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Report: Marshalls - Colerain (Cincinnati, OH)

Function: Test, Adjust, & Balance

Date: 10/12/2023

PROJECT

Marshalls - Colerain (Cincinnati, OH)

3861 Stone Creek Blvd.

Cincinnati, OH 45251

Client

Champion Commercial HVAC

2638 Tem Mile Rd.

Melbourne, KY 41059

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Project: Marshalls - Colerain (Cincinnati, OH)

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-1

AREA: VESTIBULE

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2E3656609 |
| Model Num | NA | ZJ120N24R4D5HCA1R2 |
| Configuration | VERTICAL | Vertical |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 20x30 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 24X20 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 4000 | |
| SF RPM | 1139 | |
| RA CFM | 2800 | |
| OA CFM | 1200 | 1242 |
| RL Voltage | 460 | |
| RL Amperage | 4.7 | |
| OA Damper Position | - | 28% |
| Brake Horse Power | - | |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | 3.0 | 3.0 |
| Phase | 3 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | 4.7 | 4.7 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 1.00 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

AHU/RTU



Diffuser Supply (GRD)

RTU-1/VESTIBULE

| Asset | | | | | | | |
|------------|-----------|------|-------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| 1-1 | SALES | SR-1 | 20X10 | 800 | | | - |
| 1-2 | SALES | SR-1 | 20X10 | 800 | | | - |
| 1-3 | SALES | SR-1 | 20X10 | 800 | | | - |
| 1-4 | SALES | SR-1 | 20X10 | 400 | | | - |
| 1-5 | SALES | SR-1 | 20X10 | 600 | | | - |
| 1-6 | VESTIBULE | SD-1 | 10 | 300 | | | - |
| 1-7 | VESTIBULE | SD-1 | 10 | 300 | | | - |
| Total | | | | 4000 | 0 | 0 | 0% |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-2

AREA:SALES

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2E3656608 |
| Model Num | NA | ZJ120N24R4D5HCA1R2 |
| Configuration | VERTICAL | VERTICAL |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 20x30 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 24X20 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 4000 | |
| SF RPM | 1139 | |
| RA CFM | 2800 | |
| OA CFM | 1200 | 1188 |
| RL Voltage | 460 | |
| RL Amperage | 4.7 | |
| OA Damper Position | - | 25% |
| Brake Horse Power | - | |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | 3 | 3 |
| Phase | 3.0 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | 4.7 | 4.7 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| MA Plenum SP | - | |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 1.00 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-3

AREA:SALES

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2E3652096 |
| Model Num | NA | ZJ150N24R4D5HCA1R1 |
| Configuration | VERTICAL | Vertical |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 20x30 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 24X20 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 5000 | |
| SF RPM | 1399 | |
| RA CFM | 3500 | |
| OA CFM | 1500 | 1444 |
| RL Voltage | 460 | |
| RL Amperage | - | |
| OA Damper Position | - | 24% |
| Brake Horse Power | 4.58 | |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | 5.0 | 5 |
| Phase | 3 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | - | 6.6 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 1.00 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-4

AREA:SALES

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2F3705494 |
| Model Num | NA | ZJ102N18R4D5HCA1R2 |
| Configuration | VERTICAL | VERTICAL |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 20x30 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 20x24 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 3400 | |
| SF RPM | 995 | |
| RA CFM | 2380 | |
| OA CFM | 1020 | 966 |
| RL Voltage | 460 | |
| RL Amperage | - | |
| OA Damper Position | - | 18% |
| Brake Horse Power | - | |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | 3.0 | 3 |
| Phase | 3 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | - | 4.7 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 1.0 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-5

AREA:SALES

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2F3705495 |
| Model Num | NA | ZJ102N18R4D5HCA1R2 |
| Configuration | VERTICAL | VERTICAL |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 30x20 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 24x20 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 3400 | |
| SF RPM | 995 | |
| RA CFM | 2380 | |
| OA CFM | 1020 | 0 |
| RL Voltage | 460 | |
| RL Amperage | - | |
| OA Damper Position | - | Error |
| Brake Horse Power | - | |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | 5.0 | 5 |
| Phase | 3 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | - | 4.7 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 1.0 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-6

AREA:PROCESSING

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2E3653864 |
| Model Num | NA | ZT061N16P4B5HCA1R1 |
| Configuration | VERTICAL | VERTICAL |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 30x20 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 16x24 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 2000 | |
| SF RPM | 1069 | |
| RA CFM | 1700 | |
| OA CFM | 300 | 311 |
| RL Voltage | 460 | |
| RL Amperage | - | |
| OA Damper Position | - | 20% |
| Brake Horse Power | - | |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | 1.50 | 1.5 |
| Phase | 3 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | - | 2.1 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| MA Plenum SP | - | |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 1.20 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

