**Report By:**

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

**Report: TAB Report**

**Function: Test, Adjust, & Balance**

**Date: 12/06/2024**

**Completed By: National TAB**

# PROJECT

## Dave's Hot Chicken (Oxnard, CA)

341 Esplanade Dr

Oxnard, CA 93036

Client

KMS Resource Group Inc.

8502 E CHAPMAN AVE

SUITE 274

ORANGE, CA 92869

# National TAB

**Project: Dave's Hot Chicken (Oxnard, CA)**

## Table Of Contents

# CERTIFICATION

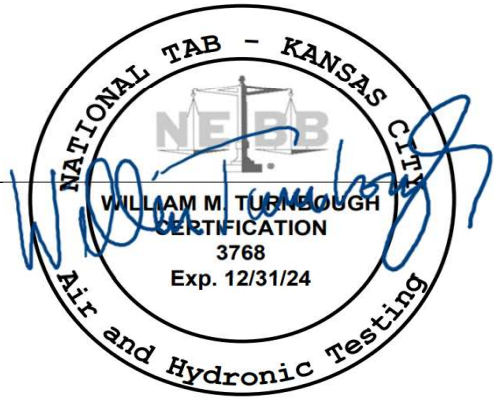
**PROJECT:** Dave's Hot Chicken (Oxnard, CA)

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:** | 12/10/2024 |

## Submitted and Certified by:

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



**Project Summary**
The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report are further details 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.

Ceiling Exhaust FansThe ceiling exhaust fans were measured using a flow hood. If speed adjustment was provided, the fan speed was adjusted to within design tolerance. 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 | 3200 | 3286 | 2600 | 2680 | 600 | 606 | 18.8% | 18.4% | | | | | | |
| RTU-2 | KITCHEN | 3200 | 3282 | 2680 | 2702 | 520 | 580 | 16.3% | 17.7% | | | | | | |
| MUA-1 | HOOD | | | | | | | | | 2720 | 2678 | | | | |
| EF-1 | HOOD | | | | | | | | | | | 3400 | 3363 | | |
| EF-2 | RESTROOM | | | | | | | | | | | | | 70 | 65 |
| EF-3 | RESTROOM | | | | | | | | | | | | | 70 | 67 |
| **TOTALS** | | 6400 | 6568 | 5280 | 5382 | 1120 | 1186 | | | 2720 | 2678 | 3400 | 3363 | 140 | 132 |

**NET BUILDING AIRFLOW CALCULATION**

| TOTALS | DESIGN | ACTUAL |
|---|---|---|
| TOTAL OA | 3840 | 3864 |
| TOTAL EXHAUST | 3540 | 3495 |
| **NET AIRFLOW** | 300 | 369 |

| DOOR TESTED | BUILDING PRESSURE MEASUREMENTS (IN. H20) |
|---|---|
| FRONT | 0.0025 |
| SIDE | 0.0041 |
| REAR | 0.0017 |
| **AVERAGE** | **0.0029** |

**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:

# National TAB

**Project: Dave's Hot Chicken (Oxnard, CA)**

## System/Unit: AHU/RTU

**Asset: RTU-1** AREA:DINING

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | NA | CARRIER |
| **Serial Num** | - | 50FCQM08A2A6A |
| **Model Num** | NA | 5023P79470 |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 1 |
| **OA Filter Size 1** | - | 35.5X17.65 |
| **Num PreFilter 1** | - | 4 |
| **PreFilter Size 1** | - | 20X20X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | NL |
| **Frame** | - | NL |
| **Horsepower** | 1.28 | NL |
| **Motor Rpm** | - | NL |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 460 | 460 |
| **Rated Amperage** | - | 3.0 |
| **Service Factor** | - | NL |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 3200 | 3286 |
| **RA CFM** | 2600 | 2680 |
| **OA CFM** | 600 | 606 |
| **RL Voltage** | 460 | 484/484/480 |
| **RL Amperage** | - | 0.81/0.88/1.03 |
| **OA Damper Position** | - | 21% |
| **Brake Horse Power** | - | NA |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.27” |
| **Fan Suction SP** | - | -0.44” |
| **Fan Discharge SP** | - | 0.24” |
| **Total ESP** | 1.00 | 0.51" |
| **Fan Total SP** | - | 0.68" |

Completed By: David Nicolas Sanchez on 12/06/2024

Notes:
Lowered design CFM for diffusers 1-1 & 1-2 to stay between 10% overall CFM design. GRD and Airbalance schedule CFM do not match.

