

Report By:

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**Report: TAB REPORT**  
**Function: Test, Adjust, & Balance**  
**Date: 07/02/2024**

**PROJECT**

**06-24-24 DOLLAR TREE - JACKSONVILLE, IL**

EAST OF 750 WALNUT ST

JACKSONVILLE, IL 62650

Client

Oliphant Heating  
208 WOLLARD BLVD  
  
RICHMOND, MO

# National TAB

Project: 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

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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 are further details 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. Several issues listed below pertain to the commissioning of this store.

### RTU's (Roof Top Units) w/ Diffusers

Each of the RTU's were measured at their terminal devices to establish a total flow for that unit. These readings and calculations were used to adjust each RTU to within tolerance of the engineer's total design flow. Each outlet was then adjusted to within tolerance of the design flow. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. The outside air damper was adjusted until the airflow was within the design requirements. Any equipment that fell outside of that tolerance is noted throughout the report.

### General Exhaust Fans w/ Grilles

The restroom fan was measured by reading each air device with a flow hood. The total airflow for each fan is equivalent to the sum of these readings. Fan speed was then adjusted so that the airflow was within tolerance of design. Each terminal device was balanced to within tolerance of the design volume using the installed volume dampers. Any equipment that fell outside of this tolerance is noted throughout the report.

### 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
AC-1	STORAGE	1650	1626	1500	1464	150	162	9.1%	10.0%						
AC-2	WEST SALES	2800	3260	2150	2500	650	760	23.2%	23.3%						
AC-3	EAST SALES	2800	3292	2150	2503	650	789	23.2%	24.0%						
AC-4	SOUTH SALES	3500	4193	2725	3248	775	945	22.1%	22.5%						
EF-1	RESTROOM													75	80
EF-2	RESTROOM													75	72
<b>TOTALS</b>		10750	12371	8525	9715	2225	2656			0	0	0	0	150	152

#### NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2225	2656
TOTAL EXHAUST	150	152
<b>NET AIRFLOW</b>	<b>2075</b>	<b>2504</b>

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H <sub>2</sub> O)
FRONT	0.017
SIDE	
REAR	0.021
<b>AVERAGE</b>	<b>0.019</b>

#### 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 - STEP 1: INITIAL WALKTHROUGH
- TECH - STEP 2: UNIT DATA AND EVAL
- TECH - STEP 3: TEST, ADJUST AND BALANCE
- TECH - STEP 4: FINAL TESTS



## 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

### CheckList Information

**Name :** TECH - STEP 1: INITIAL WALKTHROUGH      **Status :** Not Completed  
**Assigned Organization :** National TAB      **Asset :**  
**Requesting Organization :** National TAB  
**Created Date :** 06/26/2024 - Laura Robinson - National TAB

### CheckList Item Details

#### INITIAL SITE WALKTHROUGH

Review Plan Review Checklist, has it been signed off and meets our standards to start balancing? If not contact processor to ensure job is ready.

**Comment:**

YES

All diffusers and grilles are installed and match design?

**Comment:**

YES

Thermostats have power?

**Comment:**

YES

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?

**Comment:**

YES



## 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

### CheckList Information

**Name :** TECH - STEP 2: UNIT DATA AND EVAL **Status :** Not Completed  
**Assigned Organization :** National TAB **Asset :**  
**Requesting Organization :** National TAB  
**Created Date :** 06/26/2024 - Laura Robinson - National TAB

### CheckList Item Details

#### UNIT DATA AND EVALUATION WHILE GATHERING UNIT DATA CHECK THE FOLLOWING:

RTU's/AHU's

**Comment:**

Economizers are assembled and functional?

**Comment:**

YES

DCV Max damper opening position is set to minimum?

**Comment:**

YES

Free cooling enthalpy set point set for lowest setting (Typically "D")

**Comment:**

YES ES5

Motors are all operating below the FLA rating?

**Comment:**

YES

Are belts tight?

**Comment:**

YES

If direct drive unit is the speed controller working.

