Report By:

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

Report: TAB REPORT

Function: Test, Adjust, & Balance

Date: 07/24/2023

PROJECT

06-24-24 WALGREENS #1769 - DENVER, CO

2000 E COLFAX AVE

DENVER , CO 80206

Client

Walgreens

200 WILMOT RD

DEERFIELD, IL 60015

National TAB

Project: 06-24-24 WALGREENS #1769 - DENVER, CO

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.

Issue List

- EF1 Not Functional
- EF2 No Backdraft Damper
- EF3 Dirty and Low Flow
- RTU Final Filters
- SGRD2-17 Low Flow

06-24-24 WALGREENS #1769 - DENVER, CO

Project Issue Information

Issue Name : EF1 Not Functional

Description : EF1 in the manager's office is not functional. The thermostat on the wall appears to be working as it sends 120V to the fan when needed, however the fan motor does not respond. Appears motor replacement is necessary, cleaning also recommended.

Created By : National TAB

Assigned To : National TAB - Stephen Tassinaro

Status : Open

Priority : Urgent

Asset Tag :

Originated Date : 07/20/2023 - Stephen Tassinaro - National TAB

Project Issue File Details

EF1
07/25/2023

Project Issue Response Details

- **06/19/2024 National TAB - Stephen Tassinaro**
  - Fan is still not operational. NTi tech confirmed the thermostat switch is still working as intended. Fan is receiving 120v but does not function. NTi left fan unplugged.
    1. Open EF1_Issues.mp4
       06/19/2024

06-24-24 WALGREENS #1769 - DENVER, CO

Project Issue Information

Issue Name : EF2 No Backdraft Damper

Description : No backdraft damper was found in the EF2 ductwork. Recommend installing to prevent drafting into the restrooms when the fan is not running.

Created By : National TAB

Assigned To : National TAB - Stephen Tassinaro

Status : Open

Priority : Medium

Asset Tag :

Originated Date : 07/25/2023 - Stephen Tassinaro - National TAB

Project Issue File Details

EF2_DROP
07/25/2023

Project Issue Response Details

- **06/17/2024 National TAB - Stephen Tassinaro**
  - No damper installed.

IMG_3249
06/17/2024

06-24-24 WALGREENS #1769 - DENVER, CO

Project Issue Information

Issue Name : EF3 Dirty and Low Flow

Description : EF3 in the employee room is exhausting 30CFM out of 100CFM design. Fan found to be functional but clogged with dirt and debris. Thorough cleaning recommended.

Created By : National TAB

Assigned To : National TAB - Stephen Tassinaro

Status : Open

Priority : Urgent

Asset Tag :

Originated Date : 07/24/2023 - Stephen Tassinaro - National TAB

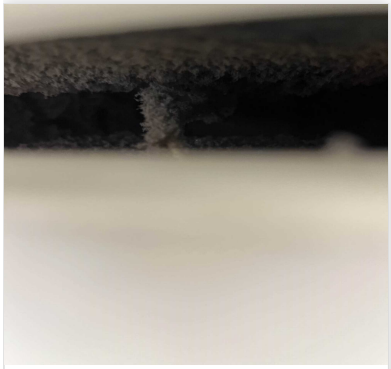
Project Issue File Details

EF3
07/25/2023

EF3_DEBRIS
07/25/2023

Project Issue Response Details

- **06/19/2024 National TAB - Stephen Tassinaro**
  - Airflow is now reduced to 0CFM, fan is still operating but flow hood is unable to detect any airflow. Fan is very dirty. It is possible a larger fan need be installed to overcome to rise to the rooftop from the basement, as well as thoroughly cleaning the duct.



EF3_Dirty
06/19/2024

EF3_Dirty_2_
06/19/2024

Project Issue Information

Issue Name : RTU Final Filters

Description : Recommended to install the appropriate sized MERV 8 or better throwaway filters in the RTUs for improved filtration.

