

Report By:

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



Report: TAB Report
Function: Test, Adjust, & Balance
Date: 03/28/2025
Completed By: National TAB

PROJECT

Springer School Addition (Cincinnati, OH)

2121 Madison Rd

Cincinnati, OH

Client

Feldkamp Enterprises
3642 Muddy Creek Rd
Cincinnati, OH 45238

National TAB

Project: Springer School Addition (Cincinnati, OH)

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National TAB



Testing, Adjusting, and Balancing Equipment

INTELLIGENCE

| 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 S/N 2200484C | 3/24/2025 | 3/24/2027 |
| | AIR VELOCITY INSTRUMENT | 50 fpm to 3900 fpm | +/- 5 % +/- 7 fpm | Evergreen S-PVF-1 S/N 2200484C | 3/24/2025 | 3/24/2027 |
| | DIRECT HOOD READING | 100 cfm to 2000 cfm | +/- 5 % +/- 7 cfm | Evergreen S-PVF-1 S/N 2200484C | 3/24/2025 | 3/24/2027 |
| TEMPERATURE | AIR METER | -20 F to 240 F | +/- .5 % 2 F | Cooper ATKINS - SRH77A S/N 071118034 | 7/12/2024 | 7/12/2025 |
| | AIR PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper ATKINS - PD1388 7-6 S/N 5028 | 7/12/2024 | 7/12/2025 |
| | IMMERSION METER | -20 F to 240 F | +/- .5 % 2 F | Cooper ATKINS - SRH77A S/N 071118034 | 7/12/2024 | 7/12/2025 |
| | IMMERSION PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper ATKINS - PD1388 7-6 S/N 1075 | 7/12/2024 | 7/12/2025 |
| | CONTACT METER | -20 F to 240 F | +/- .5 % 2 F | Cooper ATKINS - SRH77A S/N 071118034 | 7/12/2024 | 7/12/2025 |
| | CONTACT PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper ATKINS - PD1388 7-6 S/N 4011 | 7/12/2024 | 7/12/2025 |
| HUMIDITY | HUMIDITY PROBE | 10 % RH to 90 % RH | 3% of reading | Cooper ATKINS - SRH77A S/N 071118034 | 7/12/2024 | 7/12/2025 |
| ELECTRICAL | VOLTAGE MEASUREMENT | 0 VAC to 600 VAC | 2 % reading +/- 5 digits | Fluke 373 True RMS, S/N: 33290686 | 7/12/2024 | 7/12/2025 |
| | AMPERAGE MEASUREMENT | 0 Amperes to 100 Amperes | 2 % reading +/- 5 digits | Fluke 373 True RMS, S/N: 33290686 | 7/12/2024 | 7/12/2025 |
| ROTATION | ROTATION MEASUREMENT | 60 rpm to 5000 rpm | 2 % reading 2 rpm | SHIMPO DT-207LR S/N: D1530081R | 7/12/2024 | 7/12/2025 |
| HYDRONIC | PRESSURE MEASUREMENT | -30 in Hg to 200 psi | ±2% of reading +/- 1 psi | Alnor HM680 S/N: 70807241 | 5/11/2024 | 5/31/2025 |
| | DIFFERENTIAL PRESSURE MEASUREMENT | 0 psi - 80 psi | ±2% of reading +/- 1 psi | Alnor HM680 S/N: 70807241 | 5/11/2024 | 5/31/2025 |

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 |

Issue List

- DOAS Powering Off Intermittently
- DOAS Return Unbalanced
- DOAS Supply Below Design
- EF-2 Below Design
- EF-3 Above Design
- FC-100 No Damper
- FC-101 Below Design
- FC-101 No Damper
- FC-120 Diffuser 2 Above Design
- FC-201 Missing Diffuser
- FC-204 No Damper
- FC-212 No Damper
- FC-225 No Damper
- FC-306 Not Ducted
- Heated Air Collecting at Highest Point
- RTU-2 Economizer Not Functional
- RTU-3 Below Design
- RTU-3 VFD Appears Non-Functional



Springer School Addition (Cincinnati, OH)

Project Issue Information

Issue Name : DOAS Powering Off Intermittently
Description : Fan stops spinning randomly during operation. It appears to re-start without any resetting.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Closed
Priority : Medium **Asset Tag :**
Originated Date : 12/18/2024 - Jordan Best - National TAB

Project Issue Response Details

- **12/20/2024 National TAB - Jordan Best**
 - DOAS was powering off due @ 60 HZ because it was over amping. Fan speed was reduced until supply motor fell to FLA. This caused the unit to fall slightly outside of 10% low.