**Comment:**

YES

Is gas piping installed and valves turned on?

**Comment:**

NO, NEED TURNED ON

Unit free of noticeable noise and vibration

**Comment:**

YES

**EF's**

Rotation is correct?

**Comment:**

YES

Belts are tight?

**Comment:**

N/A

There is no major leakage around base of fan?

**Comment:**

YES

Is the motor operating below the motor FLA rating?

**Comment:**

YES

For restroom fan(s) is the back draft damper installed and can it fully open?

**Comment:**

N/A

Unit free of noticeable noise and vibration?

**Comment:**

YES

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**DOCUMENTATION**

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Have trades/general contractor been notified about any issues and are they created on FaciliBuild?

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**Comment:**

YES

---



## 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

### CheckList Information

**Name :** TECH - STEP 3: TEST, ADJUST AND BALANCE      **Status :** Not Completed  
**Assigned Organization :** National TAB      **Asset :**  
**Requesting Organization :** National TAB  
**Created Date :** 06/26/2024 - Laura Robinson - National TAB

### CheckList Item Details

TEST, ADJUST, AND BALANCE ALL EQUIPMENT:

DURING TESTING MAKE NOTE OF THE FOLLOWING:

Is space free of drafting?

**Comment:**

YES

Is space comfortable in all areas?

**Comment:**

YES

Is the space free of ventilation noise?

**Comment:**

YES

If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".

**Comment:**

N/A



## 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

### CheckList Information

**Name :** TECH - STEP 4: FINAL TESTS      **Status :** Not Completed  
**Assigned Organization :** National TAB      **Asset :**  
**Requesting Organization :** National TAB  
**Created Date :** 06/26/2024 - Laura Robinson - National TAB

### CheckList Item Details

FINAL TESTS

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ADDITIONAL

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Thermostats are programmed?

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**Comment:**

YES

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Project: 06-24-24 DOLLAR TREE - JACKSONVILLE, IL



## System/Unit: AHU/RTU

Asset: RTU 1

AREA:STORAGE

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	5022C09512
Model Num	48GCE	48GCEM05F2M5A6F1C0
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1 METAL MESH
OA Filter Size 1	-	14X28
Num Final Filter 1	-	2
Final Filter Size 1	-	16X25X2

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	1.4	NA
Motor Rpm	-	NA
Phase	3	1
Rated Voltage	208	208/230
Rated Amperage	-	7.1

Test Data		
	Design	Actual
SF CFM	1650	1626
SF RPM	-	1582
RA CFM	1500	1464
OA CFM	150	162
RL Voltage	-	207/206/207
RL Amperage	-	3.6
SF Rotation	-	CCW
SF System SetPt	-	7.06VDC position B 10%
RA Damper Position	-	85%
Min OA Damper Position	-	15%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.24"
Fan Suction SP	-	-0.54"
Fan Discharge SP	-	0.20"
Total ESP	1.00	0.44"
Fan Total SP	-	0.74"

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

Completed By: Jacob Davidson on 06/27/2024

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Project:06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## AHU/RTU



### Diffuser Supply (GRD)

#### RTU 1/STORAGE

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU 1-SGRD1	STORAGE	D	14X6	300	1.02	299	348	305	101.7
RTU 1-SGRD2	STORAGE	D	14X6	300	1.02	241	301	278	92.7
RTU 1-SGRD3	STORAGE	D	14X6	300	1.02	272	321	289	96.3
RTU 1-SGRD4	STORAGE	D	14X6	300	1.02	283	327	281	93.7
RTU 1-SGRD5	STORAGE	D	14X6	300	1.02	333	359	321	107.0
RTU 1-SGRD6	STORAGE	C	8	50	1	217	61	49	98.0
RTU 1-SGRD7	STORAGE	A	8	50	1	145	64	51	102.0
RTU 1-SGRD8	STORAGE	C	8	50	1	185	63	52	104.0
Total				1650		1975	1844	1626	98.55%

Completed By: Jacob Davidson on 06/27/2024

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Project: 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## System/Unit: AHU/RTU



