**Report By:**

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

NATIONAL TAB

Comfort. Under control.

**Report: Final TAB Report**
**Function: Test, Adjust, & Balance**
**Date: 08/24/2022**

# PROJECT

## 08-08 PENN STATION - SPRINGFIELD, OH

3471 E NATIONAL RD

SPRINGFIELD, OH 45505

Client

C&T DESIGN

4025 PORT UNION RD.

FAIRFIELD, OH 45014

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

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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 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.

Kitchen Exhaust Hood & Associated Fans
Each kitchen exhaust fan was measured at the hood filter bay utilizing a velocity matrix and a manufacturer's correction factor. Each filter velocity is multiplied by the manufacturer's corrected area. The sum of these readings equals the total flow of the exhaust fans. The total flow of the exhaust was then adjusted to within tolerance of the design flow. . Any EF's that fell outside of this tolerance is noted throughout the report.

MUA (Make Up Air Unit) w/ PSP
Total flow for the MAU (Make-up Air Unit) unit was measured by readings taken at the discharge of the hood's perforated supply plenum. Readings taken with a velocity matrix were averaged and multiplied by a manufacturer's corrected area. Adjustments to the fan speed were made in order to bring the unit to within design tolerance. Any MUA's that fell outside of this 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 of -0.02" wc to +0.02" wc and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.
The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat on to ensure satisfactory hood capture and containment.

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 | DINING | 3000 | 3103 | 2250 | 2283 | 750 | 820 | 25.0% | 26.4% | | | | | | |
| RTU-2 | KITCHEN | 3000 | 2937 | 2250 | 2139 | 750 | 798 | 25.0% | 27.2% | | | | | | |
| MUA-1 | COOKLINE | | | | | | | | | 1650 | 1602 | | | | |
| KEF-1 | GRILL | | | | | | | | | | | 1120 | 1050 | | |
| KEF-2 | OVEN | | | | | | | | | | | 700 | 648 | | |
| KEF-3 | FRY | | | | | | | | | | | 833 | 826 | | |
| EF-1 | RESTROOM | | | | | | | | | | | | | 75 | 79 |
| **TOTALS** | | 6000 | 6040 | 4500 | 4422 | 1500 | 1618 | | | 1650 | 1602 | 2653 | 2524 | 75 | 79 |

**NET BUILDING AIRFLOW CALCULATION**

| TOTALS | DESIGN | ACTUAL |
|---|---|---|
| TOTAL OA | 3150 | 3220 |
| TOTAL EXHAUST | 2728 | 2603 |
| **NET AIRFLOW** | 422 | 617 |

| DOOR TESTED | BUILDING PRESSURE MEASUREMENTS (IN. H20) |
|---|---|
| FRONT | 0.009 |
| SIDE | |
| REAR | -0.002 |
| **AVERAGE** | **0.0035** |

**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:

Comfort. Under control.

## 08-08 PENN STATION - SPRINGFIELD, OH

# Project Issue Information

**Issue Name :** Diffuser missing

**Description :** One air duct is missing a diffuser in the kitchen. (diffuser 1-8)

**Created By :** National TAB **Assigned To :** National TAB - Joe Hertenstein

**Status :** Closed

**Originated Date :** 08/09/2022 - Jack Bain - National TAB

Project Issue File Details

**FuseIT5bcc12898c5949e...**

**MISSING_DIFFUSER.jpg**

Comfort. Under control.

## 08-08 PENN STATION - SPRINGFIELD, OH

### Project Issue Information

**Issue Name :** Exhaust fan for bathroom is not connected

**Description :** Connection is not made for bathroom exhaust fan. Connecting pieces do not fit.

**Created By :** National TAB **Assigned To :** National TAB - Joe Hertenstein

**Status :** Closed

**Originated Date :** 08/09/2022 - Jack Bain - National TAB

Project Issue File Details

**MISSING_CONNECTION.jp...**

**FuseIT0307ee17c3c94a9...**

Comfort. Under control.

# 08-08 PENN STATION - SPRINGFIELD, OH

## Project Issue Information

**Issue Name :** LIGHT CONTROLS DAISY CHAINED TOGETHER

**Description :** GRIDDLE LIGHT CONTROLS ARE CONTROLLED BY FRYER CONTROLS (B2 DE-ENERGIZED ERROR)

**Created By :** National TAB **Assigned To :** National TAB - Joe Hertenstein

**Status :** Open

**Originated Date :** 08/09/2022 - Jack Bain - National TAB

Project Issue File Details


**B2_PIC.jpg**

Project Issue Response Details

- **08/10/2022 National TAB - Joe Hertenstein**
  - VERIFY IF B2 & W2 ENERGIZE (USING VOLT METER) WITH LIGHT ON / OFF. IF NOT, POWER B2 FROM H1 & W2 FROM N1. THEN POWER GRIDDLE LIGHTS FROM B2 & W2 & B1 & W1 TO GO TO FRYER HOOD. TO BE DONE BY ELECTRICIAN

Comfort. Under control.

