

Report By:

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



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)

Table Of Contents

| Section | Page # |
|----------------|--------|
| Issue Data | 3 |
| Summary | 6 |
| Checklist Data | 7 |
| AHU/RTU | 12 |
| FAN - Exhaust | 20 |
| GRD Layout | 22 |

Issue List

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



Ultra Beauty (Baraboo, WI)

Project Issue Information

Issue Name : 1. 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**

Project Issue Response Details

- **09/14/2023 National TAB - Michael McDonnell**
 - Plans indicate outside air damper position is to be set through Controls Company. Controls not yet installed. Contacted Novar/Honeywell contact listed on plans and received no response.

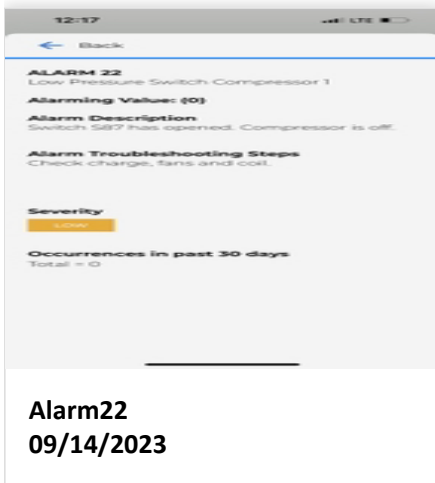


Ultra Beauty (Baraboo, WI)

Project Issue Information

Issue Name : 2. 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

National TAB

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

National TAB

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

National TAB

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

National TAB

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% |

Completed By: Michael McDonnell on 09/14/2023

National TAB

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

National TAB

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

National TAB

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

National TAB

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

National TAB

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

National TAB

Project:Ultra Beauty (Baraboo, WI)

