

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
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Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 11/07/2024
Completed By: National TAB

PROJECT
DOT Headquarters (Ewing, NJ)

1035 Parkway Ave.

Ewing, NJ 08618

Client

EMY Solutions Inc.
624 Montgomery Rd
Hillsborough, NJ 08844

National TAB

Project: DOT Headquarters (Ewing, NJ)

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CERTIFICATION



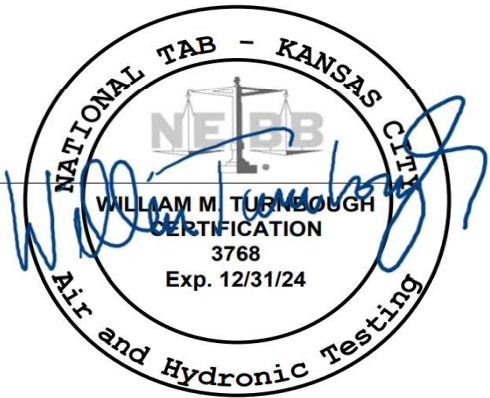
PROJECT: DOT Headquarters (Ewing, NJ)

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB Procedural Standard for Testing, Adjusting and Balancing of Environmental Systems. The measurements shown, and the information given, in this report are certified to be accurate and complete, at the time and date information was gathered. Any variances from design quantities, which exceed NEBB tolerances, are noted in the TAB report project summary.

NEBB TAB FIRM: National TAB - Kansas City
REGISTRATION NO: 3768
CERTIFIED BY: Will Turnbough
DATE: 11/7/2024

Submitted and Certified by:

NEBB TAB FIRM: National TAB - Kansas City
TAB PROFESSIONAL: Will Turnbough
REGISTRATION NO: CP-24289
CERTIFICATION EXP: 12/31/2024



Asset: RTU-1

AREA: MULTIPURPOSE RM

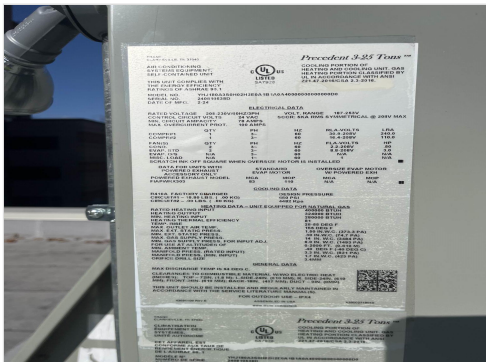
| Unit Data | | |
|------------------|----------|-----------------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Serial Num | - | 240810538D |
| Model Num | NA | YHJ18003S0H02H2E0A1B1 |
| Configuration | VERTICAL | VERTICAL |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 68X20 |
| Num PreFilter 1 | - | 8 |
| PreFilter Size 1 | - | 20X24X2 |

| Test Data | | |
|--------------------|--------|-------------------|
| | Design | Actual |
| SF CFM | 5995 | 5994 |
| RA CFM | 5270 | 5230 |
| OA CFM | 725 | 764 |
| RL Voltage | 208 | 206.3/206.2/207.3 |
| RL Amperage | - | 6.55/6.44/5.98 |
| OA Damper Position | - | 10% |
| Brake Horse Power | - | 2.86 |

| Motor Data | | |
|----------------|--------|--------------|
| | Design | Actual |
| Motor MFG | - | 2X EBM PABST |
| Frame | - | NL |
| Horsepower | 3.00 | 3000W |
| Motor Rpm | - | 1790 |
| Phase | 3 | 3 |
| Rated Voltage | 208 | 200 |
| Rated Amperage | - | 8.8 |
| Service Factor | - | 1 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| MA Plenum SP | - | -0.58" |
| Fan Suction SP | - | -0.99" |
| Fan Discharge SP | - | 0.54" |
| Total ESP | 0.70 | 1.12" |
| Fan Total SP | - | 1.53" |

Unit Data - PHOTO LOG



image_1806439161



image_1251469911

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Notes:
[1] MAX FAN SETPOINT 64%

Written By: Tyler Youells on 11/07/2024



National TAB

Project:DOT Headquarters (Ewing, NJ)

AHU/RTU



Diffuser Supply (GRD)

RTU-1/MULTIPURPOSE RM

| Asset | | | | | | | |
|------------|----------------------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | MULTIPURPOSE STORAGE | A2 | 8 | 120 | 161 | 114 | 95.0 |
| SGRD2 | MULTIPURPOSE RM | A6 | 16 | 635 | 300 | 578 | 91.0 |
| SGRD3 | MULTIPURPOSE RM | A6 | 16 | 635 | 602 | 648 | 102.0 |
| SGRD4 | MULTIPURPOSE RM | A6 | 16 | 635 | 550 | 597 | 94.0 |
| SGRD5 | MULTIPURPOSE RM | A6 | 16 | 635 | 643 | 644 | 101.4 |
| SGRD6 | MULTIPURPOSE RM | A6 | 16 | 635 | 645 | 681 | 107.2 |
| SGRD7 | MULTIPURPOSE RM | A6 | 16 | 635 | 685 | 654 | 103.0 |
| SGRD8 | MULTIPURPOSE RM | A6 | 16 | 635 | 574 | 623 | 98.1 |
| SGRD9 | MULTIPURPOSE RM | A6 | 16 | 635 | 711 | 654 | 103.0 |
| SGRD10 | MULTIPURPOSE RM | A6 | 16 | 635 | 638 | 635 | 100.0 |
| SGRD11 | VESTIBULE | A2 | 8 | 160 | 263 | 166 | 103.8 |
| Total | | | | 5995 | 5772 | 5994 | 99.98% |

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National TAB

Project: DOT Headquarters (Ewing, NJ)

System/Unit: Energy Recovery Unit

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INTELLIGENCE



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Asset: ERV-1

AREA:VRF'S

| Unit Data | | |
|-------------------|--------|----------------|
| | Design | Actual |
| MFG | NA | ALDES |
| Model Num | NA | E1100L-FI-EC-N |
| Serial Num | - | N23100012 |
| Service | - | FCU-OA |
| Num Exh-Filters 1 | - | 3 |
| Exh-Filter Size 1 | - | 15X11.5 |
| Num OA-Filters 1 | - | 3 |
| OA-Supply Size 1 | - | 15X11.5 |

| Exhaust Fan Motor Data | | |
|------------------------|--------|-------------|
| | Design | Actual |
| Motor MFG | - | 2X EBMPABST |
| Frame | - | NL |
| Horsepower | - | 170W |
| Motor Rpm | - | 2510 |
| Phase | 1 | 1 |
| Voltage (rated) | 208 | 208 |
| Amperage (rated) | - | 1.4 |
| Service Factor | - | 1 |

| OA Fan Motor Data | | |
|-------------------|--------|--------------|
| | Design | Actual |
| Motor MFG | - | 2X EBM PABST |
| Frame | - | NL |
| Horsepower | - | 170W |
| Motor Rpm | - | 2510 |
| Phase | 1 | 1 |
| Voltage (rated) | 208 | 208 |
| Amperage (rated) | - | 1.4 |
| Service Factor | - | 1 |

| Exhaust Fan Test Data | | |
|-----------------------|--------|--------|
| | Design | Actual |
| Exh-ERU CFM | 400 | 372 |
| Exh-ERU RPM | - | NA |
| RL Voltage | - | 204.7 |
| RL Amperage | - | 0.88 |

| Exhaust Fan Performance Data | | |
|------------------------------|--------|----------|
| | Design | Actual |
| Exh-ERU Filter Delta SP | - | COMBINED |
| Exh-ERU Wheel Delta SP | - | 0.21" |
| Exh-ERU Delta T | - | 0.9F |

| OA Fan Test Data | | |
|------------------|--------|------------|
| | Design | Actual |
| OA-ERU CFM | 370 | 354 |
| OA-ERU RPM | - | FULL SPEED |
| RL Voltage | - | 207.7 |
| RL Amperage | - | 1.48 |

| OA Fan Performance Data | | |
|-------------------------|--------|----------|
| | Design | Actual |
| OA-ERU Filter Delta SP | - | COMBINED |
| OA-ERU Wheel Delta SP | - | 0.15" |
| OA-ERU Delta T | - | 2.1F |

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Project:DOT Headquarters (Ewing, NJ)

Energy Recovery Unit



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Diffuser Supply (GRD)