# 08-08 PENN STATION - SPRINGFIELD, OH

## Project Issue Information

**Issue Name :** No damper

**Description :** No damper on diffuser 2-4

**Created By :** National TAB **Assigned To :** National TAB - Joe Hertenstein

**Status :** Open

**Originated Date :** 08/10/2022 - Jack Bain - National TAB

Project Issue File Details

**FuseITc458b5a43f4a4cc...**

Comfort. Under control.

## 08-08 PENN STATION - SPRINGFIELD, OH

# Project Issue Information

**Issue Name :** No end panel on hood 3

**Description :** No end panel on hood 3

**Created By :** National TAB **Assigned To :** National TAB - Joe Hertenstein

**Status :** Open

**Originated Date :** 08/10/2022 - Jack Bain - National TAB

Project Issue File Details

**FuseIT12e584939840404...**

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# 08-08 PENN STATION - SPRINGFIELD, OH

## Project Issue Information

**Issue Name :** Outside air dampers

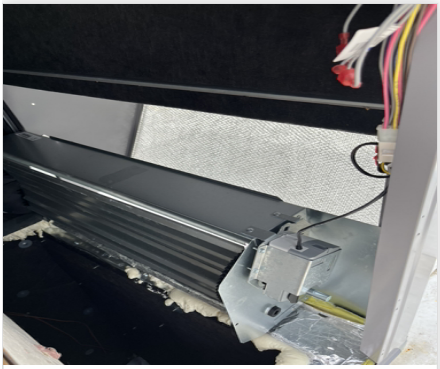
**Description :** On both units the outside air dampers are wide open or are missing a piece. Also unsure how the damper is controlled if everything is correctly installed.

**Created By :** National TAB **Assigned To :** National TAB - Joe Hertenstein

**Status :** Open

**Originated Date :** 08/09/2022 - Jack Bain - National TAB

Project Issue File Details



**FuseITbd03fa608458470...**

Project Issue Response Details

- **08/10/2022 National TAB - Jack Bain**
  - Pieces won't be installed till next week so we are taping off the unsealed areas with cardboard for outside air readings.
- **08/09/2022 National TAB - Joe Hertenstein**
  - TO BE ABLE TO BALANCE TOTAL AIRFLOW, & TRY TO SET OUTSIDE AIR, TEMPORARILY CLOSE OFF WITH CARDBOARD & TAPE & DOCUMENT. CONTACT GC/MC TO GET PERMANENT SOLUITON.

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# 08-08 PENN STATION - SPRINGFIELD, OH

## CheckList Information

**Name :** Site Pictures **Status :** NotSubmitted

**Assigned Organization :** National TAB **Asset :**

**Requesting Organization :** National TAB

### CheckList Item Details

STORE FRONT


**FuseIT5205660902694b2...**

RTU-1

**FuseIT12853b09c0fd4ad...**

**FuseITccff0617afb1434...**

RTU-2

**FuseIT069a1be7923e423...**

**FuseIT6ec0eeb177c54b5...**

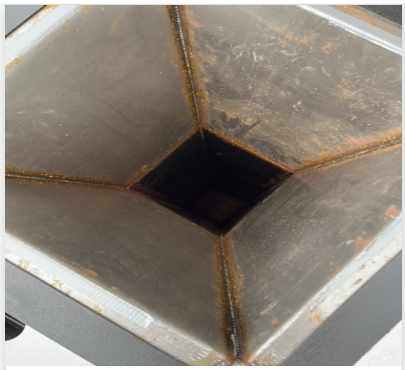
MAU-1 Yes

**FuseIT33fe182fff16416...**

KEF-1 Yes

**FuseITf779bd263c9c432...**

**FuseITe6fbf4e281c9497...**



**File.jpeg**

KEF-2 Yes

FuseITb4d8c998fba5489...

FuseIT5b159feb9d674a6...

File.jpeg

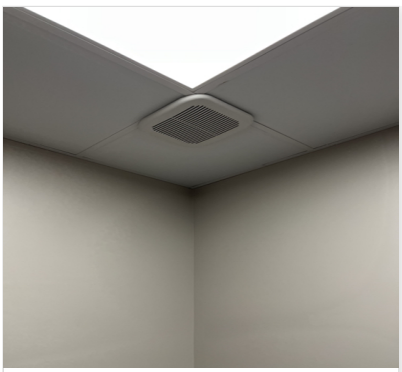
| | |
|---|---|
| KEF-3 | Yes |

FuseITbedb473350394ca...

File.jpeg

FuseIT0802d37eaa1c48a...

| | |
|---|---|
| EF-1 | Yes |



FuseIT9d8de1b2d9324fb...

| | |
|---|---|
| HOOD-1 | Yes |

**FuseITa78e841449824f0...**

| | |
|---|---|
| HOOD-2 | Yes |

**FuseITc32812eccf1141c...**

| | |
|---|---|
| Grease Duct | Yes |

**FuseIT2f071d40df3d451...**

**FuseITbeb3aff1b7ae431...**

**File.jpeg**

**Notes/Comments :**

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# 08-08 PENN STATION - SPRINGFIELD, OH

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | TECH - STEP 1: INITIAL WALKTHROUGH | **Status :** | NotSubmitted |
| **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? | NO - ISSUES MADE (DIFFUSER 1-8 MISSING AS WELL AS BATHROOM EXHAUST FAN) |
| All hood filters installed and accounted for? | YES |
| Hoods are wired and have power? | YES |
| Hood is free of alarms? | NO B2 LIGHTING ERROR IS STILL PRESENT |
| Thermostats have power? | YES |
| Have trades/general contractor been notified about any issues and are they created on FaciliBuild? | YES |

**Notes/Comments :**

Comfort. Under control.