Written By: David Nicolas Sanchez on 12/09/2024

### Unit Data - PHOTO LOG

**12/09/2024**

# National TAB

**Project:Dave's Hot Chicken (Oxnard, CA)**

## AHU/RTU

### Diffuser Supply (GRD)

**RTU-1/DINING**

| Asset | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **CFM(1)** | **FINAL CFM** | **% to design** |
| SGRD1 | DINING | METAL AIRE 4000 | 16X8 | 350 | 334 | 382 | 109.1 |
| SGRD2 | DINING | METAL AIRE 4000 | 16X8 | 350 | 328 | 385 | 110.0 |
| SGRD3 | DINING | METAL AIRE 4000 | 16X8 | 400 | 272 | 379 | 94.8 |
| SGRD4 | DINING | METAL AIRE 4000 | 16X8 | 400 | 277 | 375 | 93.8 |
| SGRD5 | DINING | METAL AIRE 4000 | 16X8 | 200 | 248 | 211 | 105.5 |
| SGRD6 | DINING | METAL AIRE 4000 | 16X8 | 300 | 294 | 315 | 105.0 |
| SGRD7 | DINING | METAL AIRE 4000 | 16X8 | 200 | 241 | 213 | 106.5 |
| SGRD8 | DINING | METAL AIRE 4000 | 16X8 | 300 | 245 | 297 | 99.0 |
| SGRD9 | DINING | METAL AIRE 4000 | 16X8 | 200 | 67 | 218 | 109.0 |
| SGRD10 | DINING | METAL AIRE 4000 | 16X8 | 400 | 252 | 406 | 101.5 |
| SGRD11 | HALLWAY 110 | METAL AIRE 9000 | 6 | 100 | 98 | 105 | 105.0 |
| Total | | | | 3200 | 2656 | 3286 | 102.69% |

### Diffuser Ret/Exh (GRD)

**RTU-1/DINING**

| Asset | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Type** | **Size** | **DESIGN CFM** | **AK** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| EGRD1 | RH | 36X24 | 2600 | 5.65 | 2414 | 2680 | 2680 | 103.1 |
| Total | | | 2600 | | 2414 | 2680 | 2680 | 103.08% |

**Completed By: David Nicolas Sanchez on 12/06/2024**

# National TAB

**Project: Dave's Hot Chicken (Oxnard, CA)**

## System/Unit: AHU/RTU

**Asset: RTU-2** AREA:KITCHEN

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | NA | CARRIER |
| **Serial Num** | - | 4923P78664 |
| **Model Num** | NA | 50FCQM08A2A6A |
| **Configuration** | VERTICAL | VERTICAL |
| **Num OA Filters 1** | - | 1 |
| **OA Filter Size 1** | - | 35.5X17.65 |
| **Num PreFilter 1** | - | 4 |
| **PreFilter Size 1** | - | 20X20X2 |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | NL |
| **Frame** | - | NL |
| **Horsepower** | 1.28 | NL |
| **Motor Rpm** | - | NL |
| **Phase** | 3 | 3 |
| **Rated Voltage** | 460 | 460 |
| **Rated Amperage** | - | 3.0 |
| **Service Factor** | - | NL |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **SF CFM** | 3200 | 3282 |
| **RA CFM** | 2680 | 2702 |
| **OA CFM** | 520 | 580 |
| **RL Voltage** | 460 | 484/484/477 |
| **RL Amperage** | - | 2.18/2.68/2.45 |
| **OA Damper Position** | - | 21% |
| **Brake Horse Power** | - | NA |

| Performance Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MA Plenum SP** | - | -0.47” |
| **Fan Suction SP** | - | -0.72” |
| **Fan Discharge SP** | - | 0.89” |
| **Total ESP** | 1.00 | 1.36" |
| **Fan Total SP** | - | 1.61" |

Completed By: David Nicolas Sanchez on 12/06/2024

Notes:
Lowered design CFM for diffusers 2-3 & 2-4 to stay between 10% overall CFM design. GRD and Airbalance schedule CFM do not match.

Written By: David Nicolas Sanchez on 12/06/2024

### Unit Data - PHOTO LOG

**12/09/2024**

# National TAB

**Project:Dave's Hot Chicken (Oxnard, CA)**

## AHU/RTU

### Diffuser Supply (GRD)

**RTU-2/KITCHEN**

| Asset | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Asset Name** | **Location** | **Type** | **Size** | **DESIGN CFM** | **CFM(1)** | **FINAL CFM** | **% to design** |
| SGRD1 | 106 | METAL AIRE 9000 | 8 | 150 | 329 | 157 | 104.7 |
| SGRD2 | 104 | METAL AIRE 9000 | 8 | 200 | 298 | 205 | 102.5 |
| SGRD3 | 103 | METAL AIRE 7300 | 16 | 800 | 854 | 858 | 107.3 |
| SGRD4 | 103 | METAL AIRE 7300 | 16 | 900 | 854 | 849 | 94.3 |
| SGRD5 | 102 | METAL AIRE 9000 | 12 | 500 | 569 | 529 | 105.8 |
| SGRD6 | 4102 | METAL AIRE 9000 | 12 | 500 | 583 | 532 | 106.4 |
| SGRD7 | 105 | METAL AIRE 9000 | 8 | 150 | 391 | 152 | 101.3 |
| Total | | | | 3200 | 3878 | 3282 | 102.56% |

### Diffuser Ret/Exh (GRD)

**RTU-2/KITCHEN**

| Asset | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Asset Name** | **Type** | **Size** | **DESIGN CFM** | **AK** | **CFM(1)** | **CFM(2)** | **FINAL CFM** | **% to design** |
| EGRD1 | RH | 22X22 | 1500 | 1 | 1340 | 1351 | 1351 | 90.1 |
| EGRD2 | RH | 22X22 | 1500 | 1 | 1340 | 1351 | 1351 | 90.1 |
| Total | | | 3000 | | 2680 | 2702 | 2702 | 90.07% |