ERV-1/VRF'S

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | FC-1 | DUCT | 6 | 100 | 95 | 92 | 92.0 |
| SGRD2 | FC-3 | DUCT | 6 | 70 | 45 | 64 | 91.4 |
| SGRD3 | FC-2 | DUCT | 6 | 50 | 39 | 49 | 98.0 |
| SGRD4 | FC-4 | DUCT | 4 | 20 | 12 | 19 | 95.0 |
| SGRD5 | FC-5 | DUCT | 6 | 40 | 19 | 37 | 92.5 |
| SGRD6 | FC-6 | DUCT | 6 | 40 | 25 | 41 | 102.5 |
| SGRD7 | FC-7 | DUCT | 6 | 50 | 45 | 52 | 104.0 |
| Total | | | | 370 | 280 | 354 | 95.68% |

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Project: DOT Headquarters (Ewing, NJ)
System/Unit: Fan Coil



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Asset: FC-1

AREA:CORRIDOR

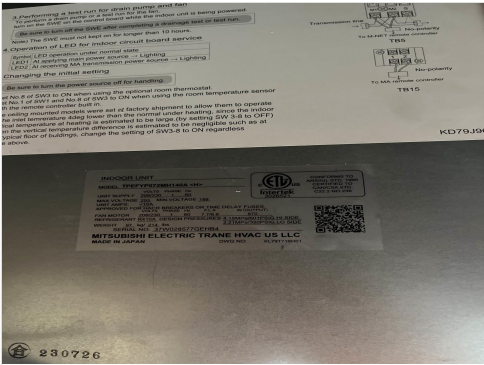
| Unit Data | | |
|---------------|--------|-----------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Model Num | NA | TPEFYP072MH140A |
| Serial Num | - | 37W028577GEHB4 |
| Configuration | - | HORIZONTAL |

| Test Data | | |
|-------------------|--------|--------|
| | Design | Actual |
| SFAN CFM | 1780 | 1795 |
| Motor Speed SetPt | - | 50 Pa |
| RL Voltage | - | 206.4 |
| RL Amperage | - | 2.14 |
| RA CFM | 1680 | 1703 |
| OA CFM | 100 | 92 |

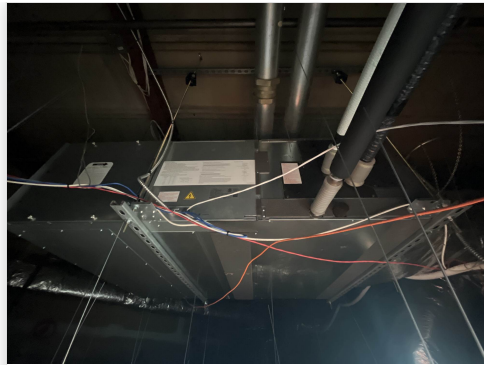
| Motor Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Horsepower | - | 870W |
| Phase | 1 | 1 |
| Voltage (rated) | 208 | 208 |
| Amperage (rated) | - | 7.7 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Suction ESP | - | -0.01" |
| Discharge ESP | - | 0.28" |
| Total ESP | 0.60 | 0.29" |

Unit Data - PHOTO LOG



image_2021832413



image_544918536

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Project:DOT Headquarters (Ewing, NJ)

Fan Coil



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Diffuser Supply (GRD)

FC-1/CORRIDOR

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | CORRIDOR | A4 | 12 | 400 | 379 | 363 | 90.8 |
| SGRD2 | CORRIDOR | A4 | 12 | 400 | 585 | 403 | 100.8 |
| SGRD3 | CORRIDOR | A4 | 12 | 400 | 501 | 428 | 107.0 |
| SGRD4 | CORRIDOR | A4 | 12 | 400 | 491 | 412 | 103.0 |
| SGRD5 | CORRIDOR | A2 | 8 | 180 | 216 | 189 | 105.0 |
| Total | | | | 1780 | 2172 | 1795 | 100.84% |

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Project: DOT Headquarters (Ewing, NJ)
System/Unit: Fan Coil



