

Report By:

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Comfort. Under control.

Report: TAB Report
Function: Test, Adjust, & Balance
Date: 6/22/2022

PROJECT

06-13 FAMILY DOLLAR - TOWN CREEK, AL

2336 AL HWY 20

TOWN CREEK, AL 35672

Client

Oliphant Heating
208 WOLLARD BLVD
RICHMOND, MO

National TAB

Project: 06-13 FAMILY DOLLAR - TOWN CREEK, AL

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Project Summary

The summary below provides a quick understanding of how well your HVAC systems balanced in respect to the design criteria. The summary concludes with a quick understanding of your building environment and possible suggestions for each of your systems after testing has been performed. 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. Our focus is 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. Also, enclosed are pictures of building assets and items listed below that will provide your team with more insight

Facility Identification and TAB Requirements

The mechanical equipment to be tested, adjusted, and balanced includes: All Roof Top Units (RTU), All Exhaust Fans (EF), and all associated air devices.

RTU's

Each of the RTU's were measured at their terminal devices utilizing a flow hood. The sum of these readings is equal to the total flow for that particular unit. The total flow of each RTU was then adjusted to +/-10% of the specified design. Each terminal diffuser was balanced to within +/-10% of the engineer's design volume utilizing the provided hand damper located at the takeoff of the main & branch trunk line(s). Any equipment that fell outside of this tolerance is noted throughout the report.

Ceiling Exhaust Fans

The ceiling exhaust fans were measured using a flow hood. If speed adjustment was provided, the fan speed was adjusted to within design tolerance. 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
RTU-1	STORAGE	1400	1334	1250	1189	150	145	10.7%	10.9%						
RTU-2	WEST SALES	2800	2821	2150	2160	650	661	23.2%	23.4%						
RTU-3	EAST SALES	2800	2781	2150	2136	650	645	23.2%	23.2%						
RTU-4	SOUTH SALES	3500	3653	2725	2897	775	756	22.1%	20.7%						
EF-1	RESTROOM													75	63
EF-2	RESTROOM													75	74
TOTALS		10500	10589	8275	8382	2225	2207			0	0	0	0	150	137

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2225	2207
TOTAL EXHAUST	150	137
NET AIRFLOW	2075	2070

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.017
SIDE	
REAR	0.015
AVERAGE	0.016

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:



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06-13 FAMILY DOLLAR - TOWN CREEK, AL

Project Issue Information

Issue Name : RTU2 Economizer functions but does not shut on shutdown

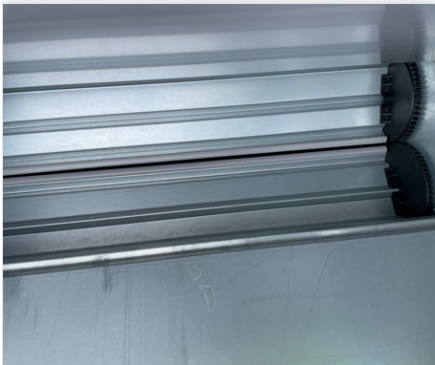
Description : Doesn't close when unit shuts down. Damper position was manually set and marked so that outside air rates could be balanced. Oliphant is aware and will set to the permanently marked positions once repaired.

Created By : National TAB **Assigned To :** National TAB - Will Turnbough

Status : Open

Originated Date : 06/03/2022 - Jacob Davidson - National TAB

Project Issue File Details



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1d3b7b96d1.jpeg



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06-13 FAMILY DOLLAR - TOWN CREEK, AL

Project Issue Information

Issue Name : RTU3 Economizer does not function

Description : Economizer doesn't close on shut down or respond to adjustment. Damper position was manually set and marked so that outside air rates could be balanced. Oliphant is aware and will set to the permanently marked positions once repaired.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

Status : Open

Originated Date : 06/03/2022 - Jacob Davidson - National TAB

Project Issue File Details



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5f999881dd.jpeg



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06-13 FAMILY DOLLAR - TOWN CREEK, AL

Project Issue Information

Issue Name : RTU4 Economizer not functional

Description : Economizer does not open and shut as it is supposed to. It does not close on shut down of unit. Damper position was manually set and marked so that outside air rates could be balanced. Oliphant is aware and will set to the permanently marked positions once repaired.

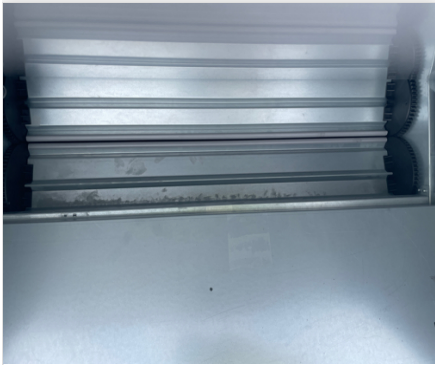
Created By : National TAB

Assigned To : National TAB - Will Turnbough

Status : Open

Originated Date : 06/03/2022 - Jacob Davidson - National TAB

Project Issue File Details



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STOREFRONT



RTU1



RTU2



RTU3



RTU4



ROOFTOP



EF1



EF2



RTU2 OA SETPOINT



RTU3 OA SETPOINT



RTU4 OA SETPOINT

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Project: 06-13 FAMILY DOLLAR - TOWN CREEK, AL

System/Unit: AHU/RTU



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Asset: RTU1

AREA:STORAGE

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	1522C09760
Model Num	HC	H48GCEM05F2M5A61C0
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	14X28
Num Final Filter 1	-	2
Final Filter Size 1	-	16X25X2

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

Drive Data		
	Design	Actual

Test Data		
	Design	Actual
SF CFM	1400	1334
SF RPM	-	2403
RA CFM	1250	1189
OA CFM	150	145
RL Voltage	-	214
RL Amperage	-	3.0
SF Rotation	-	CCW
RA Damper Position	-	9%
Min OA Damper Position	-	2.8V
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.24"
Fan Suction SP	-	-0.44
Fan Discharge SP	-	0.11
Total ESP	1.0"	0.35"
Fan Total SP	-	0.55"

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

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Notes:[1] MOTOR DATA TAKEN FROM UNIT LABEL MOTOR SPEED SETPOINT 8.71VDC AT POSITION C 50% [2] DIFFUSER 6 DAMPER IS NOT ACCESSIBLE AND AIRFLOW IS HIGH AS A RESULT. DIFFUSER 3 IS CLOSE TO MAIN DROP WHERE AIR IS TUBULENT RESULTING IN LOW FLOW. NOT ANTICIPATED THAT EITHER UNBALANCED DIFFUSER WILL CAUSE A COMFORT ISSUE.

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Project:06-13 FAMILY DOLLAR - TOWN CREEK, AL

AHU/RTU



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Diffuser Supply (GRD)

RTU1/STORAGE

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	STORAGE	D	14X6	275	0.784	258	258
	FINAL CFM	% to design					
	264	96.0					
SGRD2	STORAGE	D	14X6	275	0.784	213	236
	FINAL CFM	% to design					
	249	90.5					
SGRD3	STORAGE	D	14X6	275	0.784	207	226
	FINAL CFM	% to design					
	201	73.1					
SGRD4	STORAGE	D	14X6	275	0.784	266	240
	FINAL CFM	% to design					
	277	100.7					
SGRD5	OFFICE	F	24X14	100	1	166	109
	FINAL CFM	% to design					
	102	102.0					
SGRD6	HALLWAY	A	8"	100	1	134	142
	FINAL CFM	% to design					
	139	139.0					
SGRD7	RESTROOM	C	8"	50	1	129	74
	FINAL CFM	% to design					
	52	104.0					
SGRD8	RESTROOM	C	8"	50	1	167	56
	FINAL CFM	% to design					
	50	100.0					

Completed By:Jacob Davidson on

Asset	Notes
RTU1	[1] MOTOR DATA TAKEN FROM UNIT LABEL MOTOR SPEED SETPOINT 8.71VDC AT POSITION C 50% [2] DIFFUSER 6 DAMPER IS NOT ACCESSIBLE AND AIRFLOW IS HIGH AS A RESULT. DIFFUSER 3 IS CLOSE TO MAIN DROP WHERE AIR IS TUBULENT RESULTING IN LOW FLOW. NOT ANTICIPATED THAT EITHER UNBALANCED DIFFUSER WILL CAUSE A COMFORT ISSUE.
RTU1	[1] MOTOR DATA TAKEN FROM UNIT LABEL MOTOR SPEED SETPOINT 8.71VDC AT POSITION C 50% [2] DIFFUSER 6 DAMPER IS NOT ACCESSIBLE AND AIRFLOW IS HIGH AS A RESULT. DIFFUSER 3 IS CLOSE TO MAIN DROP WHERE AIR IS TUBULENT RESULTING IN LOW FLOW. NOT ANTICIPATED THAT EITHER UNBALANCED DIFFUSER WILL CAUSE A COMFORT ISSUE.

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Project: 06-13 FAMILY DOLLAR - TOWN CREEK, AL

System/Unit: AHU/RTU



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Asset: RTU2

AREA: WEST SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	1622P80861
Model Num	HC	48HCED08F2M5A6F1J0
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	1
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	-	NL
Motor Rpm	-	1670
Phase	3	3
Rated Voltage	208	208-230/460
Rated Amperage	-	6.7-6.6/3.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	4.25"
Motor Bore Size	-	5/8"
Motor Sheave SetPt	-	5 TURNS OUT
Fan Sheave Size	-	7"
Fan Sheave Bore	-	1"
Belt CL Distance	-	16.5"
Num of Belts	-	1
Belt Size	-	A48
Belt Alignment	-	VERIFIED

Test Data		
	Design	Actual
SF CFM	2800	2821
SF RPM	-	728
RA CFM	2150	2160
OA CFM	650	661
RL Voltage	-	214/214/215
RL Amperage	-	3.5/3.8/4.0
SF Rotation	-	CCW
RA Damper Position	-	SEE PIC
Min OA Damper Position	-	SEE PIC
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.47"
Fan Suction SP	-	-0.65"
Fan Discharge SP	-	0.42"
Total ESP	1.0"	0.89"
Fan Total SP	-	1.07"

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

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Notes:

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Project:06-13 FAMILY DOLLAR - TOWN CREEK, AL

AHU/RTU



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Diffuser Supply (GRD)

RTU2/WEST SALES

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	SALES	B	12"	350	1	399	354
	FINAL CFM	% to design					
	335	95.7					
SGRD2	SALES	B	12"	350	1	326	401
	FINAL CFM	% to design					
	379	108.3					
SGRD3	SALES	B	12"	350	1	500	380
	FINAL CFM	% to design					
	359	102.6					
SGRD4	SALES	B	12"	350	1	403	345
	FINAL CFM	% to design					
	326	93.1					
SGRD5	SALES	B	12"	350	1	407	383
	FINAL CFM	% to design					
	361	103.1					
SGRD6	SALES	B	12"	350	1	182	389
	FINAL CFM	% to design					
	368	105.1					
SGRD7	SALES	B	12"	350	1	361	347
	FINAL CFM	% to design					
	328	93.7					
SGRD8	SALES	B	12"	350	1	409	386
	FINAL CFM	% to design					
	365	104.3					

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Asset	Notes
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National TAB

Project: 06-13 FAMILY DOLLAR - TOWN CREEK, AL

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU3

AREA: EAST SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	1622P808060
Model Num	HC	48HCED08F2M5A6F1J0
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	1
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	-	NL
Motor Rpm	-	1670
Phase	3	3
Rated Voltage	208	208-230/460
Rated Amperage	-	6.7-6.6/3.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	4.25"
Motor Bore Size	-	5/8"
Motor Sheave SetPt	-	5 TURNS OUT
Fan Sheave Size	-	7"
Fan Sheave Bore	-	1"
Belt CL Distance	-	16.5"
Num of Belts	-	1
Belt Size	-	A48
Belt Alignment	-	VERIFIED

Test Data		
	Design	Actual
SF CFM	2800	2781
SF RPM	-	707
RA CFM	2150	2136
OA CFM	650	645
RL Voltage	-	2114/214/213
RL Amperage	-	3.8/4.1/4.3
SF Rotation	-	CCW
RA Damper Position	-	SEE PIC
Min OA Damper Position	-	SEE PIC
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.46"
Fan Suction SP	-	-0.73"
Fan Discharge SP	-	0.41"
Total ESP	1.0"	0.87"
Fan Total SP	-	1.14"