Asset: RTU 2

AREA:WEST SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	4322P66550
Model Num	48FCE	48HCED08F2M5A6F1J0
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1 METAL MESH
OA Filter Size 1	-	19.5X35
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	2.4	NL
Motor Rpm	-	1670
Phase	3	3
Rated Voltage	208 V	208-230/460
Rated Amperage	-	6.7-6.6/3.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	4"
Motor Bore Size	-	5/8"
Motor Sheave SetPt	-	5 TURNS OUT'
Fan Sheave Size	-	7.25"
Fan Sheave Bore	-	1"
Belt CL Distance	-	16.75"
Num of Belts	-	1
Belt Size	-	A48
Belt Alignment	-	VERIFIED GOOD

Test Data		
	Design	Actual
SF CFM	2800	3260
SF RPM	-	776
RA CFM	2150	2500
OA CFM	650	760
RL Voltage	-	205/205/206
RL Amperage	-	5.6/5.7/6.1
SF Rotation	-	CCW
SF System SetPt	-	NONE
RA Damper Position	-	LOW 50% HIGH 35%
Min OA Damper Position	-	LOW 50% HIGH 35%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.58"
Fan Suction SP	-	-0.84"
Fan Discharge SP	-	0.45"
Total ESP	1.00	1.03"
Fan Total SP	-	1.29"

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

Completed By: Jacob Davidson on 06/27/2024

Notes:  
Unit is high on flow with pulley minimized and will need a pulley change to reduce flow

Written By: Jacob Davidson on 06/27/2024

# National TAB

Project:06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## AHU/RTU



### Diffuser Supply (GRD)

#### RTU 2/WEST SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU 2-SGRD1	WEST SALES	B	12	350	1	370	377		-
RTU 2-SGRD2	WEST SALES	B	12	350	1	423	429		-
RTU 2-SGRD3	WEST SALES	B	12	350	1	485	398		-
RTU 2-SGRD4	WEST SALES	B	12	350	1	409	416		-
RTU 2-SGRD5	WEST SALES	B	12	350	1	361	371		-
RTU 2-SGRD6	WEST SALES	B	12	350	1	417	436		-
RTU 2-SGRD7	WEST SALES	B	12	350	1	423	434		-
RTU 2-SGRD8	WEST SALES	B	12	350	1	374	399		-
Total				2800		3262	3260	0	0%

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Project: 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## System/Unit: AHU/RTU



Asset: RTU 3

AREA: EAST SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	4322P66549
Model Num	48FCE	48HCED08F2M5A6F1J0
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1 METAL MESH
OA Filter Size 1	-	19.5X35
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	2.4	NL
Motor Rpm	-	1670
Phase	3	3
Rated Voltage	208 V	208-230/460
Rated Amperage	-	6.7-6.6/3.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	4"
Motor Bore Size	-	5/8"
Motor Sheave SetPt	-	5 TURNS OUT
Fan Sheave Size	-	7.25"
Fan Sheave Bore	-	1"
Belt CL Distance	-	16.75"
Num of Belts	-	1
Belt Size	-	A48
Belt Alignment	-	VERIFIED GOOD

Test Data		
	Design	Actual
SF CFM	2800	3292
SF RPM	-	775
RA CFM	2150	2503
OA CFM	650	789
RL Voltage	-	204/205/206
RL Amperage	-	5.6/5.8/6.1
SF Rotation	-	CCW
SF System SetPt	-	NONE
RA Damper Position	-	LOW 48% HIGH 63%
Min OA Damper Position	-	LOW 52% HIGH 37%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.57"
Fan Suction SP	-	-0.79"
Fan Discharge SP	-	0.49"
Total ESP	1.00	1.06"
Fan Total SP	-	1.28"

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

Completed By: Jacob Davidson on 06/27/2024

Notes:

Unit is high on flow with pulley minimized and will need a pulley change to reduce flow