Created By : National TAB

Assigned To : National TAB - Stephen Tassinaro

Status : Open

Priority : Medium

Asset Tag :

Originated Date : 07/20/2023 - Stephen Tassinaro - National TAB

Project Issue File Details

CurrentFilters
07/20/2023

Project Issue Response Details

- **06/17/2024 National TAB - Stephen Tassinaro**
  - MERV 8 filters now installed in all units, but they are dirty and due for replacement.

Dirty_Filters
06/19/2024

06-24-24 WALGREENS #1769 - DENVER, CO

Project Issue Information

Issue Name : SGRD2-17 Low Flow

Description : SGRD2-17 airflow below design (15CFM out of 100CFM Design). NTAB inspected duct from within employee room and where possible on the first floor and did not see any restrictions. Recommend ensuring take-off is secure and damper is open to increase airflow to downstairs employee room.

Created By : National TAB

Assigned To : National TAB - Stephen Tassinaro

Status : Open

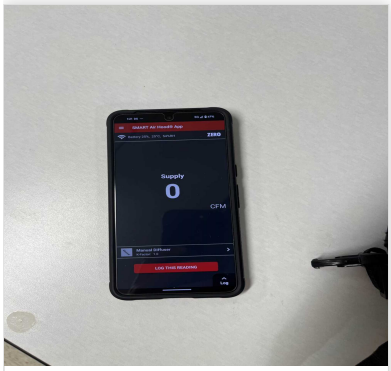
Priority : Urgent

Asset Tag :

Originated Date : 07/24/2023 - Stephen Tassinaro - National TAB

Project Issue Response Details

- **06/19/2024 National TAB - Stephen Tassinaro**
  - NTi measured no improvement at the supply grille in the employee room.



EmployeeRM_Supply 06/19/2024

EmployeeRM_Supply_2_ 06/19/2024

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	5222	4525	4521	725	701	13.8%	13.4%						
RTU-2	MAIN SALES	5250	5268	4525	4569	725	699	13.8%	13.3%						
RTU-3	PHARMACY	1080	1070	1080	1070	0	0	0.0%	0.0%						
EF-1	OFFICE													300	0
EF-2	RESTROOMS													300	313
EF-3	EMPLOYEE RM													100	30
TOTALS		11580	11560	10130	10160	1450	1400			0	0	0	0	700	343

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1450	1400
TOTAL EXHAUST	700	343
NET AIRFLOW	750	1057

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.011
SIDE	-
REAR	0.01
AVERAGE	**0.0105**

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 - 08 ENTRANCE HEATERS

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - 01 RTU INSTALLATION CHECKLIST	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/06/2023 - Brianna Biggs - 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:	
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:

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

Comment:

UNIONS ARE NOT CEMENTED

Additional Comments

Comment:

Costguard is not cemented

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 condesate 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.	Fail

Comment:

RECOMMEND MERV 8 (OR BETTER) THROWAWAY FILTERS TO BE INSTALLED.

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:

NOT LOCATED

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:	

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - 02 EXHAUST FANS INSPECTIONS	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/06/2023 - Brianna Biggs - National TAB		

CheckList Item Details

Fan rotation is correct	Pass
Comment:	
Pulleys are aligned and belts are tensioned properly	
Comment: N/A - DIRECT DRIVE	
Speed controller installed and functional (direct drive)	
Comment: YES	
Fan is secured to the curb	Pass
Comment:	
Back draft damper is installed and functional	Fail
Comment:	
No exterior damage to the fan	Pass
Comment:	
No unusual noise or vibration	Pass

Comment:

Controls are functional	Pass

Comment:

Additional Comments:

Comment:

Existing fans have issues. EF1 motor is not functional. EF3 is extremely dirty resulting in no airflow.