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

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Notes:

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Project:06-13 FAMILY DOLLAR - TOWN CREEK, AL

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU3/EAST SALES

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	SALES	B	12"	350	1	423	391
	FINAL CFM	% to design					
	347	99.1					
SGRD2	SALES	B	12"	350	1	332	387
	FINAL CFM	% to design					
	343	98.0					
SGRD3	SALES	B	12"	350	1	445	403
	FINAL CFM	% to design					
	357	102.0					
SGRD4	SALES	B	12"	350	1	430	386
	FINAL CFM	% to design					
	342	97.7					
SGRD5	SALES	B	12"	350	1	386	389
	FINAL CFM	% to design					
	345	98.6					
SGRD6	SALES	B	12"	350	1	449	404
	FINAL CFM	% to design					
	358	102.3					
SGRD7	SALES	B	12"	350	1	322	381
	FINAL CFM	% to design					
	338	96.6					
SGRD8	SALES	B	12"	350	1	396	396
	FINAL CFM	% to design					
	351	100.3					

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Asset	Notes
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National TAB

Project: 06-13 FAMILY DOLLAR - TOWN CREEK, AL

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU4

AREA:SOUTH SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	1622P80541
Model Num	HC	48HCED11F2M5A6F1J0
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	1
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	-	NL
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	208	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	-	8.5"
Fan Sheave Bore	-	1"
Belt CL Distance	-	16.75"
Num of Belts	-	1
Belt Size	-	AX49
Belt Alignment	-	VERIFIED

Test Data		
	Design	Actual
SF CFM	3500	3653
SF RPM	-	860
RA CFM	2725	2897
OA CFM	775	756
RL Voltage	-	213/213/214
RL Amperage	-	5.5/5.6/6.1
SF Rotation	-	CCW
RA Damper Position	-	SEE PIC
Min OA Damper Position	-	SEE PIC
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	ES5

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.74"
Fan Suction SP	-	-1.02"
Fan Discharge SP	-	0.26"
Total ESP	1.0"	1.00"
Fan Total SP	-	1.28"

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

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Notes:

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Project:06-13 FAMILY DOLLAR - TOWN CREEK, AL

AHU/RTU



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Diffuser Supply (GRD)

RTU4/SOUTH SALES

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	SALES	B	12"	440	1	455	502
	FINAL CFM	% to design					
	478	108.6					
SGRD2	SALES	B	12"	435	1	467	487
	FINAL CFM	% to design					
	464	106.7					
SGRD3	SALES	B	12"	435	1	472	510
	FINAL CFM	% to design					
	475	109.2					
SGRD4	SALES	B	12"	440	1	489	450
	FINAL CFM	% to design					
	428	97.3					
SGRD5	SALES	B	12"	440	1	522	443
	FINAL CFM	% to design					
	422	95.9					
SGRD6	SALES	B	12"	435	1	516	495
	FINAL CFM	% to design					
	471	108.3					
SGRD7	SALES	B	12"	435	1	553	478
	FINAL CFM	% to design					
	455	104.6					
SGRD8	SALES	B	12"	440	1	429	483
	FINAL CFM	% to design					
	460	104.5					

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Asset	Notes
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Project: 06-13 FAMILY DOLLAR - TOWN CREEK, AL

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF1

AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-B110	LP80-B
Serial Num	-	NL
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	75	63
Fan RPM	-	UTO
Fan Rotation	-	CW
Motor RPM	-	UTO
System SetPt	-	NA
RL Voltage	-	124
RL Amperage	-	0.19
Total ESP	0.25"	UTO
Fan Inlet SP	-	UTO
Fan Discharge SP	-	UTO

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

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Notes:SINGLE SPEED HARD CEILING MOUNTED FAN

Asset	Notes

National TAB

Project: 06-13 FAMILY DOLLAR - TOWN CREEK, AL

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF2

AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-B110	LP80-B
Serial Num	-	NL
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