Written By: Jacob Davidson on 06/27/2024

# National TAB

Project:06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## AHU/RTU



### Diffuser Supply (GRD)

#### RTU 3/EAST SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU 3-SGRD1	EAST SALES	B	12	350	1	414	420		-
RTU 3-SGRD2	EAST SALES	B	12	350	1	378	399		-
RTU 3-SGRD3	EAST SALES	B	12	350	1	481	447		-
RTU 3-SGRD4	EAST SALES	B	12	350	1	329	373		-
RTU 3-SGRD5	EAST SALES	B	12	350	1	455	402		-
RTU 3-SGRD6	EAST SALES	B	12	350	1	447	396		-
RTU 3-SGRD7	EAST SALES	B	12	350	1	483	430		-
RTU 3-SGRD8	EAST SALES	B	12	350	1	405	425		-
Total				2800		3392	3292	0	0%

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Project: 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## System/Unit: AHU/RTU



Asset: RTU 4

AREA:SOUTH SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	4422P67340
Model Num	48FCE	48HCED11F2M5A6F1J0
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1 METAL MESH
OA Filter Size 1	-	19.5X35
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	3.0	NL
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	208 V	230/460
Rated Amperage	-	9.2/4.6

Drive Data		
	Design	Actual
Motor Sheave Size	-	4.75"
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	5 TURNS OUT
Fan Sheave Size	-	7.25"
Fan Sheave Bore	-	1"
Belt CL Distance	-	17"
Num of Belts	-	1
Belt Size	-	AX49
Belt Alignment	-	VERIFIED GOOD

Test Data		
	Design	Actual
SF CFM	3500	4193
SF RPM	-	895
RA CFM	2725	3248
OA CFM	775	945
RL Voltage	-	204/205/204
RL Amperage	-	6.6/6.7/6.8
SF Rotation	-	CCW
SF System SetPt	-	NONE
RA Damper Position	-	LOW 55%HIGH 78%
Min OA Damper Position	-	LOW 45% HIGH 22%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.79"
Fan Suction SP	-	-1.17"
Fan Discharge SP	-	0.64"
Total ESP	1.00	1.43"
Fan Total SP	-	1.81"

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

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Project:06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## AHU/RTU



### Diffuser Supply (GRD)

#### RTU 4/SOUTH SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU 4-SGRD1	SOUTH SALES	B	12	440	1	531	550	550	125.0
RTU 4-SGRD2	SOUTH SALES	B	12	435	1	552	529	529	121.6
RTU 4-SGRD3	SOUTH SALES	B	12	435	1	574	498	498	114.5
RTU 4-SGRD4	SOUTH SALES	B	12	440	1	487	514	514	116.8
RTU 4-SGRD5	SOUTH SALES	B	12	440	1	458	504	504	114.5
RTU 4-SGRD6	SOUTH SALES	B	12	435	1	535	511	511	117.5
RTU 4-SGRD7	SOUTH SALES	B	12	435	1	525	530	530	121.8
RTU 4-SGRD8	SOUTH SALES	B	12	440	1	551	557	557	126.6
Total				3500		4213	4193	4193	119.8%

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Project: 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## System/Unit: FAN - Exhaust



Asset: EF1

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-B110	AE80B-B
Serial Num	-	NL
Type	-	DD
Configuration	CEILING	CEILING

Test Data		
	Design	Actual
CFM	75	80
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	NONE
RL Voltage	-	119
RL Amperage	-	NA

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	80	NA
Motor Rpm	-	NA
Phase	-	1
Voltage (rated)	120	115
Amperage (rated)	-	0.3
Service Factor	-	1

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Project: 06-24-24 DOLLAR TREE - JACKSONVILLE, IL