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Asset: FC-2

AREA:FAC MGMT OFC

| Unit Data | | |
|---------------|--------|----------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Model Num | NA | TPEFY027MA144A |
| Serial Num | - | 3XR0051330P911 |
| Configuration | - | HORIZONTAL |

| Motor Data | | |
|------------------|--------|---------|
| | Design | Actual |
| Horsepower | - | 0.162HP |
| Phase | 1 | 1 |
| Voltage (rated) | 208 | 208 |
| Amperage (rated) | - | 2.03 |

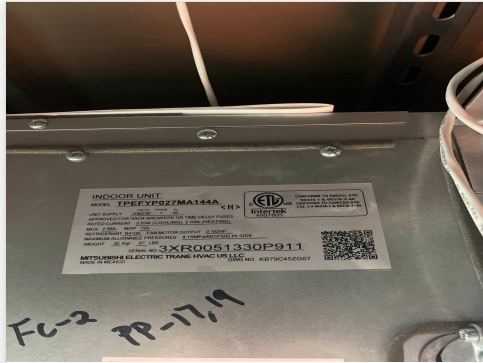
| Test Data | | |
|-------------------|--------|--------|
| | Design | Actual |
| SFAN CFM | 740 | 677 |
| Motor Speed SetPt | - | 150 Pa |
| RL Voltage | - | 206.3 |
| RL Amperage | - | 1.84 |
| RA CFM | 690 | 628 |
| OA CFM | 50 | 49 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Suction ESP | - | -0.12" |
| Discharge ESP | - | 0.63" |
| Total ESP | 0.60 | 0.75" |

Unit Data - PHOTO LOG



image_767314476



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Project:DOT Headquarters (Ewing, NJ)

Fan Coil



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Diffuser Supply (GRD)

FC-2/FAC MGMT OFC

| Asset | | | | | | | |
|------------|--------------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | FAC MGMT OFC | A4 | 12 | 370 | 256 | 337 | 91.1 |
| SGRD2 | FAC MGMT OFC | A4 | 12 | 370 | 241 | 340 | 91.9 |
| Total | | | | 740 | 497 | 677 | 91.49% |

Completed By: Tyler Youells on 11/06/2024

| Asset | Notes | Date | Written By |
|-------|------------------------------|------------|---------------|
| SGRD1 | [1] DIFFUSER INSTALLED AS 8" | 11/07/2024 | Tyler Youells |
| SGRD2 | [1] DIFFUSER INSTALLED AS 8" | 11/07/2024 | Tyler Youells |



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Project: DOT Headquarters (Ewing, NJ)
System/Unit: Fan Coil



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Asset: FC-3

AREA:OFFICE

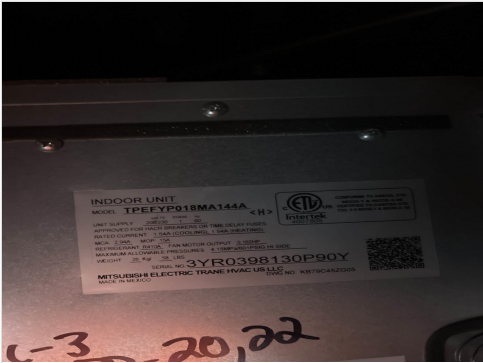
| Unit Data | | |
|---------------|--------|-----------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Model Num | NA | TPEFYP018MA144A |
| Serial Num | - | 3YR0398130P90Y |
| Configuration | - | HORIZONTAL |

| Motor Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Horsepower | - | 0.162 |
| Phase | 1 | 1 |
| Voltage (rated) | 208 | 208 |
| Amperage (rated) | - | 1.54 |

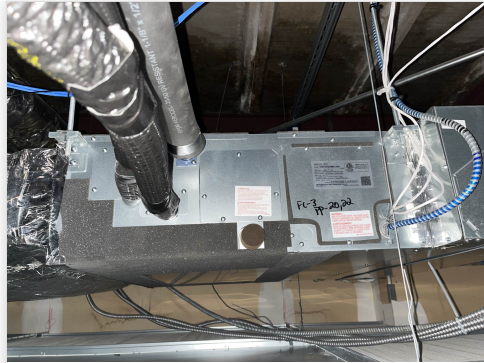
| Test Data | | |
|-------------------|--------|--------|
| | Design | Actual |
| SFAN CFM | 500 | 521 |
| Motor Speed SetPt | - | 50Pa |
| RL Voltage | - | 206.3 |
| RL Amperage | - | 0.77 |
| RA CFM | 430 | 457 |
| OA CFM | 70 | 64 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Suction ESP | - | -0.07" |
| Discharge ESP | - | 0.14" |
| Total ESP | 0.60 | 0.21" |