FAN - Exhaust

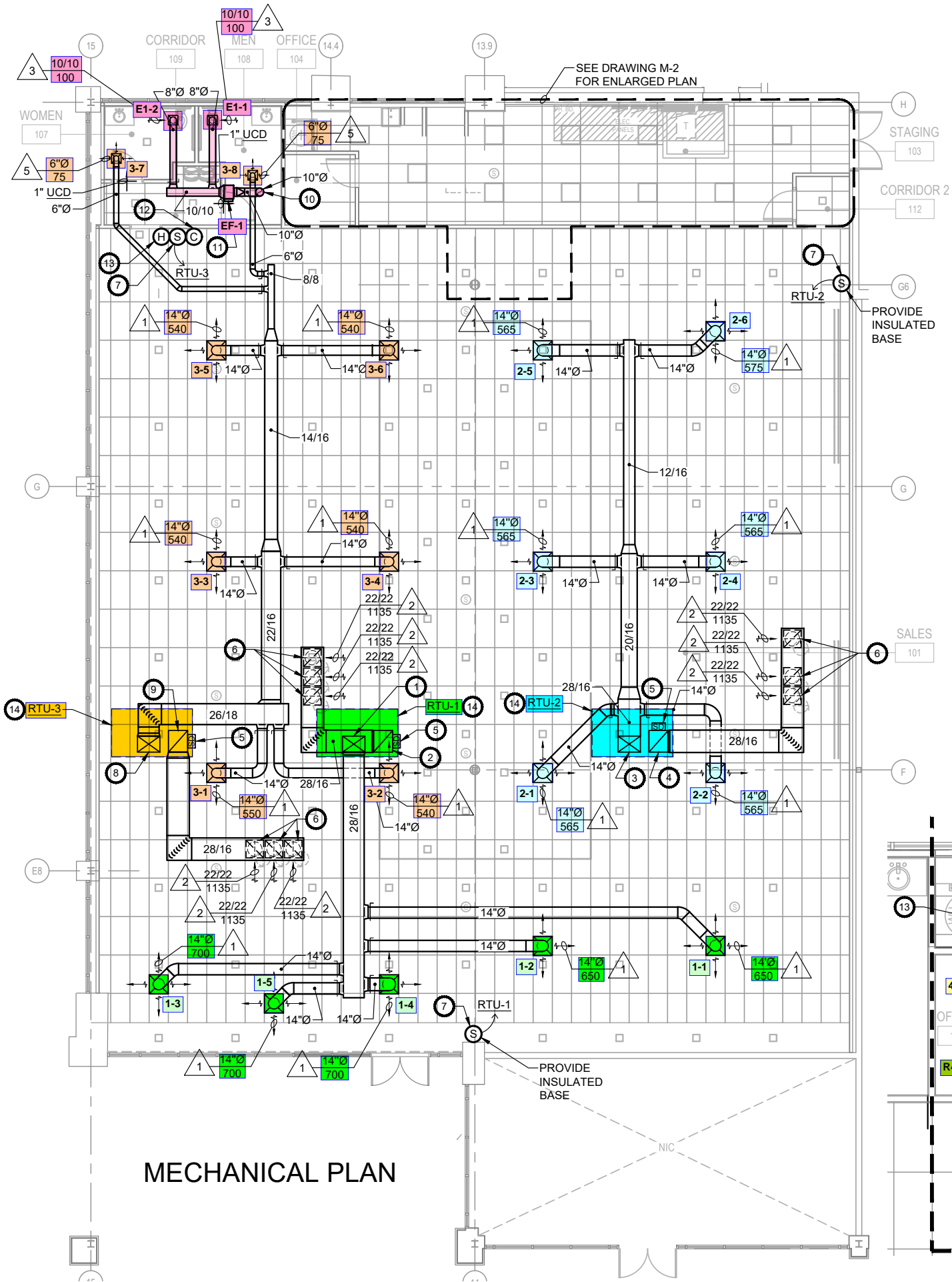


Diffuser Ret/Exh (GRD)

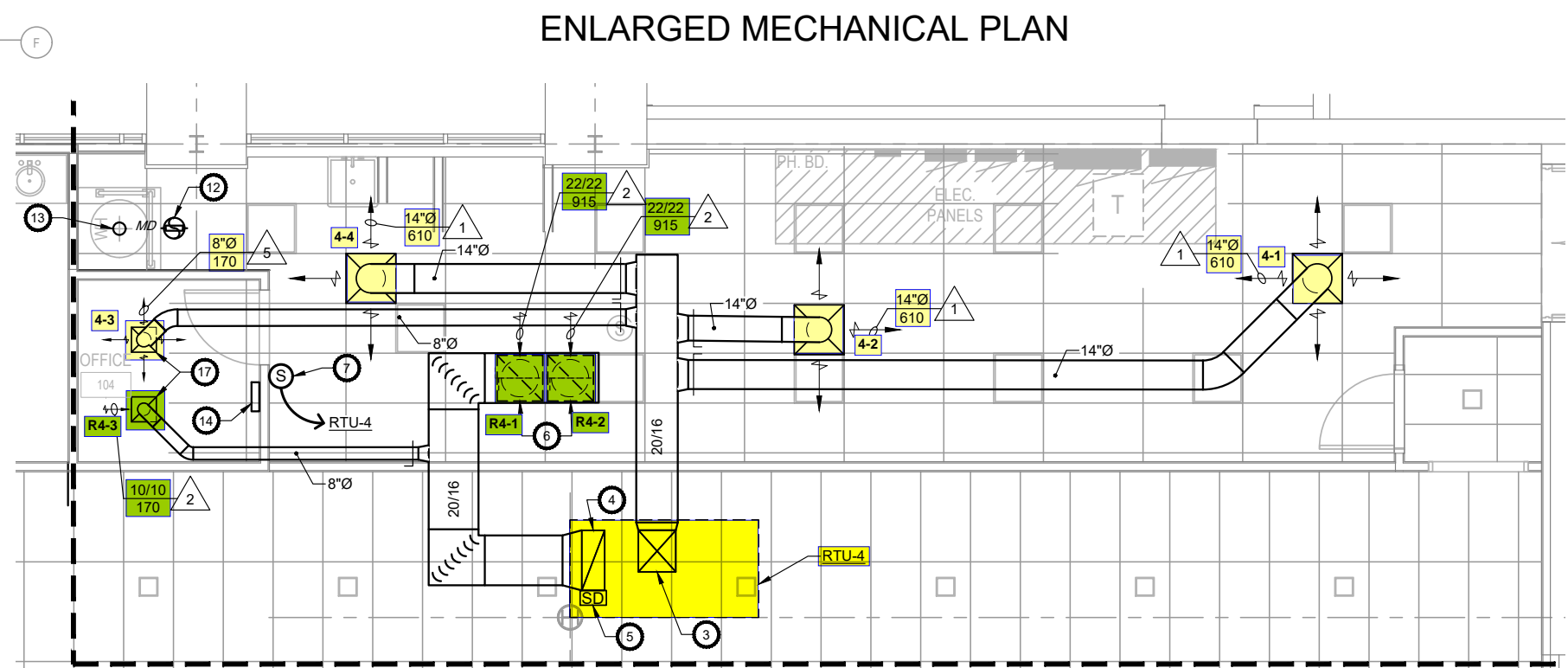
EF-1/MENS RR

| 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