AHU/RTU



Diffuser Supply (GRD)

RTU-6/PROCESSING

| Asset | | | | | | | |
|------------|------------|------|-------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| 6-1 | PROCESSING | SR-2 | 20X10 | 200 | | | - |
| 6-2 | PROCESSING | SR-2 | 20X10 | 375 | | | - |
| 6-3 | PROCESSING | SR-2 | 20X10 | 200 | | | - |
| 6-4 | PROCESSING | SR-2 | 20X10 | 375 | | | - |
| 6-5 | PROCESSING | SR-2 | 20X10 | 200 | | | - |
| 6-6 | PROCESSING | SR-2 | 20X10 | 300 | | | - |
| 6-7 | PROCESSING | SR-2 | 20X10 | 200 | | | - |
| 6-8 | PROCESSING | SR-2 | 20X10 | 150 | | | - |
| Total | | | | 2000 | 0 | 0 | 0% |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-7

AREA:13

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2E3656529 |
| Model Num | NA | ZT037N08P4B5HCA1R2 |
| Configuration | VERTICAL | Vertical |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 30x20 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 16x24 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 1200 | |
| SF RPM | 828 | |
| RA CFM | 1020 | |
| OA CFM | 180 | 188 |
| RL Voltage | 460 | |
| RL Amperage | - | |
| OA Damper Position | - | 15% |
| Brake Horse Power | - | |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | 1.50 | 1.5 |
| Phase | 3 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | - | 2.1 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 0.80 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

AHU/RTU



Diffuser Supply (GRD)

RTU-7/13

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| 7-1 | 5 | SD-1 | 8 | 200 | | | - |
| 7-2 | 21 | SD-1 | 8 | 200 | | | - |
| 7-3 | 14 | SD-1 | 6 | 50 | | | - |
| 7-4 | 4 | SD-1 | 8 | 200 | | | - |
| 7-5 | 3 | SD-1 | 8 | 200 | | | - |
| 7-6 | 15 | SD-1 | 10 | 300 | | | - |
| 7-7 | 13 | SD-1 | 6 | 50 | | | - |
| Total | | | | 1200 | 0 | 0 | 0% |

Diffuser Ret/Exh (GRD)

RTU-7/13

| Asset | | | | | | | | |
|------------|------|------|------------|----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| R7-1 | R-1 | 8 | 200 | | | | | - |
| R7-2 | R-1 | 8 | 200 | | | | | - |
| R7-3 | R-1 | 10 | 250 | | | | | - |
| R7-4 | R-1 | 8 | 200 | | | | | - |
| R7-5 | R-1 | 10 | 300 | | | | | - |
| R7-6 | R-1 | 6 | 50 | | | | | - |
| Total | | | 1200 | | 0 | 0 | 0 | 0% |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-8

AREA:17

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2E3656518 |
| Model Num | NA | ZT037N08P4B5HCA1R2 |
| Configuration | VERTICAL | Vertical |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 30x20 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 16x24x2 |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | 1.50 | 1.5 |
| Phase | 3 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | - | 2.1 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 1200 | |
| SF RPM | 828 | |
| RA CFM | 1080 | |
| OA CFM | 120 | 122 |
| RL Voltage | 460 | |
| RL Amperage | - | |
| OA Damper Position | - | 12% |
| Brake Horse Power | - | |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 0.80 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

AHU/RTU



Diffuser Supply (GRD)

RTU-8/17

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| 8-1 | 15 | SD-1 | 10 | 300 | | | - |
| 8-2 | 20 | SD-1 | 6 | 90 | | | - |
| 8-3 | 18 | SD-1 | 8 | 150 | | | - |
| 8-4 | 19 | SD-1 | 6 | 90 | | | - |
| 8-5 | 17 | SD-1 | 8 | 190 | | | - |
| 8-6 | 17 | SD-1 | 8 | 190 | | | - |
| 8-7 | 17 | SD-1 | 8 | 190 | | | - |
| Total | | | | 1200 | 0 | 0 | 0% |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: AHU/RTU



Asset: RTU-9

AREA:9

| Unit Data | | |
|------------------|----------|--------------------|
| | Design | Actual |
| MFG | NA | YORK |
| Serial Num | - | N2E3656516 |
| Model Num | NA | ZT037N08P4B5HCA1R2 |
| Configuration | VERTICAL | Vertical |
| Num OA Filters 1 | - | 1 |
| OA Filter Size 1 | - | 20x30 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 16x24x2 |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| SF CFM | 1200 | |
| SF RPM | 828 | |
| RA CFM | 960 | |
| OA CFM | 240 | 229 |
| RL Voltage | 460 | |
| RL Amperage | - | |
| OA Damper Position | - | 19% |
| Brake Horse Power | - | |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Horsepower | - | 1.5 |
| Phase | 3 | 3 |
| Rated Voltage | 460 | 460 |
| Rated Amperage | - | 2.1 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Fan Suction SP | - | |
| Fan Discharge SP | - | |
| Total ESP | 0.80 | |
| Fan Total SP | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