**Completed By: Zack Eismin on 12/09/2024**

# National TAB

**Project: Dave's Hot Chicken (Oxnard, CA)**

## System/Unit: FAN - Exhaust

**Asset: EF-1** AREA:HOOD 1

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | NA | CAPTIVE AIRE |
| **Model Num** | NA | DU180HFA |
| **Serial Num** | - | 6587465 |
| **Type** | CRE UPBLAST | CRE UPBLAST |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 3400 | 3363 |
| **RL Voltage** | - | 347@VFD |
| **RL Amperage** | - | 3.5@VFD |
| **Total ESP** | 1.50 | 0.89" |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | NEMA |
| **Frame** | - | 182T |
| **Horsepower** | 3.0 | 3.0 |
| **Motor Rpm** | - | 1755 |
| **Phase** | 3 | 3 |
| **Voltage (rated)** | 460 | 460 |
| **Amperage (rated)** | - | 4.30 |
| **Service Factor** | - | 1.15 |

Completed By: David Nicolas Sanchez on 12/05/2024

### Unit Data - PHOTO LOG

**12/09/2024**

# National TAB

**Project: Dave's Hot Chicken (Oxnard, CA)**

## System/Unit: FAN - Exhaust

**Asset: EF-2** AREA:

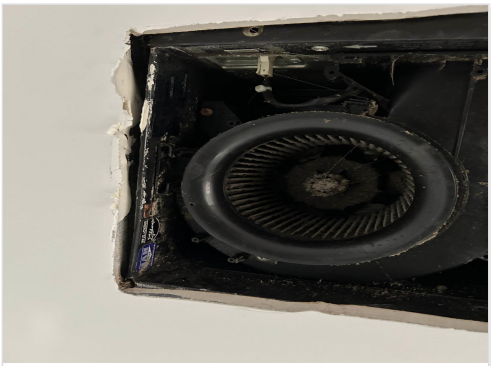
| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | NA | PANASONIC |
| **Model Num** | NA | FV-11VQ5 |
| **Serial Num** | - | 204 |
| **Type** | CEILING | CEILING |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 70 | 65 |
| **RL Voltage** | - | NA |
| **RL Amperage** | - | NA |
| **Total ESP** | - | 0.23" |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | PANASONIC |
| **Frame** | - | NL |
| **Horsepower** | - | NL |
| **Motor Rpm** | - | NL |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 120 |
| **Amperage (rated)** | - | 0.19 |
| **Service Factor** | - | NL |

Completed By: David Nicolas Sanchez on 12/06/2024

### Unit Data - PHOTO LOG



**12/09/2024**

# National TAB

**Project: Dave's Hot Chicken (Oxnard, CA)**

## System/Unit: FAN - Exhaust

**Asset: EF-3** AREA:

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | NA | PANASONIC |
| **Model Num** | NA | FV-11VQ5 |
| **Serial Num** | - | 110 |
| **Type** | CEILING | CEILING |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 70 | 67 |
| **RL Voltage** | - | NA |
| **RL Amperage** | - | NA |
| **Total ESP** | - | 0.22" |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | PANASONIC |
| **Frame** | - | NL |
| **Horsepower** | - | NL |
| **Motor Rpm** | - | NL |
| **Phase** | 1 | 1 |
| **Voltage (rated)** | 115 | 120 |
| **Amperage (rated)** | - | 0.19 |
| **Service Factor** | - | NL |

Completed By: David Nicolas Sanchez on 12/06/2024

### Unit Data - PHOTO LOG

**12/09/2024**

# National TAB

**Project: Dave's Hot Chicken (Oxnard, CA)**

## System/Unit: FAN - Supply

**Asset: MAU-1** AREA:HOOD 1

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | NA | CAPTIVE AIRE |
| **Model Num** | NA | A2-20D-MPU |
| **Serial Num** | - | 6587465 |
| **Type** | - | MUA |
| **Configuration** | VERTICAL | VERTICAL |

| Motor Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **Motor MFG** | - | NEMA |
| **Frame** | - | 145T |
| **Horsepower** | 1.0 | 0.75 |
| **Motor Rpm** | - | 1150 |
| **Phase** | 3 | 3 |
| **Voltage (rated)** | 460 | 460 |
| **Amperage (rated)** | - | 1.72 |
| **Service Factor** | - | 1.15 |

| Gas Heat | | |
|---|---|---|
| | **Design** | **Actual** |
| **Heater Operates (y/n)** | - | N/A |
| **Flame Status (pass/fail)** | - | N/A |
| **Inlet Air Temp SetPt** | - | 55 |
| **Discharge Air Temp SetPt** | - | 60 |
| **Air Flow Switch SP Actual** | - | N/A |

| Test Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **CFM** | 2720 | 2678 |
| **SF RPM** | - | 851 |
| **Motor RPM** | - | 851 |
| **SF System SetPt** | - | 48.1HZ |
| **RL Voltage** | - | 271@VFD |
| **RL Amperage** | - | 1.2@VFD |
| **Total ESP** | - | NA |
| **Fan Discharge SP** | - | NA |

| General | |
|---|---|
| | **Actual** |
| **Fan Rotation Correct** | YES |

Completed By: David Nicolas Sanchez on 12/05/2024

### Unit Data - PHOTO LOG

**12/09/2024**

# National TAB

**Project: Dave's Hot Chicken (Oxnard, CA)**

## System/Unit: Kitchen Hood Type I

**Asset: HOOD 1** AREA:103

| Unit Data | | |
|---|---|---|
| | **Design** | **Actual** |
| **MFG** | NA | CAPTIVE AIRE |
| **Model Num** | NA | 5424 ND-2 |
| **Job / Serial Num** | - | 6587465 |
| **Type** | TYPE I CANOPY | TYPE I CANOPY |
| **Hood length** | 180 | 180” |
| **Hood Width** | 54 | 54” |
| **Supply Plenum Type** | - | PSP |
| **Supply Plenum Width** | 16 | 16” |
| **Supply Plenum Length** | 192 | 192” |

| Test Data Exhaust | | |
|---|---|---|
| | **Design** | **Actual** |
| **Filter Type** | CAPTRATE SOLO | CAPTRATE SOLO |
| **Filter Size 1** | 20X16 | 20X16 |
| **Filter Qty 1** | 11 | 11 |
| **Filter AK factor size 1** | 2.08 | 2.08 |
| **Filter Total AK Area** | 22.88 | 22.88 |
| **Filter1 FPM** | - | 142 |
| **Filter2 FPM** | - | 173 |
| **Filter3 FPM** | - | 170 |
| **Filter4 FPM** | - | 161 |
| **Filter5 FPM** | - | 133 |
| **Filter6 FPM** | - | 136 |
| **Filter7 FPM** | - | 147 |
| **Filter8 FPM** | - | 145 |
| **Filter9 FPM** | - | 140 |
| **Filter10 FPM** | - | 142 |
| **Filter11 FPM** | - | 131 |
| **Filter Ave FPM(corr)** | - | 147 |
| **CFM** | 3400 | 3363 |

| Cooking Equipment | |
|---|---|
| | **Actual** |
| **Item 1** | FRYER |
| **Item 2** | FRYER |
| **Item 3** | FRYER |

| Test Data Supply | | |
|---|---|---|
| | **Design** | **Actual** |
| **Total Area** | 21.33 | 21.33 |
| **Kv factor (Vel)** | 0.91 | 0.91 |
| **Num of Readings** | - | 12 |
| **Reading1 FPM** | - | 168 |
| **Reading2 FPM** | - | 138 |
| **Reading3 FPM** | - | 135 |
| **Reading4 FPM** | - | 157 |
| **Reading5 FPM** | - | 139 |
| **Reading6 FPM** | - | 109 |
| **Reading7 FPM** | - | 133 |
| **Reading8 FPM** | - | 133 |
| **Reading9 FPM** | - | 115 |
| **Reading10 FPM** | - | 130 |
| **Reading11 FPM** | - | 139 |
| **Reading12 FPM** | - | 171 |
| **Ave FPM(corr)** | - | 138 |
| **CFM** | 2720 | 2678 |

Completed By: David Nicolas Sanchez on 12/05/2024

## Unit Data - PHOTO LOG

**12/09/2024**

# 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 |
| CO2 = 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 |

## MECHANICAL PLAN NOTES:

1. COORDINATE DECK PENETRATIONS WITH THE LANDLORD (IF REQUIRED). PROVIDE AND PAY FOR ANY REQUIRED REPAIR/PATCH WORK BY LANDLORD'S CONTRACTOR.
2. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE BUILDING STRUCTURE OR BUILDING UTILITIES CAUSED AS RESULT OF THE CONTRACTOR'S WORK UNDER THIS CONTRACT. IT IS RECOMMENDED THAT MASONRY/CONCRETE FLOORS/WALLS BE X-RAYED PRIOR TO ANY PENETRATIONS.
3. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING MECHANICAL EQUIPMENT THAT SERVING THIS AND NEARBY ADJACENT SPACES AND IS TO REMAIN. CONTRACTOR SHALL VERIFY THE PROPOSED LOCATIONS OF NEW MECHANICAL EQUIPMENT AND DETERMINE IF ANY CONFLICTS (CLEARANCES, ETC.) EXIST BETWEEN EXISTING EQUIPMENT AND NEWLY INSTALLED EQUIPMENT. CONTRACTOR SHALL NOTIFY THE ENGINEER IF EQUIPMENT EQUIPMENT CANNOT BE SUBSTANTIALLY INSTALLED AND LOCATED AS INDICATED BY THESE DRAWINGS.
4. REFER TO ARCHITECTURAL PLANS AND KITCHEN VENDOR DRAWINGS FOR DIMENSIONAL INFORMATION.
5. A FINAL REPORT FOR THE TESTING AND ADJUSTING OF ALL NEW SYSTEMS SHALL BE COMPLETED PRIOR TO FINAL APPROVAL BY THE FIELD INSPECTOR. THIS REPORT SHALL BE SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.
6. AN *OPERATION & SYSTEMS MANUAL* SHALL BE PROVIDED TO THE OWNER OR REPRESENTATIVE AND TO THE FIELD INSPECTOR AT THE TIME OF FINAL INSPECTION.
7. AN AIR FILTER WITH A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8 OR HIGHER SHALL BE INSTALLED IN THE MECHANICAL SYSTEM FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY.
8. THE HVAC, REFRIGERATION, AND FIRE SUPPRESSION EQUIPMENT SHALL NOT CONTAIN CFC OR HALONS.

