**Report By:**

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

NATIONAL TAB

Comfort. Under control.

**Report: Tab Report**
**Function: Test, Adjust, & Balance**
**Date: 06/13/2023**

# PROJECT

## 06-05-23 BARNES & NOBLE #3312

200 NORTH CATTLEMAN RD

SARASOTA , FL 34243

Client

Brinco Mechanical Management Services, Inc.
125 South Main St

Freeport, NY 11520

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## Issue List

- No dampers installed on any of the diffusers

## CheckList List

- SITE PICTURES

## 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
- TECH - STEP 5: FINAL DOCUMENTATION

## 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 at their terminal devices or via traverse 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. 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. 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. 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.



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## 06-05-23 BARNES & NOBLE #3312

### Project Issue Information

**Issue Name :** No dampers installed on any of the diffusers
**Description :** Unable to turn individual diffusers into design airflow.

**Created By :** National TAB **Assigned To :** National TAB - Ian Fuller
**Status :** Open
**Originated Date :** 06/13/2023 - Ian Fuller - National TAB

Project Issue File Details

**MissingDamper**
**06/13/2023**

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 | CAFÉ SERV. | 3600 | 3649 | 2700 | 2728 | 900 | 921 | 25.0% | 25.2% | | | | | | |
| RTU-2 | CAFÉ SERV. | 4200 | 4280 | 3200 | 3234 | 1000 | 1046 | 23.8% | 24.4% | | | | | | |
| RTU-3 | SALES | 4400 | 4194 | 3300 | 3142 | 1100 | 1052 | 25.0% | 25.1% | | | | | | |
| RTU-4 | SALES | 4400 | 4660 | 3300 | 3457 | 1100 | 1203 | 25.0% | 25.8% | | | | | | |
| RTU-5 | SALES | 4400 | 4794 | 3300 | 3663 | 1100 | 1131 | 25.0% | 23.6% | | | | | | |
| RTU-6 | OFFICE/BRK | 960 | 1004 | 810 | 842 | 150 | 162 | 15.6% | 16.1% | | | | | | |
| RTU-7 | SITOCK | 2400 | 2546 | 2250 | 2385 | 150 | 161 | 6.3% | 6.3% | | | | | | |
| RTU-8 | CAFÉ WRK. | 2100 | 2043 | 2000 | 1938 | 100 | 105 | 4.8% | 5.1% | | | | | | |
| EF-1 | ELEC. RM | | | | | | | | | | | | | 750 | 712 |
| EF-2 | REST RMS. | | | | | | | | | | | | | 300 | 315 |
| EF-3 | SERVER | | | | | | | | | | | | | 500 | 476 |
| EF-4 | CAFÉ | | | | | | | | | | | | | 500 | 515 |
| **TOTALS** | | 26460 | 27170 | 20860 | 21389 | 5600 | 5781 | | | 0 | 0 | 0 | 0 | 2050 | 2018 |

**NET BUILDING AIRFLOW CALCULATION**

| TOTALS | DESIGN | ACTUAL |
|---|---|---|
| TOTAL OA | 5600 | 5781 |
| TOTAL EXHAUST | 2050 | 2018 |
| **NET AIRFLOW** | 3550 | 3763 |

| DOOR TESTED | BUILDING PRESSURE MEASUREMENTS (IN. H20) |
|---|---|
| FRONT | 0.0097 |
| SIDE | |
| REAR | |
| **AVERAGE** | **0.0097** |

**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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# 06-05-23 BARNES & NOBLE #3312

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | SITE PICTURES | **Status :** | Completed |
| **Assigned Organization :** | National TAB | **Asset :** | |
| **Requesting Organization :** | National TAB | | |

## CheckList Item Details

STORE FRONT

RTU-1

**RTU1**
**06/05/2023**

RTU-2



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**RTU2**
**06/05/2023**

RTU-3

**RTU3(1)**
**06/05/2023**

RTU-4

**RTU4**
**06/05/2023**

RTU-5

**RTU5**
**06/05/2023**

RTU-6

**RTU6**
**06/05/2023**

RTU-7

**RTU7**
**06/05/2023**

RTU-8

**RTU8**
**06/05/2023**

EF-1

**EF1**
**06/06/2023**

EF-2

**EF2**
**06/06/2023**

EF-3

**EF3(1)**
**06/06/2023**

EF-4

**EF4**
**06/06/2023**

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# 06-05-23 BARNES & NOBLE #3312