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - 03 START-UP CONTROLS PROGRAMMING	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/06/2023 - Brianna Biggs - 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-HGRAlt-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	Pass
Comment:	
Details-HGR-Setup-HGRAlt-En = Yes	Pass
Comment:	
Details - HGR-Setup-HGRUnocc-En = Yes	Pass

Comment:

Details-HGR-Setup-Mode = No	Pass

Comment:

Additional Comments:

Comment:

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - 04 EMS/SENSOR VALIDATION	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/06/2023 - Brianna Biggs - 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:

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

Comment:

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

Comment:

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

Comment:

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

Comment:

YES

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

Comment:

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

Comment:

Additional Comments:

Comment:

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - 05 TAB CHECKLIST	**Status :**	Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/06/2023 - Brianna Biggs - National TAB		
Completed Date :			

CheckList Item Details

Outside air damper set to minimum air flow requirement and damper position marked.	Pass
Comment:	
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 1/2 - Pass RTU 3 - N/A

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

Comment:

Sales floor temperature and humidity measurement

Comment:

74.5F / 29.8%RH 01/17/2024: 65.2F / 23.8% RH

Pharmacy temperature and humidity measurement

Comment:

72.4F / 30.0%RH 01/17/2024: 68.1F / 20.9% RH

Stock Room temperature and humidity measurement

Comment:

77.1F / 32.1%RH 01/17/2024: 66.7F / 21.3% RH

Outdoor air temperature and humidity measurement

Comment:

88.0F / 21%RH 01/17/2024: 53.2F / 26.1% RH

Additional Comments:

Comment:

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - 06 FUNCTIONAL TESTS	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/06/2023 - Brianna Biggs - 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:	
Document the discharge air temperature.	
Comment: RTU 1 - 55F RTU 2 - 55F RTU 3 - 53F	
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.	Pass

Comment:

Heat exchanger enables.	Pass

Comment:

If fan has VFD, the fan increases speed.	Pass

Comment:

Document the discharge air temperature.

Comment:

RTU 1 - 95F RTU 2 - 91F RTU 3 - 86F // Heating turned off once discharge climbed above 85F to avoid making store extremely uncomfortable. 97F outside on day of TAB.

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

Comment:

Heating mode is operational	Pass

Comment:

Additional Comments

Comment:

RTU Heat turned off once 85F was achieved.

Dehumidification Functional Test

Overwrite the humidistat to put the unit into dehumidification mode.	N/A

Comment:

Compressors enable.	N/A

Comment:

Hot Gas Reheat Valve opens	N/A

Comment:

If fan has VFD, the fan increases speed.	N/A

Comment:

Document the discharge air temperature.

Comment:

N/A - 30% HUMIDITY OUTSIDE AND IN SPACE. UNABLE TO GET RTU TO RUN IN DEHUM MODE

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

Comment:

UNABLE TO CONFIRM

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:

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - 07 TEMPERATURE SETPOINTS	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/06/2023 - Brianna Biggs - 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:

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - 08 ENTRANCE HEATERS	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/06/2023 - Brianna Biggs - National TAB		

CheckList Item Details

Sensor is located within 15' of entrance area	Pass
Comment:	
Confirm proper operation of entrance heater and associated controls	Pass
Comment:	
Balance supply air quantity to manufacturer recommended supply airflow.	Pass
Comment:	
Confirm listed temperature rise and discharge air temperature based on approved BOM/submittal	Pass
Comment:	

National TAB

Project: 06-24-24 WALGREENS #1769 - DENVER, CO

System/Unit: AHU/RTU

Asset: RTU1 AREA:MAIN SALES

Unit Data		
	Design	**Actual**
MFG	YORK	YORK
Serial Num	-	N2G2749178
Model Num	ZT180N30R2B5GCE2C1	ZT180N30R2B5GCA2C1
Type	RTU	RTU
Configuration	HORIZONTAL	VERTICAL
Num OA Filters 1	-	6
OA Filter Size 1	-	15X26
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2
Num Final Filter 2	-	4
Final Filter Size 2	-	16X25X2