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Project Issue Information

Issue Name : DOAS Return Unbalanced
Description : Returns for DOAS above ceiling were unable to be balanced evenly due to missing and jammed dampers. Return airflows air similar to supply air totals and should not disproportionately affect any of the three floors.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Low **Asset Tag :**
Originated Date : 12/20/2024 - Jordan Best - National TAB

Project Issue File Details





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Project Issue Information

Issue Name : DOAS Supply Below Design
Description : Design airflow was able to be achieved but caused the unit to over amp thus causing the cycling of the supply fan motor referenced in another created issue. Supply fan speed reduced until it met FLA, causing unit to fall slightly below design.

Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : [Medium](#) **Asset Tag :**
Originated Date : 12/20/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : EF-2 Below Design
Description : EF-2 is operating below design. The unit is equipped with no speed controller and is operating at its highest speed.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : High **Asset Tag :**
Originated Date : 12/19/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : EF-3 Above Design
Description : EF-3 is operating above design. The unit is not equipped with a speed controller and the fan speed cannot be decreased.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : High **Asset Tag :**
Originated Date : 12/19/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : FC-100 No Damper
Description : Damper for FC-100 is not installed. Diffuser is above design.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 12/18/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : FC-101 Below Design
Description : FC-101 is operating below design. The fan is operating at its highest set point and cannot be increased. Diffusers are balanced proportionately low.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : High **Asset Tag :**
Originated Date : 12/19/2024 - Jordan Best - National TAB



Springer School Addition (Cincinnati, OH)

Project Issue Information

Issue Name : FC-101 No Damper
Description : Damper for FC-101 is not installed. Diffuser is above design.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 12/18/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : FC-120 Diffuser 2 Above Design
Description : FC-120, diffuser 2 is above design with the damper fully shut.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Medium **Asset Tag :**
Originated Date : 12/20/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : FC-201 Missing Diffuser
Description : OA duct intended for area/unit 201 is present but there is no diffuser installed.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 12/18/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : FC-204 No Damper
Description : Damper for FC-204 is not installed. Diffuser is above design.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 12/18/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : FC-212 No Damper
Description : Damper for FC-212 is not installed. Diffuser is above design.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 12/18/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : FC-225 No Damper
Description : Damper for FC-225 is not installed. Diffuser is above design.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 12/18/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : FC-306 Not Ducted
Description : FC-306 is not ducted to the DOAS unit therefore is not receiving any supply air.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Urgent **Asset Tag :**
Originated Date : 12/18/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : Heated Air Collecting at Highest Point
Description : All heated air is collecting at the highest point in the multi-purpose room. The temperature disparity from the ceiling to floor could range up to 50 degrees. Electricians on site said they observed ceiling temps above 100 degrees. I suspect this could prevent units and thermostats from functioning properly.

Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : Medium **Asset Tag :**
Originated Date : 12/20/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : RTU-2 Economizer Not Functional
Description : Economizer for RTU-2 is not operational. Appears to be installed correctly, will not respond to commands from controller. OA set manually by loosening bolts on shaft and adjusting damper then tightening bolts to fix damper at said position.

Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : High **Asset Tag :**
Originated Date : 12/20/2024 - Jordan Best - National TAB



Springer School Addition (Cincinnati, OH)

Project Issue Information

Issue Name : RTU-3 Below Design
Description : RTU-3 is below design, supply fan is operating at its highest set point.
Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : High **Asset Tag :**
Originated Date : 12/20/2024 - Jordan Best - National TAB



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Project Issue Information

Issue Name : RTU-3 VFD Appears Non-Functional
Description : VFD for RTU-3 does not appear to be functional. When fan is running, VFD displays all 0's. Unit was read out in test mode. Suspect incomplete startup by Trane or malfunctioning VFD. Recommend contacting Trane to further investigate.

Created By : National TAB **Assigned To :** National TAB - Jordan Best
Status : Open
Priority : High **Asset Tag :**
Originated Date : 12/20/2024 - Jordan Best - National TAB

Project Issue File Details



12/20/2024

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Project: Springer School Addition (Cincinnati, OH)

System/Unit: AHU-DUAL FAN



Asset: DOAS-1

AREA:

| UNIT DATA - SUPPLY | | |
|----------------------------|--------|--------------------|
| | Design | Actual |
| Manufacturer | NA | TRANE |
| Model Number | NA | OABD108A3-C1B401KM |
| Serial Number | - | OA359283-1-1 |
| No. Pre-Filters / Size (1) | - | 2/20"X24"X2" |
| No. Pre-Filters / Size (2) | - | 2/20"X24"X2" |
| No. Pre-Filters / Size (3) | - | 2/20"X24"X2" |

| UNIT DATA - EXHAUST/RETURN | | |
|----------------------------|--------|--------------------|
| | Design | Actual |
| Manufacturer | - | TRANE |
| Model Number | - | OABD108A3-C1B401KM |
| Serial Number | - | OA359283-1-1 |
| No. Pre-Filters / Size (1) | - | 2/20"X24"X2" |
| No. Pre-Filters / Size (2) | - | 2/20"X24"X2" |
| No. Pre-Filters / Size (3) | - | 2/20"X24"X2" |

| MOTOR DATA - SUPPLY | |
|---------------------|---------------|
| | Actual |
| Motor MFG / Frame | MARATHON/145T |
| Horsepower / RPM | 3/3500 |
| Rated Volts / Phase | 208/3 |
| Rated Amperage / SF | 7.2/1.15 |

| MOTOR DATA - EXHAUST/RETURN | |
|-----------------------------|---------------|
| | Actual |
| Motor MFG / FRAME | MARATHON/145T |
| Horsepower / RPM | 1-1/2/1750 |
| Rated Volts / Phase | 208/3 |
| Rated Amperage / SF | 4.8/1.15 |

| TEST DATA - SUPPLY | | |
|--------------------|--------|-------------------|
| | Design | Actual |
| Total CFM | 2150 | 1827 |
| Fan RPM | - | 2849 |
| VFD Speed | - | 48.85 HZ |
| RL Voltage | - | 209.3/208.9/210.4 |
| RL Amperage | - | 7.2 |
| Motor B.H.P. | - | 3 |

| TEST DATA - EXHAUST/RETURN | | |
|----------------------------|--------|-------------------|
| | Design | Actual |
| Total CFM | 2000 | 1995 |
| Fan RPM | - | 1516 |
| VFD Speed | - | 52 HZ |
| RL Voltage | - | 210.7/209.3/211/3 |
| RL Amperage | - | 2.35 |
| Motor B.H.P. | - | 0.48 |

| PERFORMANCE DATA - SUPPLY | | |
|---------------------------|--------|--------|
| | Design | Actual |
| Suction S.P. | - | -1.24" |
| Discharge S.P. | - | 0.40" |
| Total ESP | 1.25 | 1.44" |

| PERFORMANCE DATA - EXHAUST/RETURN | | |
|-----------------------------------|--------|--------|
| | Design | Actual |
| Suction S.P. | - | -0.60" |
| Total S.P. | - | 0.60" |
| Heat Wheel P.D. | - | 0.14" |
| Pre-Filters P.D. | - | 0.16" |

Completed By: Jordan Best on 12/20/2024

Notes:

- . Amps read from VFD
- . Unit was overramping when originally read, decreased set point to satisfy FLA, which left supply slightly under design.