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | TECH - STEP 1: INITIAL WALKTHROUGH | **Status :** | Completed |
| **Assigned Organization :** | National TAB | **Asset :** | |
| **Requesting Organization :** | 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. | YES |
| All diffusers and grilles are installed and match design? | YES |
| Thermostats have power? | YES |
| Have trades/general contractor been notified about any issues and are they created on FaciliBuild? | |



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# 06-05-23 BARNES & NOBLE #3312

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | TECH - STEP 2: UNIT DATA AND EVAL | **Status :** | Completed |
| **Assigned Organization :** | National TAB | **Asset :** | |
| **Requesting Organization :** | National TAB | | |

## CheckList Item Details

| | |
|---|---|
| **UNIT DATA AND EVALUATION WHILE GATHERING UNIT DATA CHECK THE FOLLOWING:** | |
| RTU's/AHU's | |
| Economizers are assembled and functional? | YES |
| DCV Max damper opening position is set to minimum? | YES |
| Free cooling enthalpy set point set for lowest setting (Typically "D") | YES |
| Motors are all operating below the FLA rating? | YES |
| Are belts tight? | YES |
| If direct drive unit is the speed controller working. | YES |
| Is gas piping installed and valves turned on? | YES |
| Unit free of noticeable noise and vibration | YES |
| **EF's** | |
| Rotation is correct? | YES |
| Belts are tight? | NA |
| There is no major leakage around base of fan? | NONE OBSERVED |
| Is the motor operating below the motor FLA rating? | YES |
| For restroom fan(s) is the back draft damper installed and can it fully open? | YES |



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| | |
|---|---|
| Unit free of noticeable noise and vibration? | YES |
| **DOCUMENTATION** | |
| Have trades/general contractor been notified about any issues and are they created on FaciliBuild? | |

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# 06-05-23 BARNES & NOBLE #3312

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | TECH - STEP 3: TEST, ADJUST AND BALANCE | **Status :** | Completed |
| **Assigned Organization :** | National TAB | **Asset :** | |
| **Requesting Organization :** | National TAB | | |

### CheckList Item Details

| | |
|---|---|
| **TEST, ADJUST, AND BALANCE ALL EQUIPMENT:** | |
| **DURING TESTING MAKE NOTE OF THE FOLLOWING:** | |
| Is space free of drafting? | YES |
| Is space comfortable in all areas? | YES |
| Is the space free of ventilation noise? | YES |
| If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA". | NA |



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# 06-05-23 BARNES & NOBLE #3312

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | TECH - STEP 4: FINAL TESTS | **Status :** | Completed |
| **Assigned Organization :** | National TAB | **Asset :** | |
| **Requesting Organization :** | National TAB | | |

### CheckList Item Details

| | |
|---|---|
| **FINAL TESTS** | |
| **ADDITIONAL** | |
| Thermostats are programmed? | YES |



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# 06-05-23 BARNES & NOBLE #3312

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | TECH - STEP 5: FINAL DOCUMENTATION | **Status :** | Completed |
| **Assigned Organization :** | National TAB | **Asset :** | |
| **Requesting Organization :** | National TAB | | |

### CheckList Item Details

**FINAL DOCUMENTATION**

| | |
|---|---|
| Marked Data capture complete for all assets? | YES |
| Picture file sent to processing team or uploaded? | YES |
| Prelim report generated and reviewed? | YES |



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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: AHU/RTU

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**Asset: RTU1** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | LENNOX |
| **Serial Num** | - | 5619G01452 |
| **Model Num** | LGH092H4B | LGH092H4MM3G |
| **Type** | RTU | RTU |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 2 |
| **OA Filter Size 1** | - | 23X14 |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20X25X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | US MOTORS |
| **Frame** | - | 56HZ |
| **Horsepower** | - | 2 |
| **Motor Rpm** | - | 1750 |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 460 | 460 |
| **Rated Amperage** | - | 2.9 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor Sheave Size** | - | MVL40 |
| **Motor Bore Size** | - | 0.875” |
| **Motor Sheave SetPt** | - | 3.5 TURNS OUT |
| **Fan Sheave Size** | - | 5.5” |
| **Fan Sheave Bore** | - | 1.0” |
| **Belt CL Distance** | - | 22.0” |
| **Num of Belts** | - | 1 |
| **Belt Size** | - | AX55 |
| **Belt Alignment** | - | GOOD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 3600 | 3649 |
| **SF RPM** | - | NA |
| **RA CFM** | 2700 | 2728 |
| **OA CFM** | 900 | 921 |
| **RL Voltage** | - | 428/426/426 |
| **RL Amperage** | - | 2.0/2.2/2.0 |
| **SF Rotation** | - | CCW |
| **RA Damper Position** | - | 60% |
| **Min OA Damper Position** | - | 40% |
| **Min OA Damper Type** | - | ECONOMIZER |
| **OA Enthalpy Setpt** | - | 10 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.39" |
| **Fan Suction SP** | - | -0.71" |
| **Fan Discharge SP** | - | 0.43" |
| **Total ESP** | 0.8" | 0.82" |
| **Fan Total SP** | 1.4' | 1.14" |