# 08-08 PENN STATION - SPRINGFIELD, OH

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | TECH - STEP 2: UNIT DATA AND EVAL | **Status :** | NotSubmitted |
| **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? | NO - Economizers are working but are missing a piece, temporarily fixed with cardboard to read outside air. Also, we have to manually adjust outside air damper. |
| DCV Max damper opening position is set to minimum? | NO |
| Free cooling enthalpy set point set for lowest setting (Typically "D") | N/A |
| 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? | VALVES NOT TURNED ON |
| Unit free of noticeable noise and vibration | YES |
| **EF's** | |
| Rotation is correct? | YES |
| Belts are tight? | N/A |
| Grease cup installed on hood fan? | Yes |
| Hinge kit installed installed on hood fan? | Yes |
| Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan? | Yes |

| | |
|---|---|
| Flex conduit is long enough so that fan can be completely tilted back? | Yes |
| There is no major leakage around base of fan? | Good |
| 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? | N/A |
| Unit free of noticeable noise and vibration? | YES |
| **MUA** | |
| Rotation is correct? | Yes |
| Gas piping is installed and valves are in on position? | No gas line not set up yet |
| Heater tested and is functional? | No gas installed yet |
| Internal motorized damper is fully opening? | Yes |
| Motor is operating below the FLA rating? | Yes |
| Unit free of noticeable noise and vibration? | Yes |
| **HOODS** | |
| Kitchen equipment installed in proper places? | YES |
| Can kitchen equipment be turned on for final smoke test? | No |
| **DOCUMENTATION** | |
| Have trades/general contractor been notified about any issues and are they created on FaciliBuild? | Yes |

**Notes/Comments :**

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# 08-08 PENN STATION - SPRINGFIELD, OH

## CheckList Information

| | | | |
|---|---|---|---|
| **Name :** | TECH - STEP 3: TEST, ADJUST AND BALANCE | **Status :** | NotSubmitted |
| **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 |

**Notes/Comments :**

# 08-08 PENN STATION - SPRINGFIELD, OH

## CheckList Information

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

### CheckList Item Details

| | |
|---|---|
| **FINAL TESTS** | |
| **HOOD CAPTURE TEST** | |
| List equipment turned on for testing | None |
| List smoke candle type used | 45 second smoke bomb |
| Smoke test capture - Perimeter of hood | Good capture |
| Smoke test capture - Top of cooking surface | Yes |
| **WITNESS** | |
| Date test was completed | August 10th |
| TAB tech name / Firm | Austin/Jack National Tab |
| Site super name / Firm | Mike Bentel |
| Owner representative name / Firm (if Applicable) | NA |
| Building pressure at front & back doors (All Systems On) | 0.007 |
| **ADDITIONAL** | |
| Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative) | Yes |
| **PROGRAM THERMOSTATS** | |
| Occupied 7:15AM-10:15PM: 68 Heat/72 Cool (NOTE: 3 degree MAX setback) | NO - MC WILL PROGRAM THERMOSTATS. |

| | |
|---|---|
| Unoccupied 10:16PM-7:14AM: 65 Heat/75 Cool | NO - MC WILL PROGRAM THERMOSTATS. |

**Notes/Comments :**

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: AHU/RTU

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**Asset: RTU1** AREA:DINING

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | CARRIER |
| **Serial Num** | - | 0422P31428 |
| **Model Num** | LGH092H | 48TCED08A2A5A0A0G0 |
| **Configuration** | - | VERTICAL |
| **Num OA Filters 1** | - | 1 |
| **OA Filter Size 1** | - | 35.5x19.5” |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20x16x2” |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | MARATHON |
| **Frame** | - | 56HZ |
| **Motor Rpm** | - | 1735 |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 208 | 208-230 |
| **Rated Amperage** | - | 8.1-7.6 |
| **Service Factor** | - | 1.15 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor Sheave Size** | - | 4 3/4” |
| **Motor Bore Size** | - | 7/8” |
| **Motor Sheave SetPt** | - | 5 turns out |
| **Fan Sheave Size** | - | 8” |
| **Fan Sheave Bore** | - | 1” |
| **Belt CL Distance** | - | 17 1/2 |
| **Num of Belts** | - | 1 |
| **Belt Size** | - | AX52 |
| **Belt Alignment** | - | GOOD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 3000 | 3103 |
| **SF RPM (Initial)** | - | 784 |
| **SF RPM** | - | 784 |
| **RA CFM** | 2250 | 2283 |
| **OA CFM** | 750 | 820 |
| **RL Voltage** | - | 204.4-206.3-205.8 |
| **RL Amperage Initial** | - | 6.3 - 6 - 4.4 |
| **RL Amperage** | - | 6.3-6-4.4 |
| **SF Rotation** | - | COUNTERCLOCKWISE |
| **RA Damper Position** | - | Open |
| **OA Damper Position** | - | 7/8” |
| **OA Damper Type** | - | Motorized outside air damper |
| **Min OA Damper Position** | - | 7/8” |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.188 |
| **Fan Suction SP** | - | -0.422 |
| **Fan Discharge SP** | - | 0.650 |
| **Total ESP** | - | 0.838 |
| **Fan Total SP** | - | 1.072 |