Test Data		
	Design	**Actual**
SF CFM	5250	5222
SF RPM	912	772
RA CFM	4525	4521
OA CFM	725	701
RL Voltage	-	206/206/207
RL Amperage	-	10.9/10.2/11.5
SF Rotation	-	CCW
RA Damper Position	-	87%
Min OA Damper Position	-	13%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	24BTU

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR RELIANCE
Frame	-	213T
Horsepower	7.50	7.5
Motor Rpm	-	1770
Phase	3	3
Rated Voltage	230	230/460
Rated Amperage	-	19.4/9.7

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	VP60
Motor Bore Size	-	1 3/8”
Motor Sheave SetPt	-	4.0 TURNS OUT
Fan Sheave Size	-	BK100
Fan Sheave Bore	-	1 3/16”
Belt CL Distance	-	29 1/8”
Num of Belts	-	1
Belt Size	-	BX78
Belt Alignment	-	GOOD

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.19”
Fan Suction SP	-	-0.41”
Fan Discharge SP	-	0.60”
Total ESP	1.3"	0.79"
Fan Total SP	-	1.01"

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

Completed By: Stephen Tassinaro on 07/24/2023

National TAB

Project:06-24-24 WALGREENS #1769 - DENVER, CO

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	OFFICE	N/A	10"	500	1	539	452	452	90.4
SGRD2	CHECKOUT	N/A	8"	200	1	228	192	192	96.0
SGRD3	SALES	N/A	N/A	415	1	464	425	425	102.4
SGRD4	SALES	N/A	N/A	415	1	424	456	456	109.9
SGRD5	SALES	N/A	N/A	415	1	502	422	422	101.7
SGRD6	SALES	N/A	N/A	415	1	528	444	444	107.0
SGRD7	SALES	N/A	N/A	415	1	461	387	387	93.3
SGRD8	SALES	N/A	N/A	415	1	436	398	398	95.9
SGRD9	SALES	N/A	N/A	415	1	427	399	399	96.1
SGRD10	SALES	N/A	N/A	415	1	475	459	459	110.6
SGRD11	SALES	N/A	N/A	410	1	478	399	399	97.3
SGRD12	SALES	N/A	N/A	410	1	482	402	402	98.0
SGRD13	SALES	N/A	N/A	410	1	463	387	387	94.4
Total				5250		5907	5222	5222	99.47%

Completed By: Stephen Tassinaro on 07/24/2023

National TAB

Project: 06-24-24 WALGREENS #1769 - DENVER, CO

System/Unit: AHU/RTU

Asset: RTU2 AREA:EMPLOYEE ROOM

Unit Data		
	Design	**Actual**
MFG	YORK	YORK
Serial Num	-	N2G2744667
Model Num	ZT180N30R2B5GCA2C1	ZT180N30R2B5GCE2C1
Type	RTU	RTU
Configuration	HORIZONTAL	VERTICAL
Num OA Filters 1	-	6
OA Filter Size 1	-	15X26
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2
Num Final Filter 2	-	4
Final Filter Size 2	-	16X25X2

Test Data		
	Design	**Actual**
SF CFM	5250	5268
SF RPM	877	727
RA CFM	4525	4569
OA CFM	725	699
RL Voltage	-	206/206/207
RL Amperage	-	9.1/9.8/10.3
SF Rotation	-	CCW
RA Damper Position	-	85%
Min OA Damper Position	-	15%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	24BTU

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR RELIANCE
Frame	-	213T
Horsepower	-	7.5
Motor Rpm	-	1770
Phase	-	3
Rated Voltage	-	230/460
Rated Amperage	-	19.4/9.7

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	VP60
Motor Bore Size	-	1 3/8"
Motor Sheave SetPt	-	4.0 TURNS OUT
Fan Sheave Size	-	BK100
Fan Sheave Bore	-	1 3/16"
Belt CL Distance	-	29 1/8"
Num of Belts	-	1
Belt Size	-	BX78
Belt Alignment	-	GOOD