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

Completed By: Ian Fuller on 06/07/2023



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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: AHU/RTU

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**Asset: RTU2** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | LENNOX |
| **Serial Num** | - | 5619K10775 |
| **Model Num** | LGH120H4B | LGH120H4MM3G |
| **Type** | RTU | RTU |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 2 |
| **OA Filter Size 1** | - | 23X14 |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20X25X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | INTERLINK |
| **Frame** | - | 56HZ |
| **Horsepower** | - | 3 |
| **Motor Rpm** | - | 1750 |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 460 | 460 |
| **Rated Amperage** | - | 5.0 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor Sheave Size** | - | 4.25” |
| **Motor Bore Size** | - | 0.875” |
| **Motor Sheave SetPt** | - | 0.5 TURNS OUT |
| **Fan Sheave Size** | - | 7.0” |
| **Fan Sheave Bore** | - | 1.0” |
| **Belt CL Distance** | - | 21.5” |
| **Num of Belts** | - | 1 |
| **Belt Size** | - | AX58 |
| **Belt Alignment** | - | GOOD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 4200 | 4280 |
| **SF RPM** | - | NA |
| **RA CFM** | 3200 | 3234 |
| **OA CFM** | 1000 | 1046 |
| **RL Voltage** | - | 424/422/424 |
| **RL Amperage** | - | 4.7/4.9/4.7 |
| **SF Rotation** | - | CCW |
| **RA Damper Position** | - | 70% |
| **Min OA Damper Position** | - | 30% |
| **Min OA Damper Type** | - | EFONOMIZER |
| **OA Enthalpy Setpt** | - | 10 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.44" |
| **Fan Suction SP** | - | -0.81" |
| **Fan Discharge SP** | - | 0.36" |
| **Total ESP** | 0.9' | 0.8" |
| **Fan Total SP** | 1.8" | 1.17" |

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

Completed By: Ian Fuller on 06/07/2023



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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: AHU/RTU

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**Asset: RTU3** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | LENNOX |
| **Serial Num** | - | 5619G01467 |
| **Model Num** | LGH150H4M | LGH150H4MH1G |
| **Type** | RTU | RTU |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 2 |
| **OA Filter Size 1** | - | 23X14 |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20X25X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | INTERLINK |
| **Frame** | - | 56HZ |
| **Horsepower** | - | 3 |
| **Motor Rpm** | - | 1750 |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 460 | 460 |
| **Rated Amperage** | - | 5.0 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor Sheave Size** | - | 1VP50 |
| **Motor Bore Size** | - | 0.875” |
| **Motor Sheave SetPt** | - | 3 TURNS OUT |
| **Fan Sheave Size** | - | 7.0” |
| **Fan Sheave Bore** | - | 1.0” |
| **Belt CL Distance** | - | 22.0” |
| **Num of Belts** | - | 1 |
| **Belt Size** | - | AX58 |
| **Belt Alignment** | - | GOOD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 4400 | 4194 |
| **SF RPM** | - | NA |
| **RA CFM** | 3300 | 3142 |
| **OA CFM** | 1100 | 1052 |
| **RL Voltage** | - | 422/424/422 |
| **RL Amperage** | - | 4.5/4.7/4.5 |
| **SF Rotation** | - | CCW |
| **RA Damper Position** | - | 80% |
| **Min OA Damper Position** | - | 20% |
| **Min OA Damper Type** | - | ECONOMIZER |
| **OA Enthalpy Setpt** | - | 10 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.46" |
| **Fan Suction SP** | - | -0.91" |
| **Fan Discharge SP** | - | 0.46" |
| **Total ESP** | 1.0" | 0.92" |
| **Fan Total SP** | 1.6"' | 1.37" |