Written By: Jordan Best on 12/20/2024

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Project: Springer School Addition (Cincinnati, OH)

AHU-DUAL FAN



Diffuser Supply (GRD)

DOAS-1/

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| FC-100 | 100 | DUCT | 6 | 15 | 373 | 55 | 366.7 |
| FC-101 | 101 | DUCT | 6 | 40 | | 61 | 152.5 |
| FC-102 | 102 | DUCT | 6 | 50 | | 45 | 90.0 |
| FC-103 | 103 | DUCT | 6 | 30 | | 28 | 93.3 |
| FC-104 | 104 | DUCT | 6 | 40 | | 30 | 75.0 |
| FC-105 | 105 | DUCT | 6 | 40 | | 32 | 80.0 |
| FC-106 | 106 | DUCT | 6 | 30 | | 26 | 86.7 |
| FC-113 | 113 | DUCT | 6 | 15 | | 13 | 86.7 |
| FC-114 | 114 | DUCT | 6 | 15 | | 11 | 73.3 |
| FC-115 | 115 | DUCT | 6 | 15 | | 13 | 86.7 |
| FC-116 | 116 | DUCT | 6 | 15 | | 12 | 80.0 |
| FC-117 | 117 | DUCT | 6 | 15 | | 14 | 93.3 |
| FC-119 | 119 | DUCT | 6 | 15 | | 14 | 93.3 |
| FC-201 | 201 | DUCT | 6 | 60 | 531 | | - |
| FC-204 | 204 | DUCT | 6 | 15 | | 98 | 653.3 |
| FC-205 | 205 | DUCT | 6 | 20 | | 13 | 65.0 |
| FC-206 | 206 | DUCT | 6 | 15 | | 11 | 73.3 |
| FC-207 | 207 | DUCT | 6 | 15 | | 18 | 120.0 |
| FC-208 | 208 | DUCT | 6 | 15 | | 17 | 113.3 |
| FC-209 | 209 | DUCT | 6 | 15 | | 15 | 100.0 |
| FC-210 | 210 | DUCT | 6 | 15 | | 12 | 80.0 |
| FC-212 | 212 | DUCT | 6 | 15 | | 81 | 540.0 |
| FC-214 | 214 | DUCT | 6 | 55 | | 46 | 83.6 |
| FC-215 | 215 | DUCT | 6 | 15 | | 14 | 93.3 |
| FC-216 | 216 | DUCT | 6 | 15 | | 13 | 86.7 |
| FC-218 | 218 | DUCT | 6 | 20 | | 18 | 90.0 |
| FC-219 | 219 | DUCT | 6 | 20 | | 18 | 90.0 |
| FC-221 | 220 | DUCT | 6 | 25 | | 19 | 76.0 |
| FC-224 | 224 | DUCT | 6 | 25 | | 18 | 72.0 |
| FC-225 | 225 | DUCT | 6 | 20 | | 57 | 285.0 |
| FC-300 | 300 | DUCT | 6 | 50 | 982 | 43 | 86.0 |
| FC-301 | 301 | DUCT | 10 | 270 | | 197 | 73.0 |
| FC-302 | 302 | DUCT | 10 | 260 | | 199 | 76.5 |
| FC-303 | 303 | DUCT | 10 | 255 | | 210 | 82.4 |
| FC-304 | 304 | DUCT | 10 | 265 | | 222 | 83.8 |
| FC-306 | 300 | DUCT | 6 | 25 | | | - |
| FC-222A 1 | 222A | DUCT | 6 | 115 | | 68 | 59.1 |
| FC-222B 1 | 222B | DUCT | 6 | 115 | | 66 | 57.4 |
| Total | | | | 2070 | 1886 | 1827 | 88.26% |

Completed By: Jordan Best on 12/20/2024

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Project: Springer School Addition (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-1

AREA:109B

| Unit Data | | |
|------------------|----------|-------------------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Serial Num | - | 241610927D |
| Model Num | NA | YZJ180A3SAH02K2C0A1A |
| Configuration | VERTICAL | VERTICAL |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 72"X18 |
| Num PreFilter 1 | - | 8 |
| PreFilter Size 1 | - | 20"X30"X2" / 20"X24"X2" |

| Test Data | | |
|--------------------|--------|--------------------|
| | Design | Actual |
| SF CFM | 4500 | 4487 |
| RA CFM | 2500 | 2411 |
| OA CFM | 2000 | 2076 |
| RL Voltage | 208 | 209.5/-209.8/210.5 |
| RL Amperage | - | 5.15/7.38/8.84 |
| OA Damper Position | - | 25% |
| Brake Horse Power | - | 2.42 |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | - | 3 |
| Phase | 3 | 3 |
| Rated Voltage | 208 | 208 |
| Rated Amperage | - | 8.8 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| MA Plenum SP | - | -0.48" |
| Fan Suction SP | - | -0.67" |
| Fan Discharge SP | - | 0.70" |
| Total ESP | 1.66 | 1.18" |
| Fan Total SP | - | 1.37" |