| General | | |
|---|---|---|
| | **Design** | **Actual** |
| **Unit free of Damage** | - | Good |
| **Unit Completely Assembled** | - | Good |
| **Unit Leveled** | - | Yes |
| **Curb & Unit Installed Air Tight** | - | Yes |
| **Controls Complete** | - | No |
| **Unit Filters Clean** | - | Yes |
| **Evap Coil Clean** | - | Yes |
| **Condensor Coil Clean** | - | Yes |
| **Condensor Fins Straight** | - | Yes |
| **Condensate Drain Installed** | - | Yes |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project:08-08 PENN STATION - SPRINGFIELD, OH**

## AHU/RTU

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### Diffuser Supply (GRD)

**RTU1/DINING**

| Asset | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** | **AK** | **VEL(1)** | **VEL(2)** |
| SGRD1 | ENTRY | | 10" | 400 | 451 | - | 433 | 108.3 | | | |
| SGRD2 | ENTRY | | 10" | 400 | 410 | - | 422 | 105.5 | | | |
| SGRD3 | DINING | | 10" | 300 | 311 | - | 324 | 108.0 | | | |
| SGRD4 | DINING | | 10" | 300 | 108 | - | 291 | 97.0 | | | |
| SGRD5 | DINING | | 10" | 300 | 375 | - | 318 | 106.0 | | | |
| SGRD6 | DINING | | 10" | 300 | 381 | - | 311 | 103.7 | | | |
| SGRD7 | DINING | | 10" | 300 | 315 | - | 295 | 98.3 | | | |
| SGRD8 | SERVING AREA | | 10" | 300 | | | | | | | |
| SGRD9 | DINING | | 10" | 330 | 412 | - | 322 | 97.6 | | | |
| SGRD10 | RESTROOM | | 6" | 70 | 88 | - | 69 | 98.6 | | | |

**Completed By: Brianna Biggs on**

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: AHU/RTU

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**Asset: RTU2** AREA:KITCHEN

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | LENNOX | CARRIER |
| **Serial Num** | - | 5221P44649 |
| **Model Num** | LGH092H | 48TCED08A2A5A0A0G0 |
| **Configuration** | - | VERTICAL |
| **Num OA Filters 1** | - | 1 |
| **OA Filter Size 1** | - | 35.5x19.5” |
| **Num Final Filter 1** | - | 4 |
| **Final Filter Size 1** | - | 20x16x2” |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | MARATHON |
| **Frame** | - | 56HZ |
| **Motor Rpm** | - | 1735 |
| **Phase** | - | 3 |
| **Rated Voltage** | - | 208-230 |
| **Rated Amperage** | - | 8.1-7.6 |
| **Service Factor** | - | 1.15 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor Sheave Size** | - | 4 3/4” |
| **Motor Bore Size** | - | 7/8” |
| **Motor Sheave SetPt** | - | 5 turns out |
| **Fan Sheave Size** | - | 8” |
| **Fan Sheave Bore** | - | 1” |
| **Belt CL Distance** | - | 17.5” |
| **Num of Belts** | - | 1 |
| **Belt Size** | - | AX52 |
| **Belt Alignment** | - | GOOD |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 3000 | 2937 |
| **SF RPM (Initial)** | - | 758 |
| **SF RPM** | - | 758 |
| **RA CFM** | 2250 | 2139 |
| **OA CFM** | 750 | 798 |
| **RL Voltage** | - | 208-206-208 |
| **RL Amperage** | - | 5.9-5.6-4.9 |
| **SF Rotation** | - | Counterclockwise |
| **RA Damper Position** | - | Open |
| **OA Damper Position** | - | 7/8” |
| **OA Damper Type** | - | Motorized outside air damper |
| **Min OA Damper Position** | - | 7/8” |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.266 |
| **Fan Suction SP** | - | -0.467 |
| **Fan Discharge SP** | - | 0.795 |
| **Total ESP** | - | 1.061 |
| **Fan Total SP** | - | 1.262 |

| General | | |
|---|---|---|
| | **Design** | **Actual** |
| **Unit free of Damage** | - | Yes |
| **Unit Completely Assembled** | - | Yes |
| **Unit Leveled** | - | Yes |
| **Curb & Unit Installed Air Tight** | - | Yes |
| **Controls Complete** | - | No |
| **Unit Filters Clean** | - | Yes |
| **Evap Coil Clean** | - | Yes |
| **Condensor Coil Clean** | - | Yes |
| **Condensor Fins Straight** | - | Yes |
| **Condensate Drain Installed** | - | Yes |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project:08-08 PENN STATION - SPRINGFIELD, OH**