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

Completed By: Ian Fuller on 06/07/2023



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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: AHU/RTU

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**Asset: RTU4** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | LENNOX |
| **Serial Num** | - | 5619G01456 |
| **Model Num** | LGH150H4M | LGH150H4MH1G |
| **Type** | RTU | RTU |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 2 |
| **OA Filter Size 1** | - | 23X14 |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20X25X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | INTERLINK |
| **Frame** | - | 56HZ |
| **Horsepower** | - | 3 |
| **Motor Rpm** | - | 1750 |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 460 | 460 |
| **Rated Amperage** | - | 5.0 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor Sheave Size** | - | 1VP50 |
| **Motor Bore Size** | - | 0.875” |
| **Motor Sheave SetPt** | - | 3 RURNS OUT |
| **Fan Sheave Size** | - | 7.0” |
| **Fan Sheave Bore** | - | 1.0” |
| **Belt CL Distance** | - | 22.0” |
| **Num of Belts** | - | 1 |
| **Belt Size** | - | AX58 |
| **Belt Alignment** | - | GOOD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 4400 | 4660 |
| **SF RPM** | - | NA |
| **RA CFM** | 3300 | 3457 |
| **OA CFM** | 1100 | 1203 |
| **RL Voltage** | - | 422/424/422 |
| **RL Amperage** | - | 4.1/4.0/4.0 |
| **SF Rotation** | - | CCW |
| **RA Damper Position** | - | 85% |
| **Min OA Damper Position** | - | 15% |
| **Min OA Damper Type** | - | ECONOMIZER |
| **OA Enthalpy Setpt** | - | 10 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.52" |
| **Fan Suction SP** | - | -0.82" |
| **Fan Discharge SP** | - | 0.38" |
| **Total ESP** | 1.0" | 0.9" |
| **Fan Total SP** | 1.6" | 1.14" |

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

Completed By: Ian Fuller on 06/07/2023



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# National TAB

**Project:06-05-23 BARNES & NOBLE #3312**

## AHU/RTU

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### Diffuser Supply (GRD)

**RTU4/**

| Asset | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **AK** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| SGRD1 | SALES | SG-A | 18X18 | 550 | 1.51 | 362 | 362 | 362 | 65.8 |
| SGRD2 | SALES | SG-A | 18X18 | 550 | 1.51 | 390 | 390 | 390 | 70.9 |
| SGRD3 | SALES | SG-A | 18X18 | 550 | 1.51 | 455 | 455 | 455 | 82.7 |
| SGRD4 | SALES | SG-A | 18X18 | 550 | 1.51 | 467 | 467 | 467 | 84.9 |
| SGRD5 | SALES | SG-A | 18X18 | 550 | 1.51 | 622 | 622 | 622 | 113.1 |
| SGRD6 | SALES | SG-A | 18X18 | 550 | 1.51 | 738 | 738 | 738 | 134.2 |
| SGRD7 | SALES | SG-A | 18X18 | 550 | 1.51 | 466 | 466 | 466 | 84.7 |
| SGRD8 | SALES | SG-A | 18X18 | 550 | 1.51 | 565 | 565 | 565 | 102.7 |
| SGRD9 | SALES | SG-A | 18X18 | 550 | 1.51 | 595 | 595 | 595 | 108.2 |

**Completed By: Wale Odofin on**



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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: AHU/RTU

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**Asset: RTU5** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | LENNOX |
| **Serial Num** | - | 5619G01457 |
| **Model Num** | LGH150H4M | LGH150H4MH1G |
| **Type** | RTU | RTU |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 2 |
| **OA Filter Size 1** | - | 23X14 |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20X25X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | INTERLINK |
| **Frame** | - | 56HZ |
| **Horsepower** | - | 3 |
| **Motor Rpm** | - | 1750 |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 460 | 460 |
| **Rated Amperage** | - | 5.0 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor Sheave Size** | - | 1VP50 |
| **Motor Bore Size** | - | 0.875” |
| **Motor Sheave SetPt** | - | 3 TURNS OUT |
| **Fan Sheave Size** | - | 7.0” |
| **Fan Sheave Bore** | - | 1.0” |
| **Belt CL Distance** | - | 22.0” |
| **Num of Belts** | - | 1 |
| **Belt Size** | - | AX58 |
| **Belt Alignment** | - | GOOD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 4400 | 4794 |
| **SF RPM** | - | NA |
| **RA CFM** | 3300 | 3663 |
| **OA CFM** | 1100 | 1131 |
| **RL Voltage** | - | 422/424/423 |
| **RL Amperage** | - | 4.2/4.1/3.9 |
| **SF Rotation** | - | CCW |
| **RA Damper Position** | - | 90% |
| **Min OA Damper Position** | - | 10% |
| **Min OA Damper Type** | - | ECONOMIZER |
| **OA Enthalpy Setpt** | - | 10 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | 0.49" |
| **Fan Suction SP** | - | -0.97" |
| **Fan Discharge SP** | - | 0.52" |
| **Total ESP** | 1.0" | 1.01" |
| **Fan Total SP** | 1.6" | 1.49" |

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

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# National TAB

**Project:06-05-23 BARNES & NOBLE #3312**

## AHU/RTU

Comfort. Under control.

### Diffuser Supply (GRD)

**RTU5/**

| Asset | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **AK** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| SGRD1 | VESTIBLE | LD-1 | 12" | 400 | 1.87 | 396 | 396 | 396 | 99.0 |
| SGRD2 | SALES | SG-A | 18X14 | 1000 | 1.87 | 1030 | 1030 | 1030 | 103.0 |
| SGRD3 | SALES | SG-A | 18X14 | 1000 | 1.87 | 1123 | 1123 | 1123 | 112.3 |
| SGRD4 | SALES | SG-A | 18X14 | 1000 | 1.87 | 1280 | 1280 | 1280 | 128.0 |
| SGRD5 | SALES | SG-A | 18X14 | 1000 | 1.87 | 965 | 965 | 965 | 96.5 |

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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: AHU/RTU

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**Asset: RTU6** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | LENNOX |
| **Serial Num** | - | 5619G00832 |
| **Model Num** | LGH036H4E | LGH036H4EM4G |
| **Type** | RTU | RTU |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 2 |
| **OA Filter Size 1** | - | 15.5X14 |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 16X20X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | GENTEQ |
| **Frame** | - | N/L |
| **Horsepower** | - | 0.5 |
| **Motor Rpm** | - | 1075 |
| **Phase** | 3 | 1 |
| **Rated Voltage** | 460 | 208-230 |
| **Rated Amperage** | - | 4.1 |

| 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 |
| **Belt Alignment** | - | DD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 960 | 1004 |
| **SF RPM** | - | 30% |
| **RA CFM** | 810 | 842 |
| **OA CFM** | 150 | 162 |
| **RL Voltage** | - | 209 |
| **RL Amperage** | - | 3.6 |
| **SF Rotation** | - | CCW |
| **RA Damper Position** | - | 95% |
| **Min OA Damper Position** | - | 5% |
| **Min OA Damper Type** | - | ECONOMIZER |
| **OA Enthalpy Setpt** | - | 10 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.21" |
| **Fan Suction SP** | - | 0.49" |
| **Fan Discharge SP** | - | 0.25" |
| **Total ESP** | 0.8" | 0.46" |
| **Fan Total SP** | 0.9" | 0.74" |

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

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# National TAB

**Project:06-05-23 BARNES & NOBLE #3312**

## AHU/RTU

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### Diffuser Supply (GRD)

**RTU6/**

| Asset | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **AK** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| SGRD1 | BREAK RM. | CD-A | 10" | 355 | 1 | 393 | 393 | 393 | 110.7 |
| SGRD2 | BREAK RM | CD-A | 10" | 355 | 1 | 350 | 350 | 350 | 98.6 |
| SGRD3 | OFFICE | CD-B | 10" | 250 | 1 | 261 | 261 | 261 | 104.4 |

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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: AHU/RTU

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**Asset: RTU7** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | LENNOX |
| **Serial Num** | - | 5619G01455 |
| **Model Num** | LGH092H4B | LGH092H4MM3G |
| **Type** | RTU | RTU |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 2 |
| **OA Filter Size 1** | - | 23X14 |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20X25X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | US MOTORS |
| **Frame** | - | 56HZ |
| **Horsepower** | - | 2 |
| **Motor Rpm** | - | 1750 |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 460 | 460 |
| **Rated Amperage** | - | 3.2 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor Sheave Size** | - | MVL40 |
| **Motor Bore Size** | - | 0.875” |
| **Motor Sheave SetPt** | - | 3 TURNS OUT |
| **Fan Sheave Size** | - | 5.5” |
| **Fan Sheave Bore** | - | 1.0” |
| **Belt CL Distance** | - | 22.0” |
| **Num of Belts** | - | 1 |
| **Belt Size** | - | AX55 |
| **Belt Alignment** | - | GOOD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 2400 | 2546 |
| **SF RPM** | - | NA |
| **RA CFM** | 2350 | 2385 |
| **OA CFM** | 150 | 161 |
| **RL Voltage** | - | 421/422/424 |
| **RL Amperage** | - | 2.8/3.0/3.0 |
| **SF Rotation** | - | CCW |
| **RA Damper Position** | - | 97% |
| **Min OA Damper Position** | - | 3% |
| **Min OA Damper Type** | - | ECONOMIZER |
| **OA Enthalpy Setpt** | - | 10 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.32" |
| **Fan Suction SP** | - | -0.54" |
| **Fan Discharge SP** | - | 0.30" |
| **Total ESP** | 0.8" | 0.62" |
| **Fan Total SP** | - | 0.84" |

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

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**Project:06-05-23 BARNES & NOBLE #3312**

## AHU/RTU

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### Diffuser Supply (GRD)

**RTU7/**

| Asset | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **AK** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| SGRD1 | STOCK | SG-A | 12X8 | 300 | 1.4 | 436 | 436 | 436 | 145.3 |
| SGRD2 | STOCK | SG-A | 12X8 | 300 | 1.4 | 370 | 370 | 370 | 123.3 |
| SGRD3 | STOCK | SG-A | 12X8 | 300 | 1.4 | 404 | 404 | 404 | 134.7 |
| SGRD4 | STOCK | SG-A | 12X8 | 300 | 1.4 | 361 | 361 | 361 | 120.3 |
| SGRD5 | STOCK | SG-A | 18X18 | 1200 | 1.4 | 975 | 975 | 975 | 81.3 |

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**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: AHU/RTU

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**Asset: RTU8** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | LENNOX |
| **Serial Num** | - | 5619G00829 |
| **Model Num** | LGH060H4E | LGH060H4EU4G |
| **Type** | RTU | RTU |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 2 |
| **OA Filter Size 1** | - | 15.5X14 |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20X20X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | GENTEQ |
| **Frame** | - | N/L |
| **Horsepower** | - | 1 |
| **Motor Rpm** | - | N/L |
| **Phase** | 3 | 1 |
| **Rated Voltage** | 460 | 240 |
| **Rated Amperage** | - | 6.13 |

| 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 |
| **Belt Alignment** | - | DD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 2100 | 2043 |
| **SF RPM** | - | NA |
| **RA CFM** | 2000 | 1938 |
| **OA CFM** | 100 | 105 |
| **RL Voltage** | - | 208 |
| **RL Amperage** | - | 4.8 |
| **SF Rotation** | - | CCW |
| **RA Damper Position** | - | 98% |
| **Min OA Damper Position** | - | 2% |
| **Min OA Damper Type** | - | ECONOMIZER |
| **OA Enthalpy Setpt** | - | 10 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.22" |
| **Fan Suction SP** | - | -0.53" |
| **Fan Discharge SP** | - | 0.25" |
| **Total ESP** | 0.8" | 0.47" |
| **Fan Total SP** | 1.1" | 0.88" |

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

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**Project:06-05-23 BARNES & NOBLE #3312**

## AHU/RTU

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### Diffuser Supply (GRD)

**RTU8/**

| Asset | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **AK** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| SGRD1 | WORK RM | CD-1 | 10" | 350 | 1.38 | 292 | 292 | 292 | 83.4 |
| SGRD2 | WORK RM | CD-1 | 10" | 350 | 1.38 | 339 | 339 | 339 | 96.9 |
| SGRD3 | WORK RM | CD-1 | 10" | 350 | 1.38 | 267 | 267 | 267 | 76.3 |
| SGRD4 | WORK RM | CD-1 | 10" | 350 | 1.38 | 370 | 370 | 370 | 105.7 |
| SGRD5 | WORK RM | CD-1 | 10" | 350 | 1.38 | 415 | 415 | 415 | 118.6 |
| SGRD6 | WORK RM | CD-1 | 10" | 350 | 1.38 | 360 | 360 | 360 | 102.9 |