Completed By: Jordan Best on 12/20/2024

Notes:

. Unit is equipped with 2 fan motors.

Written By: Jordan Best on 12/19/2024

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Project: Springer School Addition (Cincinnati, OH)

AHU/RTU



Diffuser Supply (GRD)

RTU-1/109B

| Asset | | | | | | | |
|------------|----------|-------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | 109B | LSD-2 | 10 | 450 | 223 | 428 | 95.1 |
| SGRD2 | 109B | LSD-2 | 10 | 450 | 454 | 421 | 93.6 |
| SGRD3 | 109B | LSD-2 | 10 | 450 | 522 | 461 | 102.4 |
| SGRD4 | 109B | LSD-2 | 10 | 450 | 372 | 409 | 90.9 |
| SGRD5 | 109B | LSD-2 | 10 | 450 | 406 | 415 | 92.2 |
| SGRD6 | 109B | LSD-2 | 10 | 450 | 401 | 411 | 91.3 |
| SGRD7 | 109B | LSD-2 | 10 | 450 | 517 | 478 | 106.2 |
| SGRD8 | 109B | LSD-2 | 10 | 450 | 599 | 489 | 108.7 |
| SGRD9 | 109B | LSD-2 | 10 | 450 | 586 | 492 | 109.3 |
| SGRD10 | 109B | LSD-2 | 10 | 450 | 531 | 483 | 107.3 |
| Total | | | | 4500 | 4611 | 4487 | 99.71% |

Completed By: Jordan Best on 12/20/2024

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Project: Springer School Addition (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-2

AREA:109B

| Unit Data | | |
|------------------|----------|-----------------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Serial Num | - | 241510959L |
| Model Num | NA | YHJ120A3SAH05KC2C0A1A |
| Configuration | VERTICAL | VERTICAL |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 38"x25" |
| Num PreFilter 1 | - | 6 |
| PreFilter Size 1 | - | 16"X24"X2" |

| Test Data | | |
|--------------------|--------|-----------------|
| | Design | Actual |
| SF CFM | 3500 | 3410 |
| RA CFM | 2450 | 2397 |
| OA CFM | 1050 | 1013 |
| RL Voltage | 208 | 209/210.3/209.8 |
| RL Amperage | - | 7.86/7.02/7.62 |
| OA Damper Position | - | OA SET MANUALLY |
| Brake Horse Power | - | 2.55 |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | - | 3 |
| Phase | 3 | 3 |
| Rated Voltage | 208 | 208 |
| Rated Amperage | - | 8.8 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| MA Plenum SP | - | -0.48" |
| Fan Suction SP | - | -0.94" |
| Fan Discharge SP | - | 0.62" |
| Total ESP | 1.71 | 1.1" |
| Fan Total SP | - | 1.56" |

Completed By: Jordan Best on 12/20/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

AHU/RTU



Diffuser Supply (GRD)

RTU-2/109B

| Asset | | | | | | | |
|------------|----------|-------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | 109B | LSD-1 | 10 | 350 | 336 | 322 | 92.0 |
| SGRD2 | 109B | LSD-1 | 10 | 350 | 318 | 333 | 95.1 |
| SGRD3 | 109B | LSD-1 | 10 | 350 | 240 | 317 | 90.6 |
| SGRD4 | 109B | LSD-1 | 10 | 350 | 416 | 381 | 108.9 |
| SGRD5 | 109B | LSD-1 | 10 | 350 | 363 | 354 | 101.1 |
| SGRD6 | 109B | LSD-1 | 10 | 350 | 336 | 342 | 97.7 |
| SGRD7 | 109B | LSD-1 | 10 | 350 | 316 | 321 | 91.7 |
| SGRD8 | 109B | LSD-1 | 10 | 350 | 351 | 343 | 98.0 |
| SGRD9 | 109B | LSD-1 | 10 | 350 | 322 | 336 | 96.0 |
| SGRD10 | 109B | LSD-1 | 10 | 350 | 373 | 361 | 103.1 |
| Total | | | | 3500 | 3371 | 3410 | 97.43% |