## AHU/RTU

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**Diffuser Supply (GRD)**

**RTU2/KITCHEN**

| Asset | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| SGRD1 | PREP AREA | | 10" | 300 | 495 | 290 | 290 | 96.7 |
| SGRD2 | PREP AREA | | 10" | 300 | 239 | 294 | 294 | 98.0 |
| SGRD3 | RISER ROOM | | 6" | 100 | 96 | 107 | 107 | 107.0 |
| SGRD4 | PREP AREA | | 10" | 300 | 363 | 388 | 388 | 129.3 |
| SGRD5 | SERVING | | 10" | 350 | 333 | 331 | 331 | 94.6 |
| SGRD6 | SERVING | | 10" | 350 | 283 | 329 | 329 | 94.0 |
| SGRD7 | SERVING | | 10" | 350 | 268 | 320 | 320 | 91.4 |
| SGRD8 | HD1 ACPSP | 3ft^2 | 12" | 600 | 494 | 561 | 561 | 93.5 |
| SGRD9 | HD3 ACPSP | 2.08ft^2 | 10" | 350 | 373 | 317 | 317 | 90.6 |

**Completed By: Brianna Biggs on**

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: FAN - Exhaust

Comfort. Under control.

**Asset: EF1** AREA:RESTROOM

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | NA | NA |
| **Model Num** | NA | NA |
| **Serial Num** | - | |
| **Type** | - | |
| **Series** | - | |
| **Configuration** | - | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | ENERGY STAR |
| **Phase** | - | 1 |
| **Voltage (rated)** | - | 160 |
| **Amperage (rated)** | - | 0.29 |
| **Service Factor** | - | 1 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 75 | 79 |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: FAN - Exhaust

Comfort. Under control.

**Asset: KEF1** AREA:GRILL

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | CAPTIVEAIRE | CAPTIVEAIRE |
| **Model Num** | DU85HFA | DU85HFA |
| **Serial Num** | - | 5330282 |
| **Type** | UPBLAST | UPBLAST |
| **Series** | - | |
| **Configuration** | VERTICAL | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | TELCO GREEN |
| **Horsepower** | 0.75 | 0.750 |
| **Motor Rpm** | - | 1800 |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 115 |
| **Amperage (rated)** | - | 8.9 |
| **Service Factor** | - | 1 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 1120 | 1050 |
| **Fan RPM** | 1215 | 1139 |
| **Fan Rotation** | - | Counterclockwise |
| **Motor RPM** | - | 1139 |
| **System SetPt** | - | 48% |
| **RL Voltage** | - | 115 |
| **RL Amperage** | - | 5.8 |
| **Total ESP** | 1.15" | 0.47" |
| **Fan Inlet SP** | - | -0.47" |
| **Fan Discharge SP** | - | atm |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: FAN - Exhaust

Comfort. Under control.

**Asset: KEF2** AREA:OVEN

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | CAPTIVEAIRE | CAPTIVEAIRE |
| **Model Num** | DU33HFA | DU33HFA |
| **Serial Num** | - | 5330282 |
| **Type** | UPBLAST | UPBLAST |
| **Series** | - | |
| **Configuration** | VERTICAL | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | TELCO GREEN |
| **Horsepower** | 0.333 | 0.333 |
| **Motor Rpm** | - | 1800 |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 115 |
| **Amperage (rated)** | - | 4.3 |
| **Service Factor** | - | 1 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 700 | 648 |
| **Fan RPM** | 1360 | 1258 |
| **Fan Rotation** | - | Counterclockwise |
| **Motor RPM** | - | 1258 |
| **System SetPt** | - | 85% |
| **RL Voltage** | - | 115 |
| **RL Amperage** | - | 3.6 |
| **Total ESP** | 0.6" | 0.75" |
| **Fan Inlet SP** | - | -0.75 |
| **Fan Discharge SP** | - | atm |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: FAN - Exhaust

Comfort. Under control.

**Asset: KEF3** AREA:FRY

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | CAPTIVEAIRE | CAPTIVEAIRE |
| **Model Num** | DU85HFA | DU85HFA |
| **Serial Num** | - | 5330282 |
| **Type** | UPBLAST | UPBLAST |
| **Series** | - | |
| **Configuration** | VERTICAL | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | TELCO GREEN |
| **Horsepower** | 0.75 | 0.750 |
| **Motor Rpm** | - | 1800 |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 115 |
| **Amperage (rated)** | - | 8.9 |
| **Service Factor** | - | 1 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 833 | 826 |
| **Fan RPM** | 1144 | 1134 |
| **Fan Rotation** | - | COUNTERCLOCKWISE |
| **Motor RPM** | - | 1134 |
| **System SetPt** | - | 50% |
| **RL Voltage** | - | 115 |
| **RL Amperage** | - | 5.9 |
| **Total ESP** | 1.15" | 0.53" |
| **Fan Inlet SP** | - | -0.53 |
| **Fan Discharge SP** | - | Atm |
| **Total Fan SP** | - | 1.15 |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: FAN - Supply

Comfort. Under control.

