SGRD9	SALES	752	1.0	736	791	838	111.4
SGRD10	SALES	752	1.0	762	829	855	113.7
SGRD11	SALES	752	1.0	539	588	602	80.1
SGRD12	SALES	192	1.0	180	195	179	93.2
SGRD13	SALES	632	1.0	462	524	554	87.7
SGRD14	OFFICE	365	1.0	410	444	348	95.3
SGRD15	HALLWAY	186	1.0	123	135	149	80.1
SGRD16	EMPLOYEE	213	1.0	195	215	194	91.1

Completed By: Brianna Biggs on

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: AHU/RTU

Asset: RTU2 AREA:SALES

Unit Data		
	Design	**Actual**
MFG	YORK	YORK
Serial Num	-	N2F2614642
Model Num	ZT120N18R4B5GCL2R1	ZT120N18R4B5GCL2R1
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL DISCHARGE
Num OA Filters 1	-	1
OA Filter Size 1	-	22x30x1
Num Final Filter 1	-	4
Final Filter Size 1	-	20x24x2

Test Data		
	Design	**Actual**
SF CFM	3500	3011
SF RPM	1018	1017
RA CFM	2850	2402
OA CFM	650	609
RL Voltage	-	495/491/492
RL Amperage	-	4.1/4.0/4.0
SF Rotation	-	CCW
RA Damper Position	-	79%
Min OA Damper Position	-	21%
Min OA Damper Type	-	PARALLEL BLADE
OA Enthalpy Setpt	-	24 BTU/LB

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	56HZ
Horsepower	3.45	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	4.1

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.58"
Fan Suction SP	-	-0.81"
Fan Discharge SP	-	0.47"
Total ESP	0.6"	1.05"
Fan Total SP	-	1.28"

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VM50
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	2.0 TURNS OPEN
Fan Sheave Size	-	AK74
Fan Sheave Bore	-	1"
Belt CL Distance	-	19"
Num of Belts	-	1
Belt Size	-	A54
Belt Alignment	-	CORRECT

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

Completed By: Wesley John

Notes:

Diffuser Supply (GRD)

RTU2/SALES

Asset							
Asset Name	**Location**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	SALES	750	1.0	528	549	649	86.5
SGRD2	SALES	750	1.0	649	680	672	89.6
SGRD3	SALES	750	1.0	710	744	707	94.3
SGRD4	SALES	750	1.0	657	685	742	98.9
SGRD5	RR HALLWAY	250	1.0	360	378	241	96.4

Completed By: Brianna Biggs on

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: AHU/RTU

Asset: RTU3 AREA:PHARMACY

Unit Data		
	Design	**Actual**
MFG	YORK	YORK
Serial Num	-	N2K2935592
Model Num	ZJ061N08D4B5GCB2R3	ZJ061N08D4B5GCB2R3
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL DISCHARGE
Num OA Filters 1	-	1
OA Filter Size 1	-	22x30x1
Num Final Filter 1	-	4
Final Filter Size 1	-	16x24x2

Test Data		
	Design	**Actual**
SF CFM	1750	1574
SF RPM	1051	859
RA CFM	1750	1471
OA CFM	0	103
RL Voltage	-	493/495/496
RL Amperage	-	3.4/3.4/3.2
SF Rotation	-	CCW
RA Damper Position	-	84%
Min OA Damper Position	-	16%
Min OA Damper Type	-	PARALLEL BLADE
OA Enthalpy Setpt	-	24 BTU/LB

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	2.30	2
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	3.4

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.57"
Fan Suction SP	-	-0.80"
Fan Discharge SP	-	0.44"
Total ESP	1.3"	1.01"
Fan Total SP	-	1.24"

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VP40
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	1.0 TURN OPEN
Fan Sheave Size	-	AK74
Fan Sheave Bore	-	1"
Belt CL Distance	-	17 3/4"
Num of Belts	-	1
Belt Size	-	A51
Belt Alignment	-	CORRECT

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

Completed By: Wesley John

Notes:

Diffuser Supply (GRD)