Unit Data - PHOTO LOG



image_1092711546



image_881523781

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National TAB

Project:DOT Headquarters (Ewing, NJ)

Fan Coil



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Diffuser Supply (GRD)

FC-3/OFFICE

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | OFFICE 1 | A2 | 8 | 185 | 204 | 189 | 102.2 |
| SGRD2 | CORRIDOR | A2 | 8 | 130 | 170 | 139 | 106.9 |
| SGRD3 | OFFICE 1 | A2 | 8 | 185 | 162 | 193 | 104.3 |
| Total | | | | 500 | 536 | 521 | 104.2% |

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National TAB

Project: DOT Headquarters (Ewing, NJ)
System/Unit: Fan Coil



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Asset: FC-7

AREA:OFFICE 2,3

| Unit Data | | |
|---------------|--------|-----------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Model Num | NA | TPEFYP018MA144A |
| Serial Num | - | 39R0357630P90Y |
| Configuration | - | HORIZONTAL |

| Motor Data | | |
|------------------|--------|---------|
| | Design | Actual |
| Horsepower | - | 0.162HP |
| Phase | 1 | 1 |
| Voltage (rated) | 208 | 208 |
| Amperage (rated) | - | 1.54 |

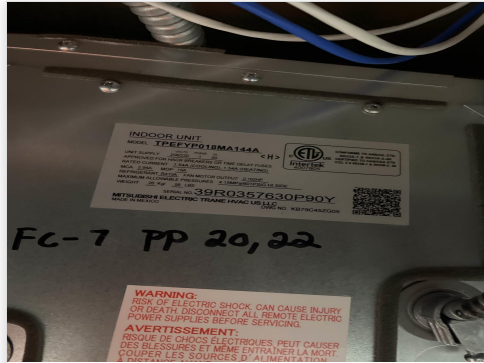
| Test Data | | |
|-------------------|--------|--------|
| | Design | Actual |
| SFAN CFM | 420 | 434 |
| Motor Speed SetPt | - | 35 Pa |
| RL Voltage | - | 207.4 |
| RL Amperage | - | 0.60 |
| RA CFM | 370 | 382 |
| OA CFM | 50 | 52 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Suction ESP | - | -0.06" |
| Discharge ESP | - | 0.16" |
| Total ESP | 0.60 | 0.22" |

Unit Data - PHOTO LOG



image_1505105255



image_1868759971

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National TAB

Project:DOT Headquarters (Ewing, NJ)

Fan Coil



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Diffuser Supply (GRD)

FC-7/OFFICE 2,3

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | OFFICE 2 | A2 | 8 | 200 | 230 | 214 | 107.0 |
| SGRD2 | OFFICE 3 | A2 | 8 | 220 | 292 | 220 | 100.0 |
| Total | | | | 420 | 522 | 434 | 103.33% |