## DUCTWORK SPECIFICATIONS:

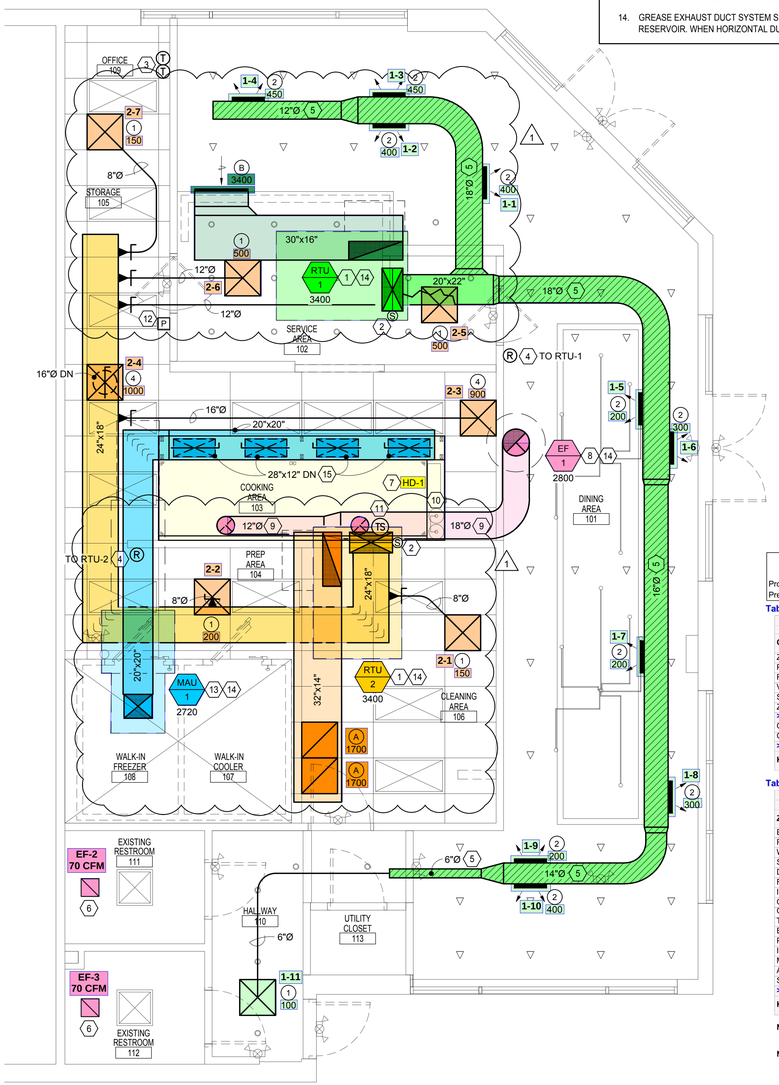
1. ALL DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA-2006 OR UL 181 AND CONFORM TO THE REQUIREMENTS OF THE LOCAL CODE.
2. ALL SUPPLY AND RETURN AIR DUCTS IN UNCONDITIONED SPACES SHALL HAVE R-8 INSULATION.
3. ALL CONCEALED LOW PRESSURE (<2"WG) COOLING & HEATING DUCT 20" DIA. OR LESS SHALL BE UL 181 CLASS 1 FACTORY MADE FLEXIBLE ALUMINUM DUCT INSULATED WITH R-8 INSULATION AND SHEATHED WITH A VAPOR PROOF POLYETHYLENE SLEEVE.
4. ALL ROUND FLEXIBLE SUPPLY TAIL PIECES SHALL BE UL 181 CLASS I FACTORY MADE ACOUSTICAL FLEXIBLE DUCT WITH NYLON LINER AND INSULATED WITH R-8 INSULATION SHEATHED WITH A VAPOR PROOF METALIZED POLYESTER SLEEVE. THE MAXIMUM ALLOWABLE LENGTH OF THE FLEX DUCT SHALL BE 6'-0" AND MAY NOT BE USED AS AN ELBOW.
5. ALL EXPOSED LOW PRESSURE (< 2"WG) COOLING & HEATING 20" DIA. OR LESS SHALL BE FACTORY MADE GALVANIZED 4-PLY SPIRAL LOCK SEAM DUCT LINED WITH R-8 INSULATION.
6. ALL CONCEALED INTERIOR RECTANGULAR COOLING & HEATING DUCT SHALL BE GALVANIZED METAL WRAPPED WITH R-8 INSULATION IN ACCORDANCE WITH LOCAL CODE.
7. ALL EXPOSED INTERIOR AND EXTERIOR RECTANGULAR COOLING & HEATING DUCT SHALL BE GALVANIZED METAL LINED WITH R-8 DUCT LINER IN ACCORDANCE WITH LOCAL CODE.
8. ALL ROUND ENVIRONMENTAL EXHAUST AIR DUCT AND OUTSIDE AIR DUCT SHALL BE SMOOTH ROUND GALVANIZED PIPE INSTALLED IN ACCORDANCE WITH CHAPTER LOCAL CODE.
9. ALL RECTANGULAR DUCTWORK SERVING TYPE I HOODS SHALL BE CONSTRUCTED OF 0.054 IN CARBON STEEL (16 GA.) OR 0.043 STAINLESS STEEL (18 GA.) WELDED FOR A LIQUID TIGHT SEAL IN ACCORDANCE WITH LOCAL CODE.
10. DUCTWORK SHALL BE CONSTRUCTED AND SUPPORTED IN ACCORDANCE WITH THE LATEST EDITION OF THE HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION INC. (S.M.A.C.N.A.)
11. NO EXPOSED FLEXIBLE DUCTS SHALL BE USED.
12. NO RETURN AIR REGISTERS SHALL BE LOCATED 6'-0" OF A SUPPLY AIR DIFFUSER THAT DIRECTS SUPPLY AIR IN THE DIRECTION OF THE RETURN AIR REGISTER.
13. ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT.
14. GREASE EXHAUST DUCT SYSTEM SHALL HAVE A SLOPE NOT LESS THAN 1/4 INCH PER LINEAR FOOT TOWARD THE HOOD OR TOWARD AN APPROVED GREASE RESERVOIR. WHEN HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 1 INCH PER LINEAR FOOT.