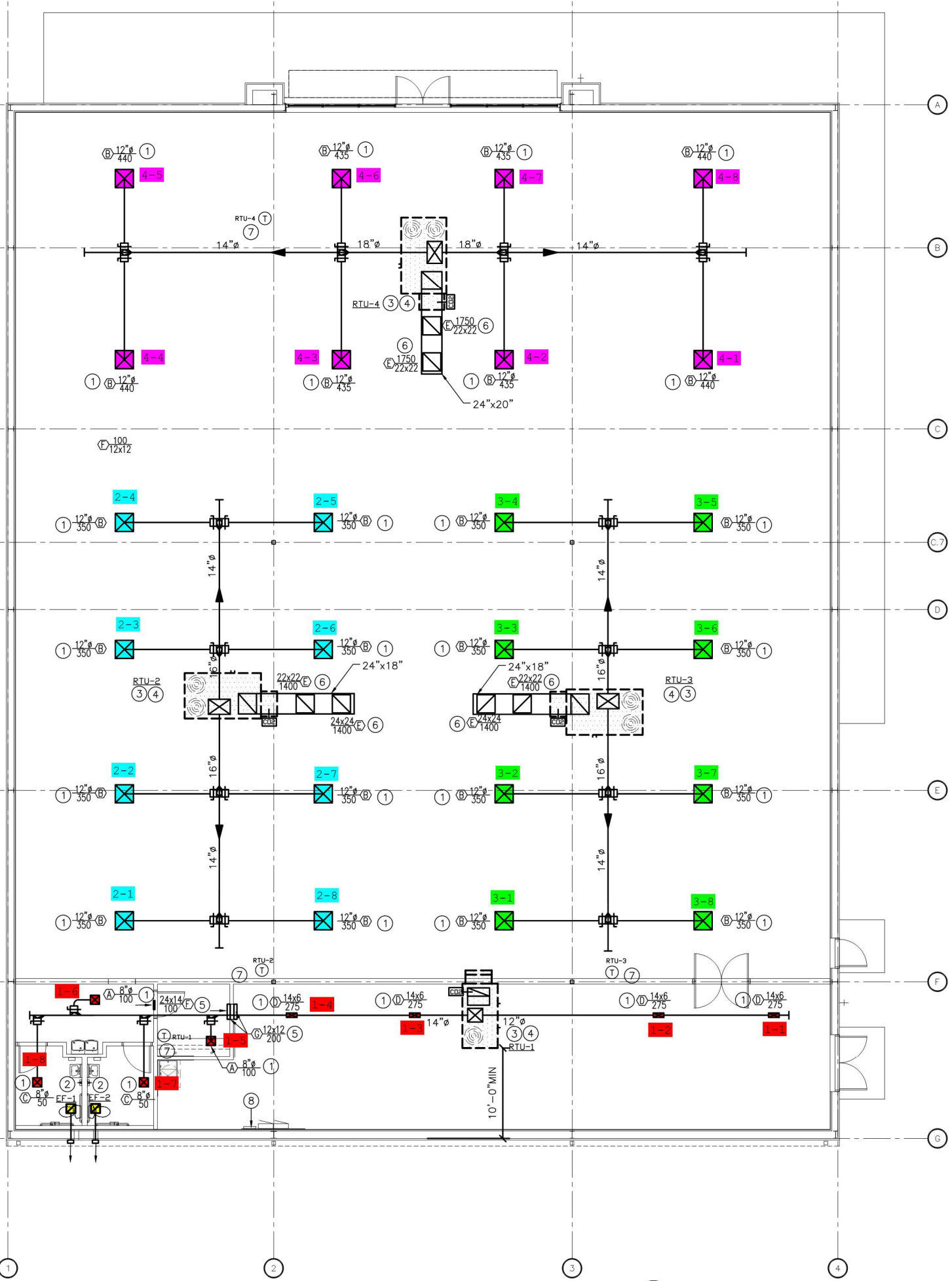
Test Data		
	Design	Actual
CFM	75	74
Fan RPM	-	UTO
Fan Rotation	-	CW
Motor RPM	-	UTO
System SetPt	-	NA
RL Voltage	-	125
RL Amperage	-	0.20
Total ESP	1.0"	UTO
Fan Inlet SP	-	UTO
Fan Discharge SP	-	UTO

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

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Notes:SINGLE SPEED HARD CEILING MOUNTED FAN

Asset	Notes
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1 MECHANICAL HVAC PLAN
 SCALE: 1/8" = 1'-0"



Date: 6/22/2022