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.15”
Fan Suction SP	-	-0.50”
Fan Discharge SP	-	0.29”
Total ESP	1.3"	0.44"
Fan Total SP	-	0.79"

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

Completed By: Stephen Tassinaro on 07/24/2023

National TAB

Project:06-24-24 WALGREENS #1769 - DENVER, CO

AHU/RTU

Diffuser Supply (GRD)

RTU2/EMPLOYEE ROOM

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD3	SALES			415	1	514	411	411	99.0
SGRD4	SALES			415	1	523	418	418	100.7
SGRD5	SALES			415	1	548	438	438	105.5
SGRD6	SALES			415	1	489	391	391	94.2
SGRD7	SALES			415	1	446	357	357	86.0
SGRD8	SALES			415	1	449	359	359	86.5
SGRD9	SALES			410	1	519	415	415	101.2
SGRD10	WOMENS RR			100	1	135	108	108	108.0
SGRD11	MENS RR			100	1	129	103	103	103.0
SGRD12	SALES			410	1	558	446	446	108.8
SGRD13	SALES			410	1	578	462	462	112.7
SGRD14	SALES			410	1	566	453	453	110.5
SGRD15	SALES			410	1	570	456	456	111.2
SGRD16	SALES			410	1	545	436	436	106.3
SGRD17				100	1	15	15	15	15.0
Total				5250		6584	5268	5268	100.34%

Completed By: Stephen Tassinaro on 07/24/2023

National TAB

Project: 06-24-24 WALGREENS #1769 - DENVER, CO

System/Unit: AHU/RTU

Asset: RTU3 AREA:PHARMACY

Unit Data		
	Design	**Actual**
MFG	YORK	YORK
Serial Num	-	N2H2775823
Model Num	ZJ037N08D2B5BCA2R3	ZJ037N08D2B5BCA2R3
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29X20
Num Final Filter 1	-	4
Final Filter Size 1	-	16X24X2

Test Data		
	Design	**Actual**
SF CFM	1080	1070
SF RPM	960	820
RA CFM	1080	1070
OA CFM	0	0
RL Voltage	-	207/208/208
RL Amperage	-	2.8/2.9/2.9
SF Rotation	-	CW
RA Damper Position	-	100%
Min OA Damper Position	-	0%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	24BTU

Motor Data		
	Design	**Actual**
Motor MFG	-	CENTURY
Frame	-	56HZ
Horsepower	1.50	1.5
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	230	208-230/460
Rated Amperage	-	5.0/2.5

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.29”
Fan Suction SP	-	-0.40”
Fan Discharge SP	-	0.41”
Total ESP	1.2"	0.70"
Fan Total SP	-	0.81"

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	MVL44
Motor Bore Size	-	7/8”
Motor Sheave SetPt	-	4.5 TURNS OUT
Fan Sheave Size	-	6.75”
Fan Sheave Bore	-	1.0”
Belt CL Distance	-	16.5”
Num of Belts	-	1
Belt Size	-	A47
Belt Alignment	-	GOOD

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

Completed By: Stephen Tassinaro on 07/24/2023

National TAB

Project:06-24-24 WALGREENS #1769 - DENVER, CO

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	WAITING ROOM			135	1	161	148	148	109.6
SGRD2	PHARMACY			315	1	328	301	301	95.6
SGRD3	PHARMACY			315	1	325	298	298	94.6
SGRD4	PHARMACY			315	1	352	323	323	102.5
Total				1080		1166	1070	1070	99.07%

Completed By: Stephen Tassinaro on 07/24/2023

National TAB

Project: 06-24-24 WALGREENS #1769 - DENVER, CO

System/Unit: FAN - Exhaust

Asset: EF1 AREA:OFFICE

Unit Data		
	Design	**Actual**
MFG	NA	BRAUN
Model Num	NA	365-B
Serial Num	-	N/L
Type	-	CEILING
Configuration	-	VERTICAL