## FIRE SUPPRESSION NOTES:

1. INSPECTION: HOODS, GREASE REMOVAL DEVICES, FANS AND APPURTENANCES SHALL BE CLEANED AND INSPECTED AT INTERVALS AS LISTED IN LOCAL CODE.
2. GREASE FILTERS: GREASE FILTERS SHALL BE CLASS I AS REQUIRED BY THE STATE FIRE MARSHAL AND LOCAL CODE.
3. PORTABLE FIRE EXTINGUISHER: PORTABLE FIRE EXTINGUISHING EQUIPMENT SHALL BE PROVIDED AS SECONDARY PROTECTION AS REQUIRED BY LOCAL CODE.
4. MANUAL ACTIVATION: MANUAL ACTIVATION DEVICE OF THE PRIMARY FIRE EXTINGUISHING SYSTEM SHALL BE PROVIDED IN COMPLIANCE WITH LOCAL CODE AND WITHIN DISTANCE AND HEIGHT AS INDICATED IN THAT LOCAL CODE .
5. FUEL SHUT-OFF: PROVIDE FOR AUTOMATIC SHUT-OFF OF SOURCES OF FUEL AND ELECTRIC POWER TO COOKING EQUIPMENT UPON ACTIVATION OF THE FIRE SUPPRESSION SYSTEM AS REQUIRED BY LOCAL CODE.

