

Report By:

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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

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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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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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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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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

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. H2O) |
|----------------|--|
| 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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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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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 condensate 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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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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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-EconOAEth-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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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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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 :



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

System/Unit: AHU/RTU

Asset: RTU1

AREA:SALES

| Unit Data | | | Test Data | | |
|---------------------|--------------------|--------------------|------------------------|--------|-------------|
| | Design | Actual | | Design | Actual |
| MFG | YORK | YORK | SF CFM | 5688 | 5773 |
| Serial Num | - | N2E2504397 | SF RPM | - | 1041 |
| Model Num | ZT210N30R4B5GCB2C1 | ZT210N30R4B5GCB2C1 | RA CFM | 5000 | 5124 |
| Type | RTU | RTU | OA CFM | 688 | 649 |
| Configuration | VERTICAL | VERTICAL DISCHARGE | RL Voltage | - | 495/498/495 |
| Num OA Filters 1 | - | 6 | RL Amperage | - | 8.2/8.6/8.5 |
| OA Filter Size 1 | - | 16x28x1 | SF Rotation | - | CCW |
| Num Final Filter 1 | - | 8 | RA Damper Position | - | 82% |
| Final Filter Size 1 | - | 16x20x2 | Min OA Damper Position | - | 18% |

| 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 |

| 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 |

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

| 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" |

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

Completed By: Wesley John

Notes:



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

AHU/RTU

Diffuser Supply (GRD)

RTU1/SALES

| Asset | | | | | | | | | |
|------------|----------|------|------|------------|-----|--------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | 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



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

System/Unit: AHU/RTU

Asset: RTU2

AREA:SALES

| Unit Data | | | Test Data | | |
|---------------------|--------------------|--------------------|------------------------|--------|-------------|
| | Design | Actual | | Design | Actual |
| MFG | YORK | YORK | SF CFM | 3250 | 3011 |
| Serial Num | - | N2F2614642 | SF RPM | 1018 | 1017 |
| Model Num | ZT120N18R4B5GCL2R1 | ZT120N18R4B5GCL2R1 | RA CFM | 2600 | 2402 |
| Type | RTU | RTU | OA CFM | 650 | 609 |
| Configuration | VERTICAL | VERTICAL DISCHARGE | RL Voltage | - | 495/491/492 |
| Num OA Filters 1 | - | 1 | RL Amperage | - | 4.1/4.0/4.0 |
| OA Filter Size 1 | - | 22x30x1 | SF Rotation | - | CCW |
| Num Final Filter 1 | - | 4 | RA Damper Position | - | 79% |
| Final Filter Size 1 | - | 20x24x2 | Min OA Damper Position | - | 21% |

| 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 |

| 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 |

| 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" |

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

Completed By: Wesley John

Notes:



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

AHU/RTU

Diffuser Supply (GRD)

RTU2/SALES

| Asset | | | | | | | | | |
|------------|------------|------|------|------------|-----|--------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | 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



Comfort. Under control.

National TAB

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

System/Unit: AHU/RTU

Asset: RTU3

AREA:PHARMACY

| Unit Data | | | Test Data | | |
|---------------------|--------------------|--------------------|------------------------|--------|----------------|
| | Design | Actual | | Design | Actual |
| MFG | YORK | YORK | SF CFM | 1625 | 1574 |
| Serial Num | - | N2K2935592 | SF RPM | 1051 | 859 |
| Model Num | ZJ061N08D4B5GCB2R3 | ZJ061N08D4B5GCB2R3 | RA CFM | 1525 | 1471 |
| Type | RTU | RTU | OA CFM | 100 | 103 |
| Configuration | VERTICAL | VERTICAL DISCHARGE | RL Voltage | - | 493/495/496 |
| Num OA Filters 1 | - | 1 | RL Amperage | - | 3.4/3.4/3.2 |
| OA Filter Size 1 | - | 22x30x1 | SF Rotation | - | CCW |
| Num Final Filter 1 | - | 4 | RA Damper Position | - | 84% |
| Final Filter Size 1 | - | 16x24x2 | 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 |

| 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 |

| 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" |

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

Completed By: Wesley John

Notes:



Comfort. Under control.

National TAB

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



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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 | 975 | 1024 |
| SF RPM | 960 | 881 |
| RA CFM | 875 | 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:



Comfort. Under control.

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 |

Completed By: Wesley John

Notes:



Comfort. Under control.

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 |

Completed By: Wesley John

Notes:



Comfort. Under control.

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 |

Completed By: Wesley John

Notes:



Comfort. Under control.

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 |

Completed By: Wesley John

Notes:



Comfort. Under control.

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: