

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
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Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 09/14/2023

PROJECT

Ulta Beauty (Baraboo, WI)

210 N. GASSER RD.

BARABOO, WI 53913

Client

Air Temperature Services
5301 Voges Road
Madison , WI 53718

National TAB

Project: Ulta Beauty (Baraboo, WI)

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Issue List

- RTU Control Wiring Not Installed
- RTU-1: Alarm 22 Low Pressure Switch Comp. 1



Ultra Beauty (Baraboo, WI)

Project Issue Information

Issue Name : RTU Control Wiring Not Installed
Description : RTUs do not have control wiring/controls installed. Units were jumpered for occupancy and fan operation to complete testing.
Created By : National TAB **Assigned To :** National TAB - Michael McDonnell
Status : Open
Originated Date : 09/14/2023 - Michael McDonnell - National TAB

Project Issue File Details



**Nocontrols
09/14/2023**

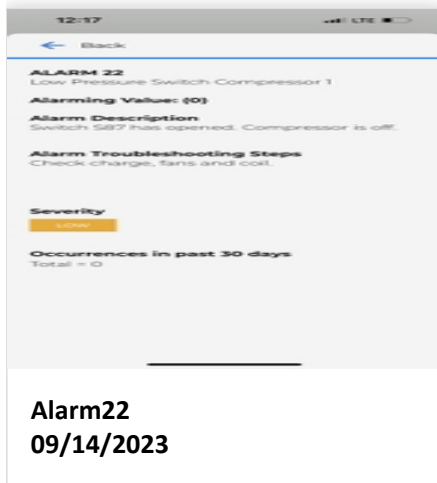


Ultra Beauty (Baraboo, WI)

Project Issue Information

Issue Name : RTU-1: Alarm 22 Low Pressure Switch Comp. 1
Description : RTU-1 is alarmed for low pressure on compressor 1. MC is aware and will service unit.
Created By : National TAB **Assigned To :** National TAB - Michael McDonnell
Status : Open
Originated Date : 09/14/2023 - Michael McDonnell - National TAB

Project Issue File Details



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.

RTU's (Roof Top Units) w/ Diffusers

Each of the RTU's were measured with a flow hood at their terminal devices to establish a total flow for that unit. Each RTU was adjusted to within tolerance of the engineer's 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. The mechanical plans indicate that calibration of the outside air dampers was to be performed in conjunction with the controls company (Novar/Honeywell). The controls system was not yet installed at the time of the Test and Balance. The listed controls company contacts were contacted several times and we received no response. High and low speed outside air damper setpoints were entered into the RTU programming and are listed in this report. The low-speed motor setpoint was set to 50% of the high-speed setpoint. 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 of design. This setpoint was marked on the speed controller. 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.

Final Building Tests

After completing the Test and Balance the final building pressure was measured at 0.032" W.C.. It was confirmed that the building pressure fell within acceptable tolerances and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.

CheckList List

- Site Pictures



Ulta Beauty (Baraboo, WI)

CheckList Information

Name : Site Pictures **Status :** Not Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 09/14/2023 - Michael McDonnell - National TAB

CheckList Item Details

SITE PICTURES

STORE FRONT

Comment:



ULTA-Baraboo-WI
09/14/2023

RTU-1

Comment:



RTU_1
09/14/2023



Unit_Label_1
09/14/2023



Area_Served.
09/14/2023

RTU-2

Comment:



RTU-2(1)
09/14/2023



UnitLabel
09/14/2023



AreaServed
09/14/2023

RTU-3

Comment:



RTU_3
09/14/2023



Unit_Label_3
09/14/2023



Area_Served
09/14/2023

RTU-4

Comment:



RTU-4
09/14/2023



UnitLabel
09/14/2023



AreaServed(1)
09/14/2023

EF-1

Comment:



EF-1-RR
09/14/2023



SpeedController
09/14/2023

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Project: Ulta Beauty (Baraboo, WI)

System/Unit: AHU/RTU



Asset: RTU-1

AREA: SALES

Unit Data		
	Design	Actual
MFG	NA	LENNOX
Serial Num	-	5623G03743
Model Num	NA	LGM102U4
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	14.25X23
Num PreFilter 1	-	4
PreFilter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	NL
Horsepower	-	3.8
Motor Rpm	-	NL
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	8.7
Service Factor	-	NL

Test Data		
	Design	Actual
SF CFM	3400	3465
RA CFM	2800	2883
OA CFM	600	582
RL Voltage	208	211/211/211
RL Amperage	-	2.0/2.0/1.9
OA Damper Position	-	HIGH SPEED: 29% LOW SPEED: 43%
Brake Horse Power	3.75	0.86

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.30"
Fan Suction SP	-	-0.44"
Fan Discharge SP	-	0.35"
Total ESP	1.00	0.65"
Fan Total SP	-	0.79"

Completed By: Michael McDonnell on 09/14/2023

Notes:

- [1] ALARM 22: LOW PRESSURE SWITCH COMPRESSOR 1, NEEDS SERVICE.
- [2] SYSTEM MOTOR SETPOINTS: HIGH-3000CFM / LOW-1500CFM

Written By: Michael McDonnell on 09/14/2023

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Project:Ultra Beauty (Baraboo, WI)

AHU/RTU



Diffuser Supply (GRD)

RTU-1/SALES

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1-1	SALES	CD	14	650	706	634	97.5
1-2	SALES	CD	14	650	731	654	100.6
1-3	SALES	CD	14	700	818	737	105.3
1-4	SALES	CD	14	700	809	727	103.9
1-5	SALES	CD	14	700	820	713	101.9
Total				3400	3884	3465	101.91%

Completed By: Michael McDonnell on 09/14/2023

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Project: Ulta Beauty (Baraboo, WI)

System/Unit: AHU/RTU



Asset: RTU-2

AREA:SALES

Unit Data		
	Design	Actual
MFG	NA	LENNOX
Serial Num	-	5623G03746
Model Num	NA	LGM102U4
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	14.25X23
Num PreFilter 1	-	4
PreFilter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	NL
Horsepower	-	3.8
Motor Rpm	-	NL
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	8.7
Service Factor	-	NL

Test Data		
	Design	Actual
SF CFM	3400	3394
RA CFM	2800	2780
OA CFM	600	614
RL Voltage	208	212/212/212
RL Amperage	-	2.1/2.0/2.0
OA Damper Position	-	HIGH SPEED: 29% LOW SPEED: 43%
Brake Horse Power	3.75	0.89

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.33"
Fan Suction SP	-	-0.49"
Fan Discharge SP	-	0.35"
Total ESP	1.00	0.68"
Fan Total SP	-	0.84"

Completed By: Michael McDonnell on 09/14/2023

Notes:

[1] SYSTEM MOTOR SETPOINTS: HIGH-3000CFM / LOW-1500CFM

Written By: Michael McDonnell on 09/14/2023

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Project:Ultra Beauty (Baraboo, WI)

AHU/RTU



Diffuser Supply (GRD)

RTU-2/SALES

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-1	SALES	CD	14	565	579	579	102.5
2-2	SALES	CD	14	565	560	560	99.1
2-3	SALES	CD	14	565	575	575	101.8
2-4	SALES	CD	14	565	553	553	97.9
2-5	SALES	CD	14	565	560	560	99.1
2-6	SALES	CD	14	575	567	567	98.6
Total				3400	3394	3394	99.82%

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Project: Ulta Beauty (Baraboo, WI)

System/Unit: AHU/RTU



Asset: RTU-3

AREA:SALES

Unit Data		
	Design	Actual
MFG	NA	LENNOX
Serial Num	-	5623G03744
Model Num	NA	LGM102U4
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	14.25X23
Num PreFilter 1	-	4
PreFilter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	NL
Horsepower	-	3.8
Motor Rpm	-	NL
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	8.7
Service Factor	-	NL

Test Data		
	Design	Actual
SF CFM	3400	3505
RA CFM	2800	2877
OA CFM	600	628
RL Voltage	208	211/211/212
RL Amperage	-	2.4/2.5/2.4
OA Damper Position	-	HIGH SPEED: 28% LOW SPEED: 45%
Brake Horse Power	3.75	1.06

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.37"
Fan Suction SP	-	-0.53"
Fan Discharge SP	-	0.41"
Total ESP	1.00	0.78"
Fan Total SP	-	0.94"

Completed By: Michael McDonnell on 09/14/2023

Notes:

[1] SYSTEM MOTOR SETPOINTS: HIGH-3200CFM / LOW-1600CFM

Written By: Michael McDonnell on 09/14/2023

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Project:Ultra Beauty (Baraboo, WI)

AHU/RTU



Diffuser Supply (GRD)

RTU-3/SALES

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-1	SALES	CD	14	550	445	566	102.9
3-2	SALES	CD	14	540	529	562	104.1
3-3	SALES	CD	14	540	539	536	99.3
3-4	SALES	CD	14	540	575	548	101.5
3-5	SALES	CD	14	540	497	574	106.3
3-6	SALES	CD	14	540	674	567	105.0
3-7	WOMENS RR	CD	6	75	93	77	102.7
3-8	MENS RR	CD	6	75	94	75	100.0
Total				3400	3446	3505	103.09%

Completed By: Michael McDonnell on 09/14/2023

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Project: Ulta Beauty (Baraboo, WI)

System/Unit: AHU/RTU



Asset: RTU-4

AREA:STAGING

Unit Data		
	Design	Actual
MFG	NA	LENNOX
Serial Num	-	5623F04022
Model Num	NA	LGM060U4
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29X14
Num PreFilter 1	-	4
PreFilter Size 1	-	20X20X2

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	NL
Horsepower	-	1.5
Motor Rpm	-	NL
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	4.4
Service Factor	-	NL

Test Data		
	Design	Actual
SF CFM	2000	2026
RA CFM	1850	1883
OA CFM	150	143
RL Voltage	208	212/212/212
RL Amperage	-	1.9/1.9/1.7
OA Damper Position	-	HIGH SPEED: 21% LOW SPEED: 30%
Brake Horse Power	1.50	

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.35"
Fan Suction SP	-	-0.45"
Fan Discharge SP	-	0.30"
Total ESP	1.00	0.65"
Fan Total SP	-	0.75"

Completed By: Michael McDonnell on 09/14/2023

Notes:

[1] SYSTEM MOTOR SETPOINTS: HIGH-1900CFM / LOW-950CFM

Written By: Michael McDonnell on 09/14/2023

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Project:Ultra Beauty (Baraboo, WI)

AHU/RTU



Diffuser Supply (GRD)

RTU-4/STAGING

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-1	STAGING	CD	14	610	605	621	101.8
4-2	STAGING	CD	14	610	717	623	102.1
4-3	OFFICE	CD	8	170	156	166	97.6
4-4	STAGING	CD	14	610	686	616	101.0
Total				2000	2164	2026	101.3%

Diffuser Ret/Exh (GRD)

RTU-4/STAGING

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R4-1	CD	20X16	915	1.0	1009	861	852	93.1
R4-2	CD	20X16	915	1.0	992	880	864	94.4
R4-3	CD	8	170	1.0	104	178	167	98.2
Total			2000		2105	1919	1883	94.15%

Completed By: Michael McDonnell on 09/14/2023

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Project: Ulta Beauty (Baraboo, WI)

System/Unit: FAN - Exhaust



Asset: EF-1

AREA:MENS RR

Unit Data		
	Design	Actual
MFG	NA	COOK
Model Num	NA	GN-188
Serial Num	-	NA
Type	INLINE	INLINE

Test Data		
	Design	Actual
CFM	200	201
RL Voltage	-	118

Motor Data		
	Design	Actual
Motor MFG	-	NL
Motor Rpm	1357	DD
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.0

Completed By: Michael McDonnell on 09/14/2023

Notes:

[1] MOTOR SETPOINT MARKED ON SPEED CONTROLLER.

Written By: Michael McDonnell on 09/14/2023

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Project:Ultra Beauty (Baraboo, WI)

FAN - Exhaust

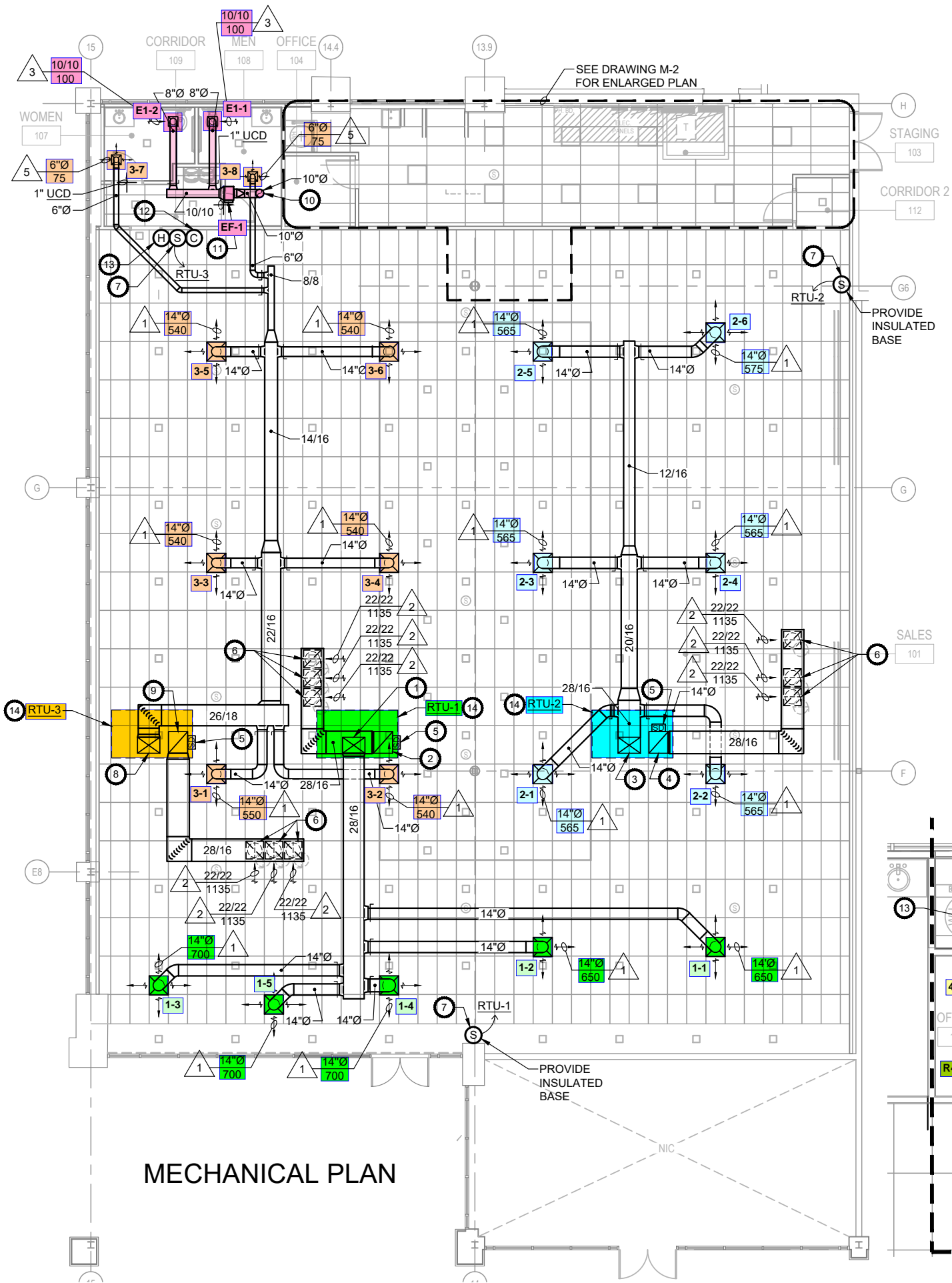


Diffuser Ret/Exh (GRD)

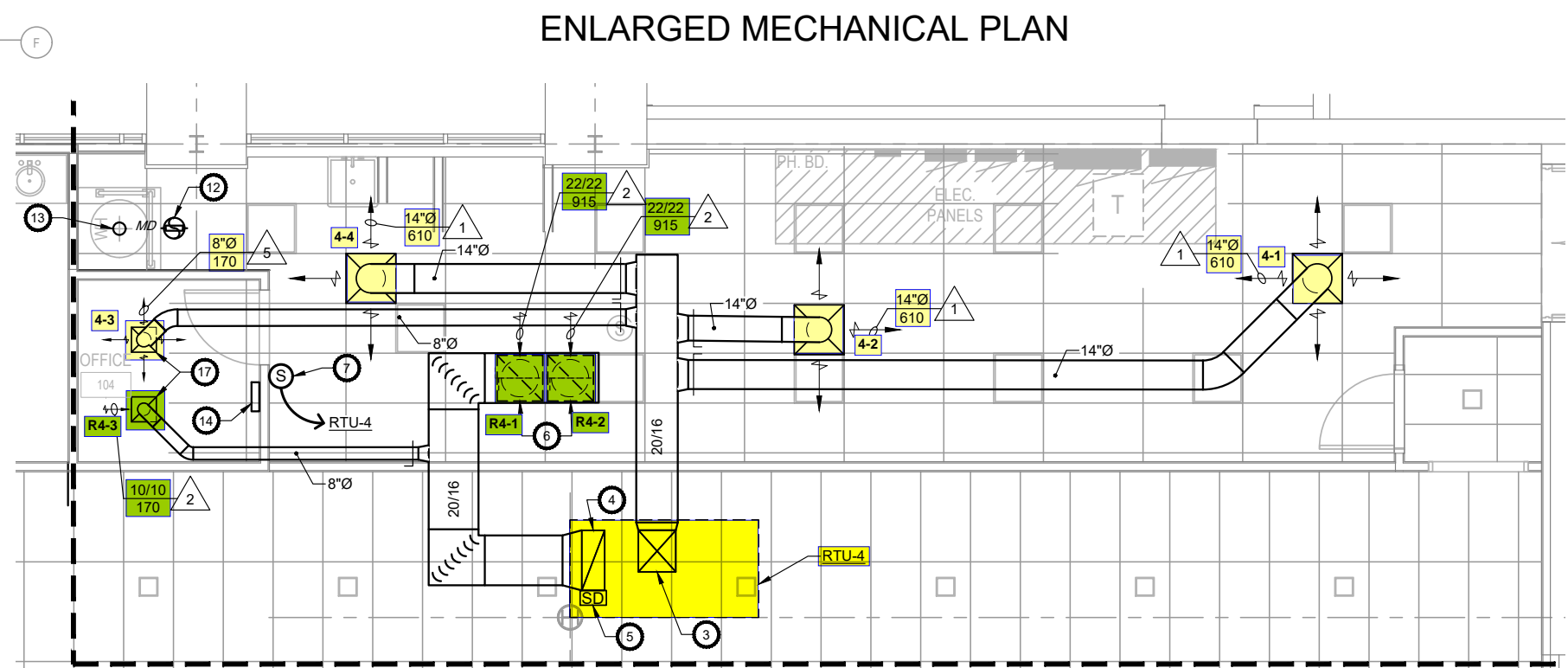
EF-1/MENS RR

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
E1-1	CD	8	100	1.0	114	99	99	99.0
E1-2	CD	8	100	1.0	118	102	102	102.0
Total			200		232	201	201	100.5%

Completed By: Michael McDonnell on 09/14/2023



MECHANICAL PLAN



ENLARGED MECHANICAL PLAN