Completed By: Jordan Best on 12/20/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-3

AREA:109C

| Unit Data | | |
|------------------|------------|----------------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Serial Num | - | 240512448L |
| Model Num | NA | YZC060E3RZA2FK6C1A1A |
| Configuration | HORIZONTAL | HORIZONTAL |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 38"X25" |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 16"X25"X2" |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | - | 1 |
| Phase | 3 | 3 |
| Rated Voltage | 208 | 208 |
| Rated Amperage | - | 3.3 |

| Test Data | | |
|--------------------|--------|-------------------|
| | Design | Actual |
| SF CFM | 1620 | 1171 |
| RA CFM | 920 | 458 |
| OA CFM | 700 | 713 |
| RL Voltage | 208 | 209.2/209.6/210.2 |
| RL Amperage | - | 1.13/1.17/1.15 |
| OA Damper Position | - | 5.079 VDC |
| Brake Horse Power | - | 0.40 |

| Performance Data | | |
|------------------|--------|---------|
| | Design | Actual |
| MA Plenum SP | - | -0.026" |
| Fan Suction SP | - | -0.096" |
| Fan Discharge SP | - | 0.16" |
| Total ESP | 1.00 | 0.186" |
| Fan Total SP | - | 0.256" |

Completed By: Jordan Best on 12/20/2024

Notes:

- . Unit VFD displays 0's while fan is running, unit read out in test mode. Suspect VFD has not been set up.
- . Unit below design @ highest speed (highest speed may increase after VFD set up)

Written By: Jordan Best on 12/20/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

AHU/RTU



Diffuser Supply (GRD)

RTU-3/109C

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | 109C | SD-2 | 8 | 270 | 170 | 170 | 63.0 |
| SGRD2 | 109C | SD-2 | 8 | 270 | 226 | 226 | 83.7 |
| SGRD3 | 109C | SD-2 | 8 | 270 | 219 | 219 | 81.1 |
| SGRD4 | 109C | SD-2 | 8 | 270 | 175 | 175 | 64.8 |
| SGRD5 | 109C | SD-2 | 8 | 270 | 198 | 198 | 73.3 |
| SGRD6 | 109C | SD-2 | 8 | 270 | 183 | 183 | 67.8 |
| Total | | | | 1620 | 1171 | 1171 | 72.28% |

Completed By: Jordan Best on 12/20/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: Fan Coil



Asset: FC-101

AREA: LOBBY HALL

| Unit Data | | |
|---------------|--------|----------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Model Num | NA | TPEFY030MA144A |
| Serial Num | - | 3ZR0216830P912 |
| Configuration | - | HORIZONTAL |

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

| Test Data | | |
|-------------------|--------|--------|
| | Design | Actual |
| SFAN CFM | 1020 | 771 |
| Motor Speed SetPt | - | 4/4 |
| RL Voltage | 208 | 209.7 |
| RL Amperage | - | 2.03 |
| RA CFM | 980 | 771 |
| OA CFM | 40 | 0 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Suction ESP | - | -0.32" |
| Discharge ESP | - | 0.28" |
| Total ESP | - | 0.60" |

Completed By: Jordan Best on 12/19/2024

- Notes:
- . OA is not supplied directly to unit, diffuser supplied by DOAS installed near FCU.
 - . Unit below design, fan operating at highest speed. Diffusers balanced proportionately.