## HVAC KEYED NOTES: (#)

1. A/C UNIT: PROVIDE AND INSTALL NEW ROOFTOP PACKAGE GAS/ELECTRIC A/C UNIT ON FACTORY CURB PER DETAIL B4/M300. SEE EQUIPMENT SCHEDULE ON SHT. M100 FOR ADDITIONAL INFORMATION. PROVIDE DUCTWORK, PLENUMS, AND AIR DISTRIBUTION DEVICES PER PLAN. INSTALL CONTROL WIRE FOR CONTROLS AS REQUIRED. ELECTRICAL CONTRACTOR TO INSTALL CONDUIT FOR CONTROL WIRE. VERIFY AND COORDINATE CONDENSATE AND GAS PIPING WITH PLUMBING CONTRACTOR. VERIFY AND COORDINATE POWER, CONTROL CONDUIT AND DISCONNECT LOCATIONS WITH ELECTRICAL CONTRACTOR. START-UP, TEST, AND BALANCE FOR PROPER OPERATION. 1
2. SMOKE DETECTOR: PROVIDE AND INSTALL DUCT MOUNTED SMOKE DETECTOR IN THE SUPPLY AIR SYSTEM IN ACCORDANCE WITH 2022 CMC, SECTION 609.1. DETECTOR INSTALLATION SHALL COMPLY WITH UL 286A AND NFPA 72. SEE SHEET M210 FOR DETAIL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION. INTERLOCK DETECTOR TO SHUT DOWN ALL AIR DISTRIBUTION EQUIPMENT UPON THE DETECTION OF SMOKE. ELECTRICAL (FIRE ALARM) CONTRACTOR SHALL PROVIDE AND WIRE TO FIRE ALARM SYSTEM AND HVAC CONTRACTOR SHALL INSTALL. FIELD COORDINATE ALL REQUIREMENTS WITH ELECTRICAL (FIRE ALARM) CONTRACTOR PRIOR TO STARTING WORK. MOUNT MANUAL RESET SWITCH NEXT TO SENSOR FOR UNIT AT 4 FT. ABOVE FINISHED FLOOR.
3. THERMOSTAT: PROVIDE AND INSTALL 7 DAY PROGRAMMABLE THERMOSTAT, WITH COOLING STAGES AND HEATING STAGES TO MATCH UNIT, AUTO CHANGEOVER, OCCUPIED AND UNOCCUPIED MODES AND TEMPERATURE OVERRIDE WHILE OCCUPIED. PROVIDE WITH REMOTE SENSOR CAPABILITY. MOUNT THERMOSTAT 48" A.F.F. AT MANAGER'S DESK. COORDINATE EXACT LOCATION WITH OWNER.
4. REMOTE SENSOR: PROVIDE AND INSTALL REMOTE SENSOR FOR THERMOSTAT IN THIS LOCATION. MOUNT SENSOR AT 60" A.F.F. COORDINATE EXACT LOCATION WITH OWNER.
5. EXPOSED DUCT TO BE INTERNALLY INSULATED SPIRAL. FIELD COORDINATE LOCATION WITH LIGHTING. MOUNT AT TIGHT TO BOTTOM OF STRUCTURE ABOVE.
6. RESTROOM EXHAUST FAN: EXISTING CEILING MOUNTED RESTROOM EXHAUST FAN TO REMAIN. SEE SCHEDULE ON SHEET M100 FOR MORE INFORMATION. UNIT TO BE CLEANED AND ALL ITEMS REPLACED OR REPAIRED AS REQUIRED TO MAKE UNIT IN LIKE NEW CONDITION. REPLACE WITH LIKE UNIT AS REQUIRED. ENSURE EXHAUST IS A MINIMUM OF 70 CFM. FIELD COORDINATE ALL REQUIREMENTS PRIOR TO BID.
7. EXHAUST HOOD: HOOD EQUIPMENT SUPPLIER SHALL PROVIDE AND THIS CONTRACTOR SHALL INSTALL A TYPE I EXHAUST HOOD. INSTALL STAINLESS STEEL WRAPPER PANELS AT TOP PERIMETER OF HOOD TO ABOVE T-BAR CEILING. SUPPORT HOOD AND DUCT PER MANUFACTURER'S INSTRUCTIONS. PROVIDE AND INSTALL TRANSITION FROM HOOD CONNECTION TO TYPE I DUCT. SEE SHEETS M500-M505 FOR HOOD MANUFACTURER'S SHOP DRAWINGS.
8. GREASE EXHAUST FAN: HOOD EQUIPMENT SUPPLIER SHALL PROVIDE AND THIS CONTRACTOR SHALL INSTALL A NEW ROOFTOP UP-BLAST EXHAUST FAN ON FACTORY CURB. SEE FAN SCHEDULE ON SHEET M100 AND HOOD DRAWINGS M500-M503 FOR ADDITIONAL INFORMATION. ELECTRICAL CONTRACTOR TO INSTALL CONDUIT FOR CONTROL WIRE. VERIFY AND COORDINATE POWER, CONTROL CONDUIT AND DISCONNECT LOCATIONS WITH ELECTRICAL CONTRACTOR. START-UP, TEST, AND BALANCE FOR PROPER OPERATION. FIELD COORDINATE EXACT LOCATION AND REQUIREMENTS PRIOR TO STARTING WORK.
9. GREASE DUCT: HOOD EQUIPMENT SUPPLIER SHALL PROVIDE AND THIS CONTRACTOR SHALL INSTALL TYPE I, DOUBLE WALL, REDUCED CLEARANCE MANUFACTURED GREASE DUCT IN ACCORDANCE WITH LOCAL CODE FROM HOOD TO EF-1. SIZE DUCT PER PLAN. SLOPE GREASE DUCT AT 1/4" INCH PER FOOT TO THE HOOD OR APPROVED GREASE COLLECTION RESERVOIR IN ACCORDANCE WITH LOCAL CODE. FIELD COORDINATE EXACT RUN OF DUCT WITH ALL SITE CONDITIONS PRIOR TO STARTING WORK. CONTACT AND COORDINATE WITH CAPTIVE AIRE FOR REQUIRED DUCT SECTIONS. SEE SHEET M503-M505 FOR DUCT SPECIFICATIONS.
10. FIRE SUPPRESSION SYSTEM: ANSUL R-102 FIRE SUPPRESSION SYSTEM FOR TYPE I KITCHEN HOOD. SYSTEM SHALL BE INCLUDED WITH HOOD FROM HOOD SUPPLIER. SYSTEM TO INCLUDE ANSUL REGULATED RELEASE ASSEMBLY W/ WET CHEMICAL STORAGE TANK, WET CHEMICAL AGENT, DISTRIBUTION PIPING, GAS SOLENOID VALVE, AND PULL STATION ASSEMBLY. TYPE I HOOD COMES PRE-PIPED WITH ANSUL DISCHARGE NOZZLES. COORDINATE INSTALLATION WITH ELECTRICAL AND PLUMBING CONTRACTORS. LOCATE GAS SOLENOID VALVE PER GAS PIPING PLANS. VERIFY EXACT LOCATIONS WITH OWNER. SYSTEM SHALL BE U.L. LISTED AND BE U.L. 300 COMPLIANT
11. TEMPERATURE SENSOR PROVIDED BY HOOD SUPPLIER. INSTALL PER HOOD SUPPLIER REQUIREMENTS IN LOCATION SHOWN.
12. FIRE SUPPRESSION PULL STATION: PROVIDE AND INSTALL ANSUL R-102 PULL STATION FOR MANUAL ACTIVATION OF HOOD FIRE SUPPRESSION SYSTEM. COORDINATE WITH HOOD EQUIPMENT SUPPLIER. LOCATE IN READILY ACCESSIBLE LOCATION IN PATH OF EGRESS.
13. MAKE-UP AIR UNIT: HOOD EQUIPMENT SUPPLIER SHALL PROVIDE AND THIS CONTRACTOR SHALL INSTALL WHERE SHOWN ON PLANS A ROOF MOUNTED MAKE-UP AIR UNIT (MAU-1) WITH SPLIT DX COOLING. SEE SCHEDULE ON SHEET M100 AND HOOD DRAWINGS SHEETS M500-M502 FOR MORE INFORMATION. COORDINATE WITH ELECTRICAL CONTRACTORS FOR CONNECTION REQUIREMENTS.
14. INTERLOCK: ELECTRICALLY INTERLOCK SUPPLY FANS OF ROOFTOP UNITS (RTU-1 & 2), MAKE-UP AIR UNIT (MAU-1) AND EXHAUST FAN (EF-1) FOR SIMULTANEOUS OPERATION TO PROVIDE MAKE UP AIR TO HOOD. WHEN EQUIPMENT UNDER HOOD IS INITIALIZED, SUPPLY FANS AND EXHAUST FAN SHALL COME ON AND GO INTO OCCUPIED MODE. COORDINATE INTERLOCK WORK WITH ELECTRICAL CONTRACTOR. LOCATE INTERLOCK ON/OFF SWITCH NEAR HOOD PER OWNER. SUPPLY FANS TO RUN CONTINUOUSLY DURING OCCUPIED HOURS TO MAINTAIN BALANCE. HEATING COOLING SECTION SHALL OPERATE BASED UPON SET POINT OF THERMOSTAT.
15. FABRICATE AND INSTALL SUPPLY DUCT ACCORDING TO ASHRAE LOW PRESSURE STANDARDS FROM MAKE-UP AIR TO HOOD SUPPLY PLENUM. FIELD COORDINATE EXACT RUN. TRANSITION DUCT TO FULL SIZE OF EXHAUST HOOD DUCT RISER. COORDINATE WITH HOOD DRAWINGS FOR EXACT DIMENSIONS.