## System/Unit: FAN - Exhaust



Asset: EF2

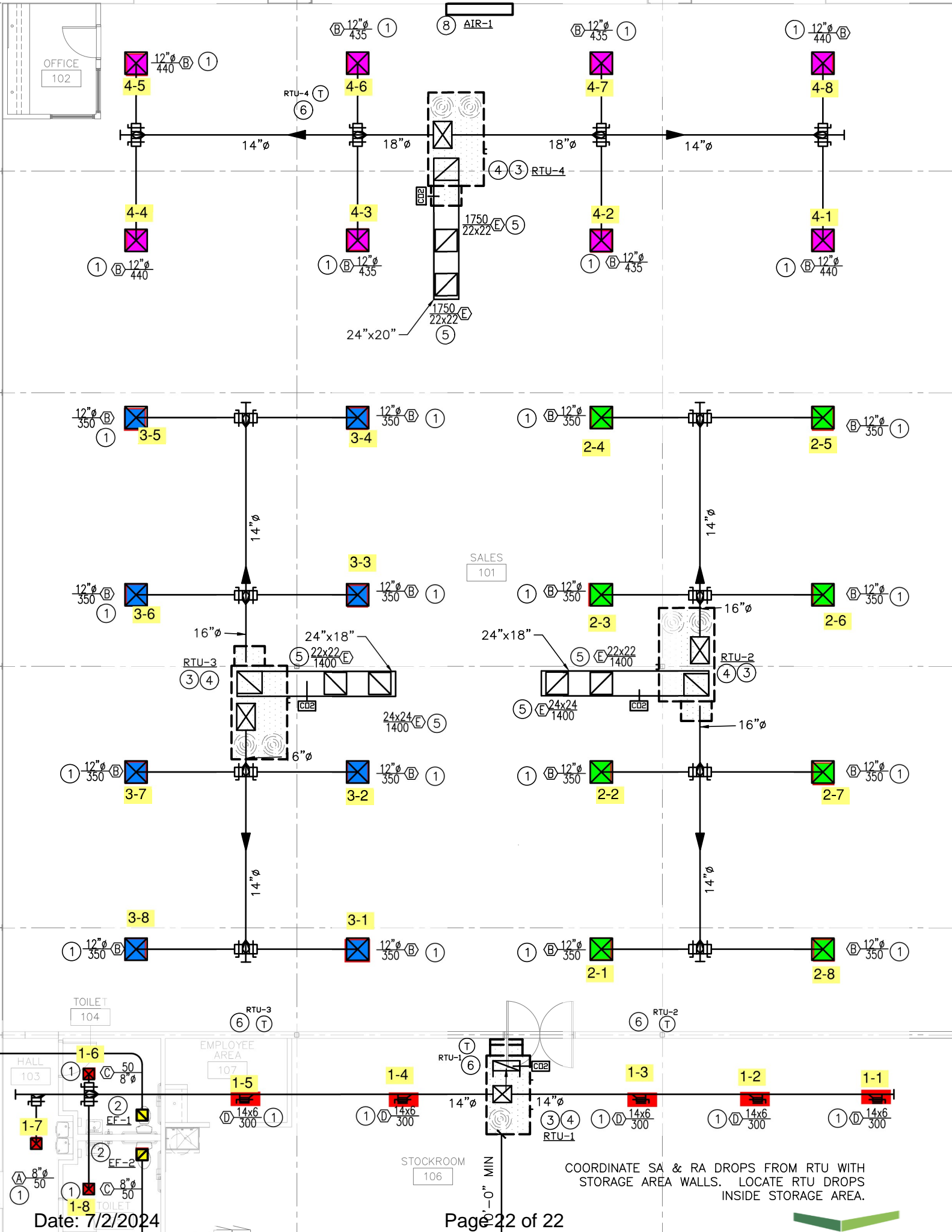
AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-B110	AE80B-B
Serial Num	-	NA
Type	-	DD
Configuration	CEILING	CEILING

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	80	NA
Motor Rpm	-	NA
Phase	-	1
Voltage (rated)	120	115
Amperage (rated)	-	0.3
Service Factor	-	1

Test Data		
	Design	Actual
CFM	75	72
Fan RPM	-	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	NONE
RL Voltage	-	120V
RL Amperage	-	NA

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COORDINATE SA & RA DROPS FROM RTU WITH STORAGE AREA WALLS. LOCATE RTU DROPS INSIDE STORAGE AREA.

Date: 7/2/2024