**Asset: MAU1** AREA:COOKLINE

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | CAPTIVEAIRE | ECON-AIR |
| **Model Num** | A1-D.250-15D | EA1-D.250-15D |
| **Serial Num** | - | 5330282 |
| **Type** | MAU | MAU |
| **Series** | - | |
| **Configuration** | HORIZONTAL | VERTICAL |
| **Num Filters Size 1** | - | 3 |
| **Filter Size 1** | - | 18X15” |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | TECO |
| **Frame** | - | 145T |
| **Horsepower** | 1.5 | 1.5 |
| **Motor Rpm** | - | 1740 |
| **Phase** | 3 | 3 |
| **Voltage (rated)** | 208 | 208-230 |
| **Amperage (rated)** | - | 4.03 |
| **Service Factor** | - | 1.15 |

| Drive Data | | |
|---|---|---|
| | **Design** | **Actual** |

| Gas Heat | | |
|---|---|---|
| | **Design** | **Actual** |
| **Air Flow Switch SP SetPt** | - | 0.357 |

| Electric Coil | | |
|---|---|---|
| | **Design** | **Actual** |

| Hot Water Coil | | |
|---|---|---|
| | **Design** | **Actual** |

| Steam Coil | | |
|---|---|---|
| | **Design** | **Actual** |

| Condensor DX Coil | | |
|---|---|---|
| | **Design** | **Actual** |

| Condensor Fan | | |
|---|---|---|
| | **Design** | **Actual** |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 1650 | 1602 |
| **SF RPM** | 1855 | 1740 |
| **SF Rotation** | - | Counterclockwise |
| **Motor RPM** | - | 1740 |
| **Motor Frequency** | - | 60 |
| **SF System SetPt** | - | 50.1 |
| **RL Voltage** | - | 208 |
| **RL Amperage** | - | 3.36 |
| **Fan Discharge SP** | - | 0.357 |

| Combustion Fan Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |

| Combustion Gas Duct | | |
|---|---|---|
| | **Design** | **Actual** |

| Chilled Water Coil | | |
|---|---|---|
| | **Design** | **Actual** |

| Evaporator DX Coil | | |
|---|---|---|
| | **Design** | **Actual** |

| Evaporative Cooler | | |
|---|---|---|
| | **Design** | **Actual** |

| Compressors | | |
|---|---|---|
| | **Design** | **Actual** |

| General | | |
|---|---|---|
| | **Design** | **Actual** |
| **Unit free of Damage** | - | Yes |
| **Unit Completely Assembled** | - | Yes |
| **Unit Leveled** | - | Yes |
| **Curb & Unit Installed Air Tight** | - | Yes |
| **Controls Complete** | - | Yes |
| **Fan Rotation Correct** | - | Yes |
| **Fan Belt Condition** | - | Good |
| **Unit Filters Clean** | - | Yes |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: Kitchen Hood Type I

**Asset: HD1** AREA:FRY

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | CAPTIVEAIRE | CAPTIVEAIRE |
| **Model Num** | 3650 BD-2 | 3650 BD-2 |
| **Job / Serial Num** | - | 5330282 |
| **Type** | TYPE I LOW PROXIMITY | TYPE I |
| **Hood length** | 72" | 72” |
| **Hood Width** | 36" | 36” |
| **Supply Plenum Type** | ACPSP | ACPSP |
| **Supply Plenum Width** | 10" | 14” |
| **Supply Plenum Length** | 72" | 72” |

| Test Data Exhaust | | |
|---|---|---|
| | **Design** | **Actual** |
| **Filter Type** | CAPTRATE SOLO | CAPTRATE SOLO |
| **Filter Size 1** | 16X16 | 16x16” |
| **Filter Qty 1** | 4 | 4 |
| **Filter AK factor size 1** | 1.62 | 1.62 |
| **Filter Total AK Area** | 6.48 | 6.48 |
| **Filter1 FPM** | - | 160 |
| **Filter2 FPM** | - | 155 |
| **Filter3 FPM** | - | 173 |
| **Filter4 FPM** | - | 159 |
| **Filter Ave FPM(corr)** | - | 162 |
| **CFM** | 1120 | 1050 |

| Cooking Equipment | | |
|---|---|---|
| | **Design** | **Actual** |
| **Item 1** | - | Griddle |

| Test Data Supply | | |
|---|---|---|
| | **Design** | **Actual** |
| **Total AK Area** | 7 | 7 |
| **Kv factor (Vel)** | - | 0.87 |
| **Num of Readings** | - | 6 |
| **Reading1 FPM** | - | 174 |
| **Reading2 FPM** | - | 154 |
| **Reading3 FPM** | - | 155 |
| **Reading4 FPM** | - | 103 |
| **Reading5 FPM** | - | 133 |
| **Reading6 FPM** | - | 194 |
| **Ave FPM(corr)** | - | 152 |
| **CFM** | 1000 | 926 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Exh-Supply Net CFM** | 120 | 124 |
| **Smoke Generation Type** | - | 45 second |
| **Cooking Equip Heat On** | - | No |
| **Hood Capture %** | - | 100% |
| **End Panels Installed (Y/N)** | - | YES |
| **Riser Temp F (idle) Riser 1** | - | 71 |
| **Ambient Room Temp** | - | 72 |

| General | | |
|---|---|---|
| | **Design** | **Actual** |
| **Third Party Witness** | - | N/A |
| **Third Party Company** | - | N/A |
| **Tech Witness** | - | Austin |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: Kitchen Hood Type I