Test Data		
	Design	**Actual**
CFM	-	0
Fan RPM	-	0
RL Voltage	-	120
RL Amperage	-	-

Motor Data		
	Design	**Actual**
Motor MFG	-	BROAN
Frame	-	N/L
Horsepower	-	N/L
Motor Rpm	-	N/L
Phase	-	1
Voltage (rated)	-	120
Amperage (rated)	-	3.0
Service Factor	-	N/L

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Completed By: Stephen Tassinaro on 07/20/2023

Notes:
FAN IS NOT RUNNING. WALL THERMOSTAT SENDS 120V TO FAN, BUT FAN MOTOR DOESN'T RESPOND.

Written By: Stephen Tassinaro on 07/20/2023

National TAB

Project: 06-24-24 WALGREENS #1769 - DENVER, CO

System/Unit: FAN - Exhaust

Asset: EF2 AREA:RESTROOMS

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	G-095-G--1-17-X
Serial Num	-	21375817 22K
Type	-	CENTRIFUGAL
Configuration	-	DOWNBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	MCMILLAN
Frame	-	N/L
Horsepower	-	1/8
Motor Rpm	-	1550
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	2.6
Service Factor	-	N/L

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Test Data		
	Design	**Actual**
CFM	-	313
Fan RPM	-	1050
Fan Rotation	-	CORRECT
Motor RPM	-	1050
RL Voltage	-	120
RL Amperage	-	1.1
Suction ESP	-	-0.32”
Discharge ESP	-	ATM
Total ESP	-	0.32”

Completed By: Stephen Tassinaro on 07/20/2023

National TAB

Project: 06-24-24 WALGREENS #1769 - DENVER, CO

System/Unit: FAN - Exhaust

Asset: EF3 AREA:EMPLOYEE ROOM

Unit Data		
	Design	**Actual**
MFG	NA	N/L
Model Num	NA	N/L
Serial Num	-	N/L
Type	-	CEILING
Configuration	-	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	BROAN
Frame	-	N/L
Horsepower	-	N/L
Motor Rpm	-	N/L
Phase	-	1
Voltage (rated)	-	120
Amperage (rated)	-	0.7
Service Factor	-	N/L