AHU/RTU



Diffuser Supply (GRD)

RTU-9/9

| Asset | | | | | | | |
|------------|----------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| 9-1 | 10 | SD-1 | 6 | 100 | | | - |
| 9-2 | 7 | SD-1 | 8 | 170 | | | - |
| 9-3 | 6 | SD-1 | 8 | 160 | | | - |
| 9-4 | 8 | SD-1 | 8 | 170 | | | - |
| 9-5 | HALL | SD-1 | 8 | 150 | | | - |
| 9-6 | 9 | SD-1 | 10 | 225 | | | - |
| 9-7 | 9 | SD-1 | 10 | 225 | | | - |
| Total | | | | 1200 | 0 | 0 | 0% |

Diffuser Ret/Exh (GRD)

RTU-9/9

| Asset | | | | | | | | |
|------------|------|------|------------|----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| R9-1 | R-1 | 12 | 600 | | | | | - |
| R9-2 | R-1 | 12 | 600 | | | | | - |
| Total | | | 1200 | | 0 | 0 | 0 | 0% |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: FAN - Exhaust



Asset: EF-1

AREA:10

| Unit Data | | |
|------------|-------------|------------|
| | Design | Actual |
| MFG | NA | York |
| Model Num | NA | EVD13 |
| Serial Num | - | H23UZ56338 |
| Type | CRE DNBLAST | |

| Test Data | | |
|-------------|--------|--------|
| | Design | Actual |
| CFM | 650 | |
| RL Voltage | - | 115 |
| RL Amperage | - | |
| Total ESP | 0.62 | |

| Motor Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Horsepower | 0.167 | 0.167 |
| Motor Rpm | 1550 | 1550 |
| Phase | 1 | 1 |
| Voltage (rated) | 115 | 115 |
| Amperage (rated) | - | 2.1 |
| Service Factor | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF-1/10

| Asset | | | | | | | | |
|------------|------|------|------------|----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| E1-1 | EG-1 | 10 | 250 | | | | | - |
| E1-2 | EG-1 | 10 | 250 | | | | | - |
| E1-3 | R-1 | 8 | 150 | | | | | - |
| Total | | | 650 | | 0 | 0 | 0 | 0% |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: FAN - Exhaust



Asset: EF-2

AREA:9

| Unit Data | | |
|------------|-------------|------------|
| | Design | Actual |
| MFG | NA | YORK |
| Model Num | NA | EVD10R |
| Serial Num | - | H23UZ56339 |
| Type | CRE DNBLAST | CRE |

| Test Data | | |
|-------------|--------|--------|
| | Design | Actual |
| CFM | 220 | |
| RL Voltage | - | 115 |
| RL Amperage | - | |
| Total ESP | 0.5 | |

| Motor Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Horsepower | 0.167 | 0.08 |
| Motor Rpm | 1550 | 1550 |
| Phase | 1 | 1 |
| Voltage (rated) | 115 | 115 |
| Amperage (rated) | - | |

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Project: Marshalls - Colerain (Cincinnati, OH)

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF-2/9

| Asset | | | | | | | | |
|------------|------|------|------------|----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| E2-1 | R-1 | 10 | 220 | | | | | - |
| Total | | | 220 | | 0 | 0 | 0 | 0% |

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Project: Marshalls - Colerain (Cincinnati, OH)

System/Unit: FAN - Exhaust



Asset: EF-3

AREA:18

| Unit Data | | |
|------------|-------------|------------|
| | Design | Actual |
| MFG | NA | YORK |
| Model Num | NA | EVD11 |
| Serial Num | - | H23UZ56340 |
| Type | CRE DNBLAST | Cre |

| Test Data | | |
|-------------|--------|--------|
| | Design | Actual |
| CFM | 310 | |
| RL Voltage | - | 115 |
| RL Amperage | - | |
| Total ESP | 0.5 | |

| Motor Data | | |
|------------------|--------|--------|
| | Design | Actual |
| Horsepower | 0.20 | 0.2 |
| Motor Rpm | 1725 | 1750 |
| Phase | 1 | 1 |
| Voltage (rated) | 115 | 115 |
| Amperage (rated) | - | 3.0 |

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Project: Marshalls - Colerain (Cincinnati, OH)

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF-3/18

| Asset | | | | | | | | |
|------------|------|------|------------|----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| E3-1 | R-1 | 10 | 250 | | | | | - |
| E3-2 | R-1 | 6 | 60 | | | | | - |
| Total | | | 310 | | 0 | 0 | 0 | 0% |