**Asset: HD2** AREA:BACK

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | CAPTIVEAIRE | LINCOLN |
| **Model Num** | 4412 PS- OVN | 1116-004-U-KF015 |
| **Job / Serial Num** | - | 2201100102016 |
| **Type** | TYPE I LOW PROXMIMITY | TYPE I |
| **Hood length** | 21" | 21” |
| **Hood Width** | 44" | 44” |

| Test Data Exhaust | | |
|---|---|---|
| | **Design** | **Actual** |
| **Filter Type** | BAFFLE | BAFFLE |
| **Filter Size 1** | 10X20 | 10x20” |
| **Filter Qty 1** | 2 | 2 |
| **Filter AK factor size 1** | - | 1.2 |
| **Filter Total AK Area** | - | 2.4 |
| **Filter1 FPM** | - | 263 |
| **Filter2 FPM** | - | 277 |
| **Filter Ave FPM(corr)** | - | 270 |
| **CFM** | 700 | 648 |

| Cooking Equipment | | |
|---|---|---|
| | **Design** | **Actual** |
| **Item 1** | - | TOASTER OVEN |

| Test Data Supply | | |
|---|---|---|
| | **Design** | **Actual** |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Smoke Generation Type** | - | 45 Second |
| **Cooking Equip Heat On** | - | No |
| **Hood Capture %** | - | 100% |
| **Riser Temp F (idle) Riser 1** | - | 71 |
| **Ambient Room Temp** | - | 72 |

| General | | |
|---|---|---|
| | **Design** | **Actual** |
| **Third Party Witness** | - | NA |
| **Third Party Company** | - | NA |
| **Tech Witness** | - | Austin |

Completed By: Dan Hertenstein

Notes:

# National TAB

**Project: 08-08 PENN STATION - SPRINGFIELD, OH**

## System/Unit: Kitchen Hood Type I

**Asset: HD3** AREA:FRY

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | CAPTIVEAIRE | CAPTIVEAIRE |
| **Model Num** | 3650 BD-2 | 3650 BD-2 |
| **Job / Serial Num** | - | 5330282 |
| **Type** | TYPE I LOW PROXIMITY | TYPE I |
| **Hood length** | 50" | 50” |
| **Hood Width** | 36" | 36” |
| **Supply Plenum Type** | ACPSP | ACPSP |
| **Supply Plenum Width** | 14" | 14” |
| **Supply Plenum Length** | 50" | 50” |

| Test Data Exhaust | | |
|---|---|---|
| | **Design** | **Actual** |
| **Filter Type** | CAPTRATE | CAPTRATE SOLO |
| **Filter Size 1** | 16X16 | 16x16” |
| **Filter Qty 1** | 3 | 3 |
| **Filter AK factor size 1** | 1.62 | 1.62 |
| **Filter Total AK Area** | 4.86 | 4.86 |
| **Filter1 FPM** | - | 174 |
| **Filter2 FPM** | - | 169 |
| **Filter3 FPM** | - | 167 |
| **Filter Ave FPM(corr)** | - | 170 |
| **CFM** | 833 | 826 |

| Cooking Equipment | | |
|---|---|---|
| | **Design** | **Actual** |
| **Item 1** | - | Fryer |