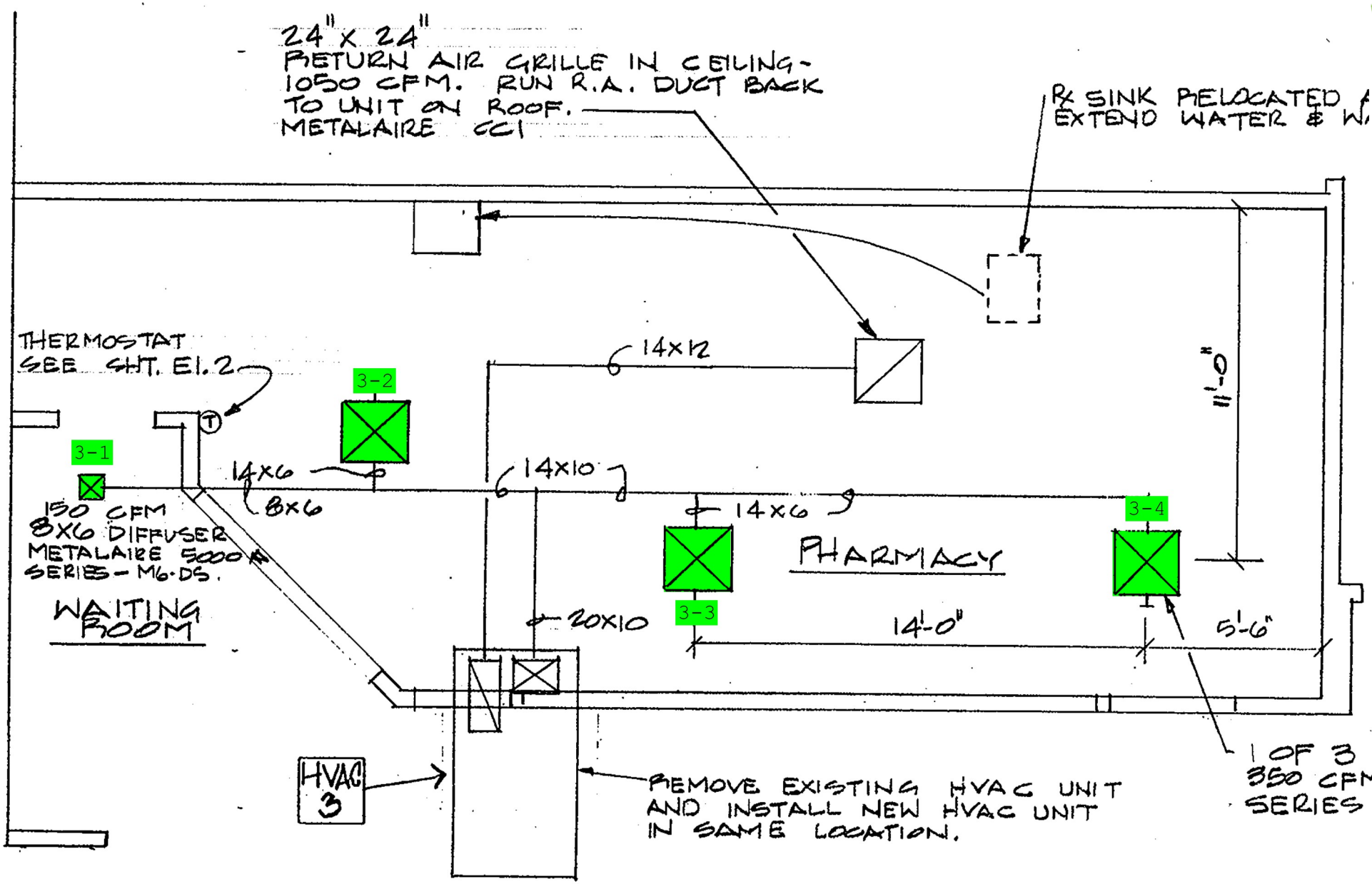
Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Test Data		
	Design	**Actual**
CFM	-	30
Fan RPM	-	DD
Fan Rotation	-	CORRECT
Motor RPM	-	DD
RL Voltage	-	120
RL Amperage	-	0.5
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	-
Total ESP	-	-