Written By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

Fan Coil



Diffuser Supply (GRD)

FC-101/LOBBY HALL

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | 100 | SG-1 | 12 | 510 | 514 | 397 | 77.8 |
| SGRD2 | 100 | SG-1 | 12 | 510 | 315 | 374 | 73.3 |
| Total | | | | 1020 | 829 | 771 | 75.59% |

Completed By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: Fan Coil



Asset: FC-108

AREA:108

| Unit Data | | |
|---------------|--------|-----------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Model Num | NA | TPEFYP012MA144A |
| Serial Num | - | 3ZR0617530P90W |
| Configuration | - | HORIZONTAL |

| Motor Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Horsepower | - | 0.114 |
| Phase | 1 | 1 |
| Voltage (rated) | 208 | 208 |
| Amperage (rated) | - | 0.89 |

| Test Data | | |
|-------------------|--------|--------|
| | Design | Actual |
| SFAN CFM | 370 | 396 |
| Motor Speed SetPt | - | 4/4 |
| RL Voltage | 208 | 209.7 |
| RL Amperage | - | 0.81 |
| RA CFM | 370 | 396 |
| OA CFM | 0 | 0 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Suction ESP | - | -0.14" |
| Discharge ESP | - | 0.20" |
| Total ESP | - | 0.34" |

Completed By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

Fan Coil



Diffuser Supply (GRD)

FC-108/108

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | 110 | SG-2 | 6 | 50 | 77 | 52 | 104.0 |
| SGRD2 | 108 | SG-2 | 6 | 120 | 93 | 125 | 104.2 |
| SGRD3 | 107 | SG-3 | 8 | 200 | 188 | 219 | 109.5 |
| Total | | | | 370 | 358 | 396 | 107.03% |

Completed By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: Fan Coil



Asset: FC-120

AREA:120

| Unit Data | | |
|---------------|--------|-----------------|
| | Design | Actual |
| MFG | NA | TRANE |
| Model Num | NA | TPEFYP012MA144A |
| Serial Num | - | 3ZR0617730P90W |
| Configuration | - | HORIZONTAL |

| Motor Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Horsepower | - | 0.114 |
| Phase | 1 | 1 |
| Voltage (rated) | 208 | 208 |
| Amperage (rated) | - | 0.89 |

| Test Data | | |
|-------------------|--------|--------|
| | Design | Actual |
| SFAN CFM | 305 | 321 |
| Motor Speed SetPt | - | 4/4 |
| RL Voltage | 208 | 209.2 |
| RL Amperage | - | 0.48 |
| RA CFM | 305 | 321 |
| OA CFM | 0 | 0 |

| Performance Data | | |
|------------------|--------|---------|
| | Design | Actual |
| Suction ESP | - | -0.072" |
| Discharge ESP | - | 0.18" |
| Total ESP | - | 0.25" |

Completed By: Jordan Best on 12/20/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

Fan Coil



Diffuser Supply (GRD)

FC-120/120

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| SGRD1 | 120 | SD-1 | 6 | 155 | 117 | 141 | 91.0 |
| SGRD2 | 121 | SD-1 | 6 | 25 | 138 | 62 | 248.0 |
| SGRD3 | 122 | SD-1 | 6 | 125 | 112 | 118 | 94.4 |
| Total | | | | 305 | 367 | 321 | 105.25% |

Completed By: Jordan Best on 12/20/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: FAN - Exhaust



Asset: EF-1

AREA:

| Unit Data | | |
|------------|---------|----------------|
| | Design | Actual |
| MFG | NA | GREENHECK |
| Model Num | NA | SP-B90-QD |
| Serial Num | - | 173888399-0064 |
| Type | CEILING | CEILING |

| Test Data | | |
|-------------|--------|--------|
| | Design | Actual |
| CFM | 50 | 46 |
| RL Voltage | 115 | 115 |
| RL Amperage | - | 0.19 |

| Motor Data | | |
|------------------|--------|-----------|
| | Design | Actual |
| Motor MFG | - | GREENHECK |
| Motor Rpm | 688 | 700 |
| Phase | 1 | 1 |
| Voltage (rated) | 115 | 115 |
| Amperage (rated) | - | 0.19 |

Completed By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: FAN - Exhaust



Asset: EF-2

AREA:

| Unit Data | | |
|------------|--------|-----------|
| | Design | Actual |
| MFG | NA | GREENHECK |
| Model Num | NA | SQ-120-X |
| Serial Num | - | 23578449 |
| Type | INLINE | INLINE |

| Test Data | | |
|-------------|--------|--------|
| | Design | Actual |
| CFM | 960 | 798 |
| RL Voltage | 115 | 115 |
| RL Amperage | - | 1.83 |
| Total ESP | 0.40 | 0.21" |

Completed By: Jordan Best on 12/19/2024

Notes:

. Unit below design, not equipped with speed controller.