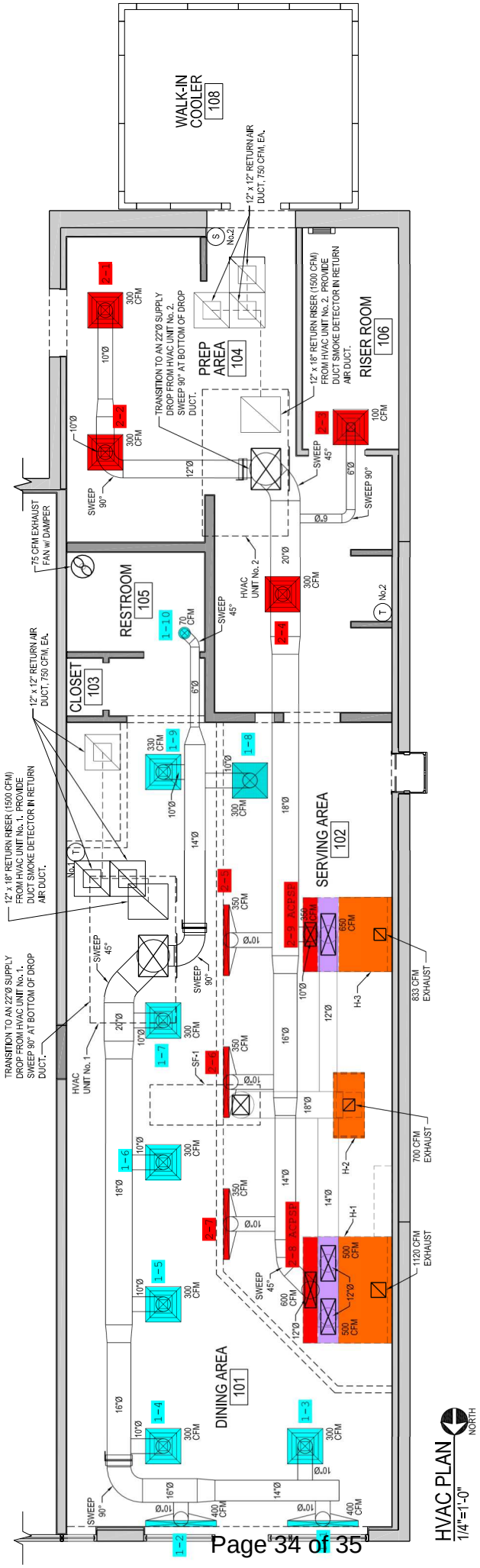
| Test Data Supply | | |
|---|---|---|
| | **Design** | **Actual** |
| **Total AK Area** | 4.86 | 4.86 |
| **Kv factor (Vel)** | 0.89" | 0.87 |
| **Num of Readings** | - | 4 |
| **Reading1 FPM** | - | 186 |
| **Reading2 FPM** | - | 137 |
| **Reading3 FPM** | - | 142 |
| **Reading4 FPM** | - | 175 |
| **Ave FPM(corr)** | - | 160 |
| **CFM** | 650 | 676 |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Exh-Supply Net CFM** | 183 | 150 |
| **Smoke Generation Type** | - | 45 Second |
| **Cooking Equip Heat On** | - | No |
| **Hood Capture %** | - | 99% |
| **End Panels Installed (Y/N)** | - | No |
| **Riser Temp F (idle) Riser 1** | - | 71 |
| **Ambient Room Temp** | - | 72 |

| General | | |
|---|---|---|
| | **Design** | **Actual** |
| **Third Party Witness** | - | NA |
| **Third Party Company** | - | NA |
| **Tech Witness** | - | Austin |

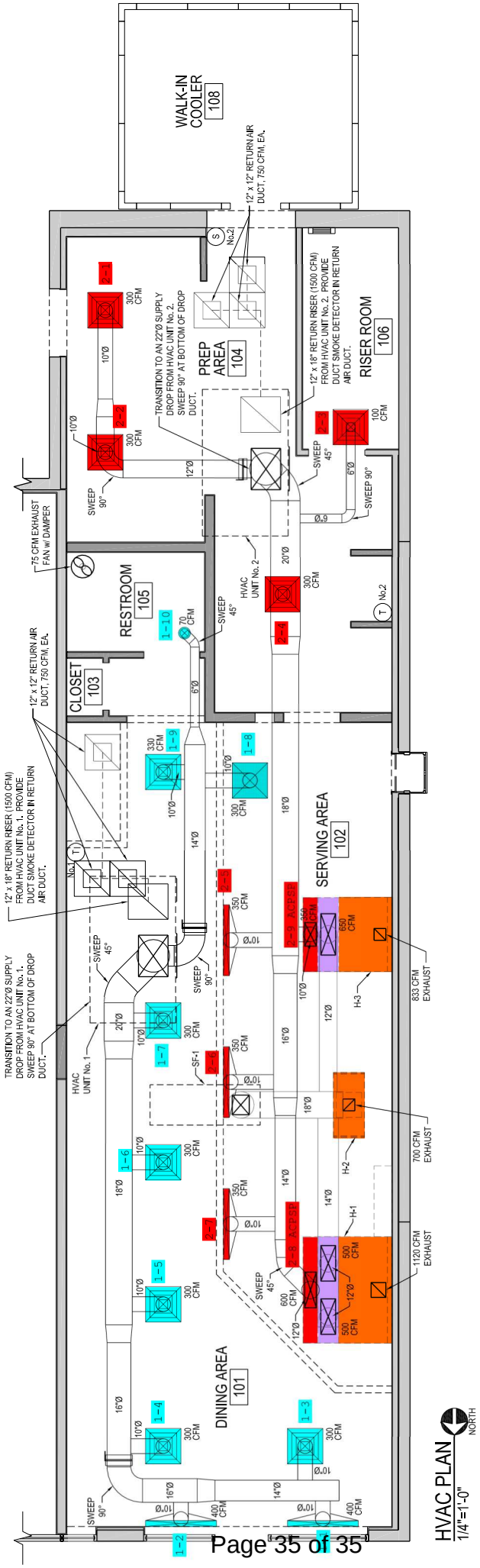
Completed By: Dan Hertenstein

Notes:




HVAC PLAN
1/4"=1'-0"

NORTH




HVAC PLAN
1/4"=1'-0"