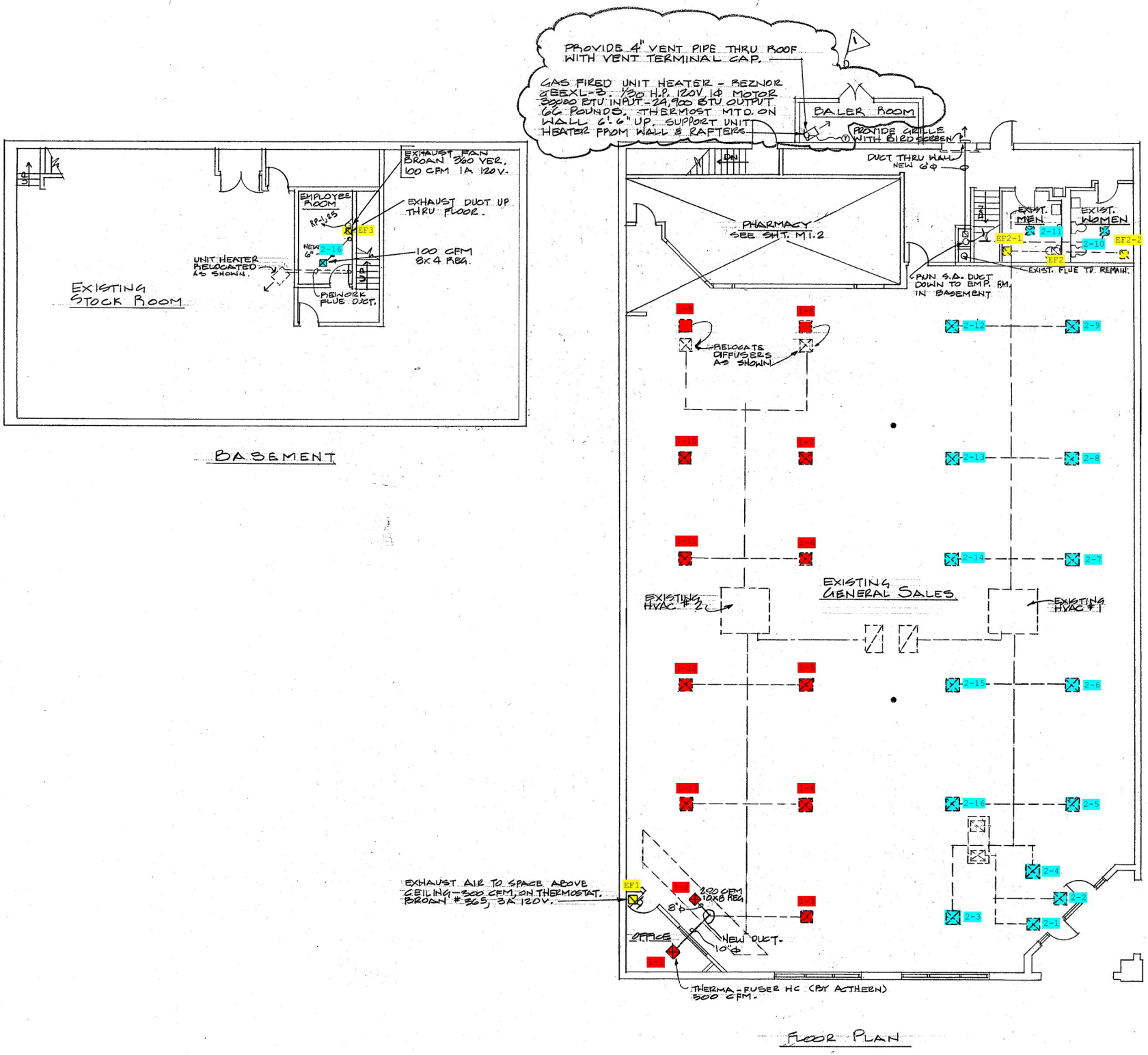
Completed By: Stephen Tassinaro on 07/20/2023

Notes:
FAN RUNNING BUT DIRTY AND IN NEED OF CLEANING.

Written By: Stephen Tassinaro on 07/24/2023



MECHANICAL PLAN
1/4"=1'-0"



CheckList List

- TECH - SITE PICTURES

06-24-24 WALGREENS #1769 - DENVER, CO

CheckList Information

Name :	TECH - SITE PICTURES	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	07/25/2023 - Stephen Tassinaro - National TAB		

CheckList Item Details

STORE FRONT

Comment:

Storefront
07/25/2023

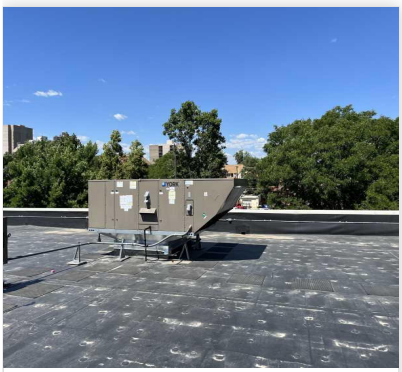
RTU-1

Comment:

RTU1
07/25/2023

RTU-2

Comment:



RTU2
07/25/2023

RTU-3

Comment:

RTU3(1)
07/25/2023

EF-1

Comment:

EF1
07/25/2023

EF-2

Comment:

EF2
07/25/2023

EF-3

Comment:

EF3(1)
07/25/2023