Written By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF-2/

| Asset | | | | | | | | |
|------------|------|------|------------|----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| EF-2-EGRD1 | | | 60 | 1 | 450 | 63 | 63 | 105.0 |
| EF-2-EGRD2 | | | 450 | 1 | 279 | 373 | 373 | 82.9 |
| EF-2-EGRD3 | | | 450 | 1 | 76 | 362 | 362 | 80.4 |
| Total | | | 960 | | 805 | 798 | 798 | 83.12% |

Completed By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: FAN - Exhaust



Asset: EF-3

AREA:

| Unit Data | | |
|------------|---------|-----------|
| | Design | Actual |
| MFG | NA | GREENHECK |
| Model Num | NA | SP-B90-QD |
| Serial Num | - | |
| Type | CEILING | CEILING |

| Test Data | | |
|-------------|--------|--------|
| | Design | Actual |
| CFM | 50 | 75 |
| RL Voltage | 115 | 115 |
| RL Amperage | - | 0.19 |

| Motor Data | | |
|------------------|--------|-----------|
| | Design | Actual |
| Motor MFG | - | GREENHECK |
| Motor Rpm | 688 | 700 |
| Phase | 1 | 1 |
| Voltage (rated) | 115 | 115 |
| Amperage (rated) | - | 0.19 |

Completed By: Jordan Best on 12/19/2024

Notes:

. Unit above design, not equipped with speed controller, unable to reduce fan speed.

Written By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: FAN - Exhaust



Asset: EF-4

AREA:

| Unit Data | | |
|------------|---------|----------------|
| | Design | Actual |
| MFG | NA | GREENHECK |
| Model Num | NA | SP-B90-QD |
| Serial Num | - | 173888399-0069 |
| Type | CEILING | CEILING |

| Test Data | | |
|-------------|--------|--------|
| | Design | Actual |
| CFM | 50 | 55 |
| RL Voltage | 115 | 115 |
| RL Amperage | - | 0.17 |

| Motor Data | | |
|------------------|--------|-----------|
| | Design | Actual |
| Motor MFG | - | GREENHECK |
| Motor Rpm | 688 | 700 |
| Phase | 1 | 1 |
| Voltage (rated) | 115 | 115 |
| Amperage (rated) | - | 0.19 |

Completed By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

System/Unit: FAN - Exhaust



Asset: EF-5

AREA:

| Unit Data | | |
|------------|-------------|-------------|
| | Design | Actual |
| MFG | NA | GREENHECK |
| Model Num | NA | G-090-VG |
| Serial Num | - | 23578481 |
| Type | CRE DNBLAST | CRE DNBLAST |

| Test Data | | |
|-------------|--------|--------|
| | Design | Actual |
| CFM | 560 | 607 |
| RL Voltage | 115 | 121 |
| RL Amperage | - | 1.28 |
| Total ESP | 0.40 | -0.19" |

| Motor Data | | |
|------------------|--------|------------|
| | Design | Actual |
| Motor MFG | - | VARI-GREEN |
| Motor Rpm | 1529 | 1529 |
| Phase | 1 | 1 |
| Voltage (rated) | 115 | 115 |
| Amperage (rated) | - | 2.45 |

Completed By: Jordan Best on 12/19/2024

National TAB

Project: Springer School Addition (Cincinnati, OH)

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF-5/

| Asset | | | | | | | | |
|------------|------|------|------------|----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| EF-5-EGRD1 | | | 280 | 1 | 347 | 305 | 305 | 108.9 |
| EF-5-EGRD2 | | | 280 | 1 | 351 | 302 | 302 | 107.9 |
| Total | | | 560 | | 698 | 607 | 607 | 108.39% |

Completed By: Jordan Best on 12/19/2024