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**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: FAN - Exhaust

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**Asset: EF1** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | GREENHECK | GREENHECK |
| **Model Num** | G-133-VG | G-103-VS-4-X |
| **Serial Num** | - | 16035782 |
| **Type** | ROOF MTD | DOWNBLAST |
| **Configuration** | VERTICAL | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | VARI-GREEN |
| **Frame** | - | N/L |
| **Horsepower** | - | 0.25 |
| **Motor Rpm** | - | 300-1750 |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 115 |
| **Amperage (rated)** | - | 2.85 |
| **Service Factor** | - | N/L |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 750 | 712 |
| **Fan RPM** | 846 | 1025 |
| **Fan Rotation** | - | CCW |
| **Motor RPM** | - | 1025 |
| **System SetPt** | - | 6.0 |
| **RL Voltage** | - | 122 |
| **RL Amperage** | - | 2.1 |
| **Total ESP** | 0.35" | 0.27" |
| **Fan Inlet SP** | - | -0.27" |
| **Fan Discharge SP** | - | ATM |

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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: FAN - Exhaust

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**Asset: EF2** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | GREENHECK | GREENHECK |
| **Model Num** | G-090-VG | G-090-VG-X |
| **Serial Num** | - | 16035762 |
| **Type** | ROOF MTD | DOWNBLAST |
| **Configuration** | VERTICAL | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | VARI-GREEN |
| **Frame** | - | N/L |
| **Horsepower** | - | 0.1 |
| **Motor Rpm** | 1201 | 300-1750 |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 115 |
| **Amperage (rated)** | - | 1.38 |
| **Service Factor** | - | N/L |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 300 | 315 |
| **Fan RPM** | 1201 | 490 |
| **Fan Rotation** | - | CCW |
| **Motor RPM** | - | 490 |
| **System SetPt** | - | 3.5 |
| **RL Voltage** | - | 121 |
| **RL Amperage** | - | 0.8 |
| **Total ESP** | 0.35" | 0.22" |
| **Fan Inlet SP** | - | -0.22 |
| **Fan Discharge SP** | - | ATM |

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# National TAB

**Project:06-05-23 BARNES & NOBLE #3312**

## FAN - Exhaust

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**Diffuser Ret/Exh (GRD)**

**EF2/**

| Asset | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **AK** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| EGRD1 | RESTROOM | EG-A | 8" | 100 | 1 | 109 | 109 | 109 | 109.0 |
| EGRD2 | RESTROOM | EG-A | 8' | 100 | 1 | 96 | 96 | 96 | 96.0 |
| EGRD3 | JANITOR CLST. | EG-B | 8" | 100 | 1 | 110 | 110 | 110 | 110.0 |

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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: FAN - Exhaust

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**Asset: EF3** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | GREENHECK | GREENHECK |
| **Model Num** | G-090-VG | G-090-VG-X |
| **Serial Num** | - | 16035778 |
| **Type** | ROOF MTD | DOWNBLAST |
| **Configuration** | VERTICAL | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | VARI-GREEN |
| **Frame** | - | N/L |
| **Horsepower** | - | 0.1 |
| **Motor Rpm** | - | 300-1750 |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 115 |
| **Amperage (rated)** | - | 1.38 |
| **Service Factor** | - | N/L |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 500 | 476 |
| **Fan RPM** | 1441 | 943 |
| **Fan Rotation** | - | CCW |
| **Motor RPM** | - | 943 |
| **System SetPt** | - | 6.5 |
| **RL Voltage** | - | 122 |
| **RL Amperage** | - | 1.1 |
| **Total ESP** | 0.35" | 0.29" |
| **Fan Inlet SP** | - | -0.29" |
| **Fan Discharge SP** | - | ATM |

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# National TAB

**Project: 06-05-23 BARNES & NOBLE #3312**

## System/Unit: FAN - Exhaust

Comfort. Under control.