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National TAB

Testing, Adjusting, and Balancing Equipment



| Function | | Range | Minimum Accuracy | Instrument Information | Calibration Date | Date Due |
|-------------|-------------------------|---------------------------|-----------------------------|-----------------------------------|------------------|-----------|
| AIR | AIR PRESSURE | 0 in wg to 10 in wg | 2% +/- 0.001 in wg | Evergreen S-PVF-1 24D-00509 | 6/17/2024 | 6/17/2025 |
| | AIR VELOCITY INSTRUMENT | 50 fpm to 3900 fpm | +/- 5 % +/- 7 fpm | Evergreen S-PVF-1 24D-00509 | 6/17/2024 | 6/17/2025 |
| | DIRECT HOOD READING | 100 cfm to 2000 cfm | +/- 5 % +/- 7 cfm | Evergreen S-PVF-1 24D-00509 | 6/17/2024 | 6/17/2025 |
| TEMPERATURE | AIR METER | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/18/2024 | 9/18/2025 |
| | AIR PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/18/2024 | 9/18/2025 |
| | IMMERSION METER | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/18/2024 | 9/18/2025 |
| | IMMERSION PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/18/2024 | 9/18/2025 |
| | CONTACT METER | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/18/2024 | 9/18/2025 |
| | CONTACT PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/18/2024 | 9/18/2025 |
| HUMIDITY | HUMIDITY PROBE | 10 % RH to 90 % RH | 3% of reading | Cooper SRH77A S/N 100516003 | 9/18/2024 | 9/18/2025 |
| ELECTRICAL | VOLTAGE MEASUREMENT | 0 VAC to 600 VAC | 2 % reading +/- 5 digits | Klein Tools CL800 S/N 1220C-C1 | 9/18/2024 | 9/18/2025 |
| | AMPERAGE MEASUREMENT | 0 Amperers to 100 Amperes | 2 % reading +/- 5 digits | Klein Tools CL800 S/N 1220C-C1 | 9/18/2024 | 9/18/2025 |
| ROTATION | ROTATION MEASUREMENT | 60 rpm to 5000 rpm | 2 % reading 2 rpm | Shimpo DT 207Lp S/N D1690029R | 9/18/2024 | 9/18/2025 |

Abbreviation List

| | |
|--|---|
| A = Area (ft ²) | S.F. = Service Factor |
| AHU = Air Handling Unit | SF = Supply Fan |
| A _k = Effective Area | SP = Static Pressure |
| BHP = Brake Horsepower (IP) HP | SR = Supply Register |
| Btu = British Thermal Unit | T = Temperature |
| Btu/h = Btuh = BTUH = BTU/Hour | T _{ma} = Mixed Air Temperature |
| CL = Center Distance (used in belt formula) | T _{oa} = Outside Air Temperature |
| CD = Ceiling Diffuser | T _{ra} = Return Air Temperature |
| CF = Correction Factor | H = Head (in wc, ft wc, psi) |
| CFM = Volumetric Flow: Cubic Feet Per Minute | h = Enthalpy |
| CO ₂ = Carbon Dioxide | HP = Horsepower |
| CO = Carbon Monoxide | hr = Hour |
| C _v = Flow Constant | K _v = Flow constant (SI) |
| d = Diameter (in.) IP | kW = Kilowatt = 1000 Watts |
| Δ = Difference or Change (Final - Initial) | LAT = Leaving Air Temperature |
| DB = Dry Bulb | lb = Pounds |
| EA = Exhaust Air | LWT = Leaving Water Temperature |
| EAT = Entering Air Temperature | ma = Mixed Air |
| EF = Exhaust Fan | MIN = Minimum |
| Eff = Efficiency | MAX = Maximum |
| EG = Exhaust Grille | N/A = Not Applicable |
| ESP = External Static Pressure | NA = No Access |
| EWT = Entering Water Temperature | NL = Not Listed |
| °F = Degrees Fahrenheit, °F | NPSHA = Net Positive Suction Head Available |
| FPB = Fan Powered Box | NS = Not Specified |
| FLA = Full Load Amps | OA = Outside Air |
| fpm = Feet per Minute (fpm) | OAT = Outside Air Temperature |
| ft = Foot | PD = Sheave Pitch Diameter |
| gal = Gallons | P.D. = Pressure Drop |
| GPM = Gallons Per Minute (GPM) | PF = Power Factor |
| h = Enthalpy (BTU/lb dry air) | SG = Supply Grille |
| P = Pressure | SR = Supply Register |
| ppm = parts per million | TP = Total Pressure |
| psi = Pounds Per Square Inch | T _{ra} = Return Air Temperature |
| psid = PSI Differential | TS = Tip Speed (fpm) IP, (m/s) SI |
| r = Radius (in) | TSP = Total Static Pressure |
| % _{ra} = % of Return Air | V = Velocity |
| RA = Return Air | VAV = Variable Air Volume |
| RAT = Return Air Temperature | VD = Volume Damper |
| RF = Return Fan | VFD = Variable Frequency Drive |
| RG = Return Grille | W = Watt |
| RH = Relative Humidity | WB = Wet Bulb |
| RPM = Revolutions Per Minute | wg = wc = water gauge = water column |
| RTU = Roof Top Unit | WHP = Water Horsepower (IP) |
| SA = Supply Air | ω = Humidity Ratio |