RTU3/PHARMACY

Asset							
Asset Name	**Location**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	SEATING	155	1.0	130	145	148	95.5
SGRD2	PHARMACY	245	1.0	197	211	221	90.2
SGRD3	PHARMACY	245	1.0	171	191	227	92.7
SGRD4	PHARMACY	245	1.0	118	132	231	94.3
SGRD5	PHARMACY	245	1.0	234	260	229	93.5
SGRD6	VALUABLES	355	1.0	420	468	373	105.1
SGRD7	ELECTRICAL	35	1.0	69	73	37	105.7
SGRD8	CONSULTATION	100	1.0	127	134	108	108.0

Completed By: Brianna Biggs on

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: AHU/RTU

Asset: RTU4 AREA:STOCK ROOM

Unit Data		
	Design	**Actual**
MFG	YORK	YORK
Serial Num	-	N2F2554982
Model Num	ZJ037N08D4B5BCB2R3	ZJ037N08D4B5BCB2R3
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL DISCHARGE
Num OA Filters 1	-	1
OA Filter Size 1	-	22x30x1
Num Final Filter 1	-	4
Final Filter Size 1	-	16x24x2

Test Data		
	Design	**Actual**
SF CFM	1050	1024
SF RPM	960	881
RA CFM	950	930
OA CFM	100	94
RL Voltage	-	491/492/491
RL Amperage	-	2.0/2.2/2.2
SF Rotation	-	CCW
RA Damper Position	-	85%
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	-	56H
Horsepower	1.50	1.5
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	2.5

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.37"
Fan Suction SP	-	-0.59"
Fan Discharge SP	-	0.43"
Total ESP	1.2"	0.80"
Fan Total SP	-	1.02"

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VL44
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	3.5 TURNS OPEN
Fan Sheave Size	-	AK69
Fan Sheave Bore	-	1"
Belt CL Distance	-	16 1/4"
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

Notes:

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: FAN - Exhaust

Asset: EF1 AREA:LOUNGE

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SP-250	SP-A410-QD
Serial Num	-	20888468
Type	CEILING	CENTRIFUGAL
Configuration	VERTICAL	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	MCMILLAN
Frame	-	NL
Horsepower	120W	1/19
Motor Rpm	-	1100
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	1.7
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	300	281
Fan RPM	1000	1100
Fan Rotation	-	CW
Motor RPM	-	1100
System SetPt	-	SINGLE SPEED
RL Voltage	-	121
RL Amperage	-	1.2
Total ESP	0.375"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	NA

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Notes:

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: FAN - Exhaust

Asset: EF2 AREA:MENS RR

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SP-226	SP-A410-QD
Serial Num	-	20920311
Type	CEILING	CENTRIFUGAL
Configuration	VERTICAL	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	MCMILLAN
Frame	-	NL
Horsepower	120W	1/19
Motor Rpm	-	1100
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	1.7
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	240	23
Fan RPM	1000	1100
Fan Rotation	-	CW
Motor RPM	-	1100
System SetPt	-	SINGLE SPEED
RL Voltage	-	121
RL Amperage	-	1.5
Total ESP	0.375"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	NA

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Notes:

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: FAN - Exhaust

Asset: EF3 AREA:WOMENS RR

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SP-226	SP-A410-QD
Serial Num	-	20888474
Type	CEILING	CENTRIFUGAL
Configuration	VERTICAL	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	MCMILLAN
Frame	-	NL
Horsepower	120W	1/19
Motor Rpm	-	1100
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	1.7
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	240	209
Fan RPM	1000	1100
Fan Rotation	-	CW
Motor RPM	-	1100
System SetPt	-	SINGLE SPEED
RL Voltage	-	121
RL Amperage	-	1.4
Total ESP	0.375"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	NA

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Notes:

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: FAN - Exhaust

Asset: EF4 AREA:OFFICE

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SP-250	SP-A410-QD
Serial Num	-	20886735
Type	CEILING	CENTRIFUGAL
Configuration	VERTICAL	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	MCMILLAN
Frame	-	NL
Horsepower	120W	1/19
Motor Rpm	-	1100
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	1.7
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	300	0
Fan RPM	1000	NA
Fan Rotation	-	NA
Motor RPM	-	NA
System SetPt	-	NA
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.375"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	NA

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Notes:

National TAB

Project: 11-07 WALGREENS #4133 - PASADENA, TX

System/Unit: FAN - Exhaust

Asset: EF5 AREA:PHOTO

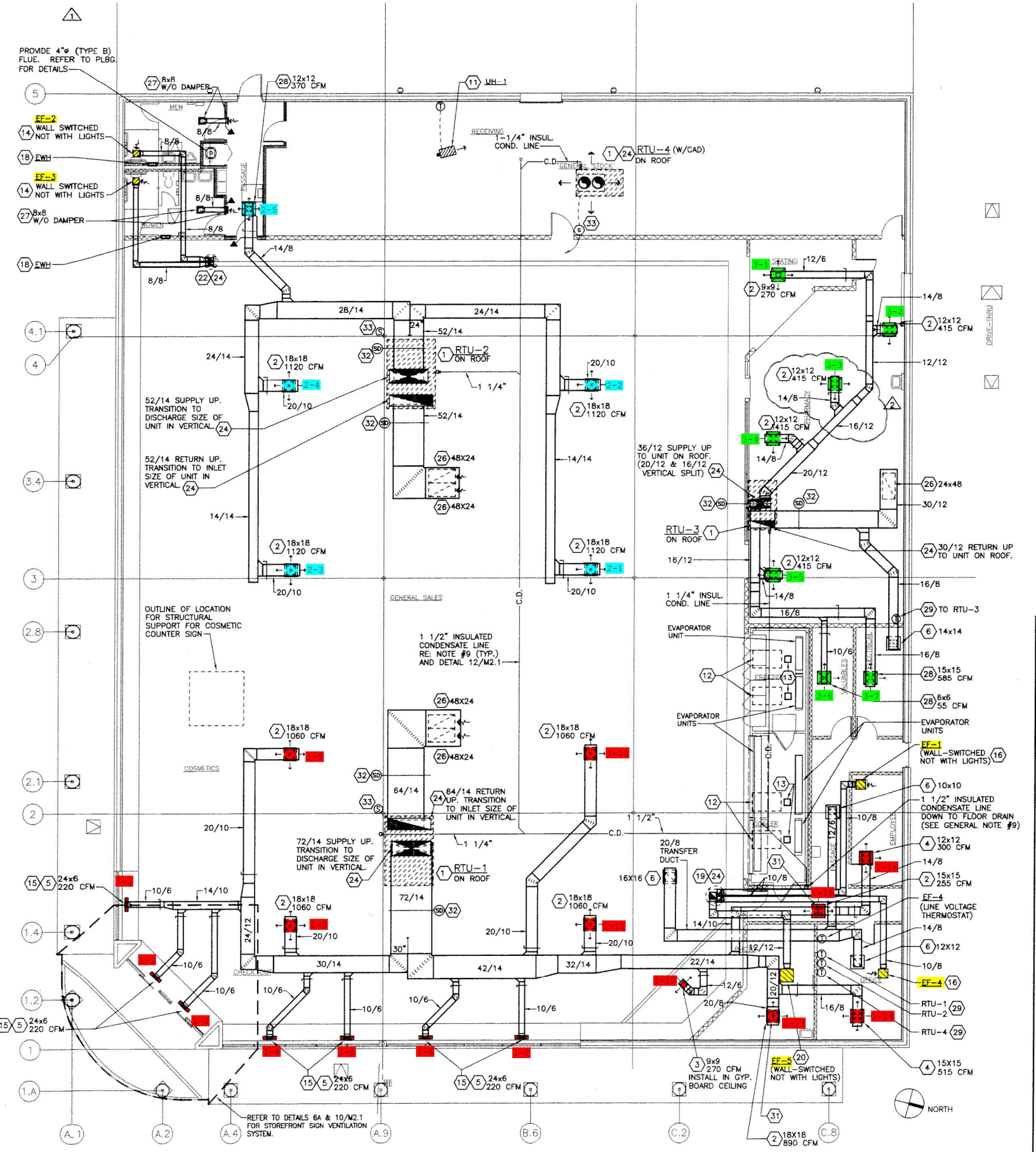
Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SP-260	NA
Serial Num	-	NA
Type	CEILING	NA
Configuration	VERTICAL	NA

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	285W	NA
Motor Rpm	-	NA
Phase	1	NA
Voltage (rated)	120	NA
Amperage (rated)	-	NA
Service Factor	-	NA

Test Data		
	Design	**Actual**
CFM	750	-
Fan RPM	1000	NA
Fan Rotation	-	NA
Motor RPM	-	NA
System SetPt	-	NA
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.375"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	NA

Completed By: Wesley John

Notes:



MECHANICAL PLAN