**Asset: EF4** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | GREENHECK | GREENHECK |
| **Model Num** | G-090-VG | G-123-VG-4-X |
| **Serial Num** | - | 16035753 |
| **Type** | ROOF MTD | DOWNBLAST |
| **Configuration** | VEERTICAL | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | VARIGREEN |
| **Frame** | - | N/L |
| **Horsepower** | - | 0.25 |
| **Motor Rpm** | - | 300-1750 |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 115 |
| **Amperage (rated)** | - | 2.85 |
| **Service Factor** | - | N/L |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 500 | 515 |
| **Fan RPM** | 1441 | 652 |
| **Fan Rotation** | - | CCW |
| **Motor RPM** | - | 652 |
| **System SetPt** | - | 4.5 |
| **RL Voltage** | - | 122 |
| **RL Amperage** | - | 1.4 |
| **Total ESP** | 0.35" | 0.23" |
| **Fan Inlet SP** | - | -0.23" |
| **Fan Discharge SP** | - | ATM |

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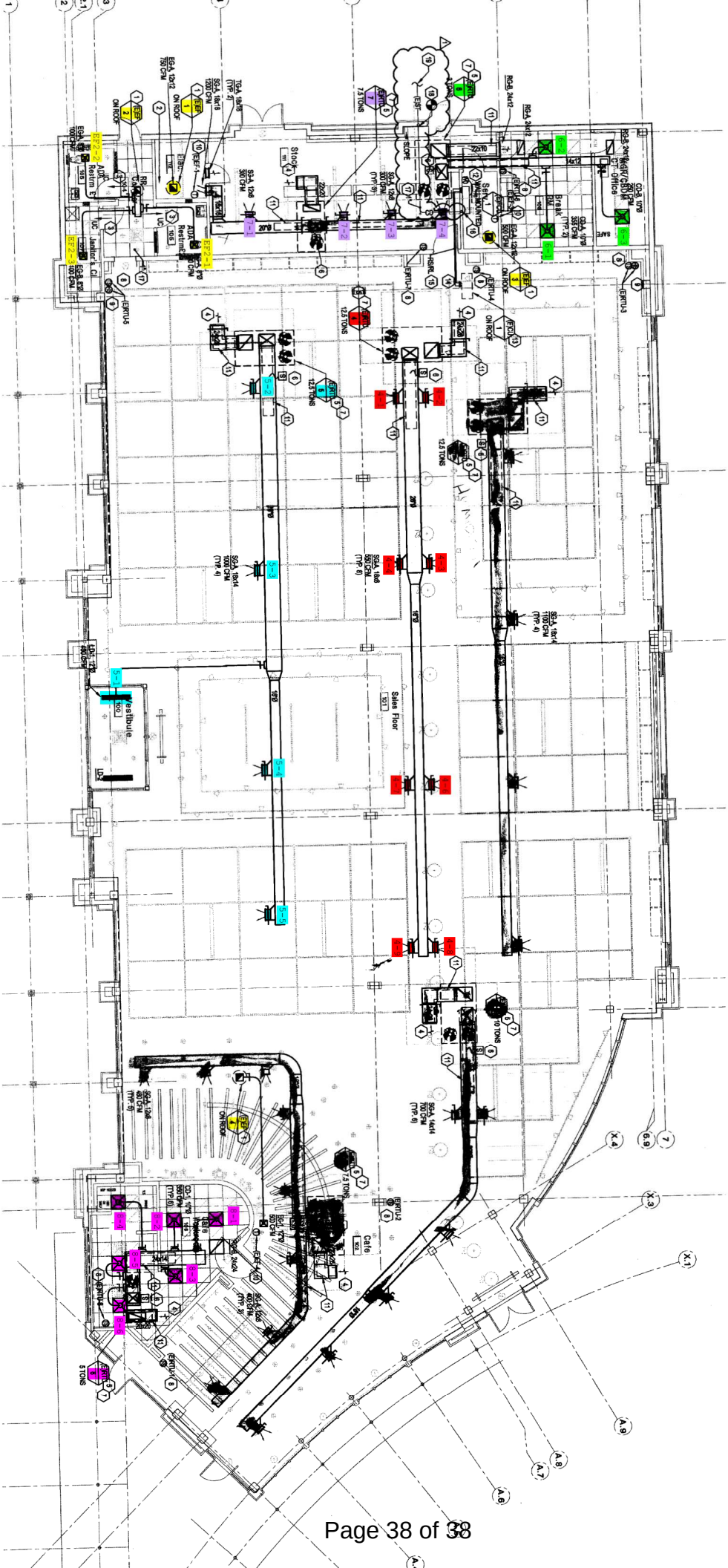




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