1 MECHANICAL PLAN
SCALE: 1/4"=1'-0"

Materials exposed within ducts or plenums shall be noncombustible or shall have a flame spread index <25, and a smoke developed index < 50.

SEE SHEET M100 FOR ALL SCHEDULES

### Air System Heat Balance Summary for RTU-1
**(In Alternative: HVAC Calcs)**

Project: 23374 DHC Oxnard, CA — 01/31/2024
Prepared by: Applied Engineering Group — 12:07 PM

**Table 1. System Loads**

| | | DESIGN COOLING - AUGUST 10:00 OA DB / WB 75.5 F / 56.8 F | | | DESIGN HEATING OA DB / WB 40.6 F / 34.1 F | | |
|---|---|---|---|---|---|---|---|
| COMPONENT LOADS | Details | Sensible [BTU/hr] | Latent [BTU/hr] | Details | Sensible [BTU/hr] | Latent [BTU/hr] |
| Zone Conditioning | - | 49732 | 11197 | - | 15167 | 0 |
| Plenum Load | - | 0 | 0 | - | 0 | 0 |
| Return Fan Load | 3007 CFM | 0 | - | 3007 CFM | 0 | - |
| Ventilation Load | 704 CFM | 2773 | -6810 | 704 CFM | 22324 | 0 |
| Supply Fan Load | 3007 CFM | 4458 | - | 3007 CFM | -4458 | - |
| Zone Fan Coil Fans Load | - | 0 | - | - | 0 | - |
| >> Total System Loads | - | 56963 | 4387 | - | 33034 | 0 |
| Central Cooling Coil | - | 52982 | 4558 | - | 0 | 0 |
| Central Heating Coil | - | 0 | - | - | 33197 | - |
| >> Total Conditioning | - | 52982 | 4558 | - | 33197 | 0 |
| Key: | | Positive values are cooling loads<br>Negative values are heating loads | | | Positive values are heating loads<br>Negative values are cooling loads | |

**Table 2. Zone Heat Balance Loads**

| | DESIGN COOLING - AUGUST 10:00 OA DB / WB 75.5 F / 56.8 F | | | DESIGN HEATING OA DB / WB 40.6 F / 34.1 F | | |
|---|---|---|---|---|---|---|
| Zone Heat Balance Component | Details | Sensible [BTU/hr] | Latent [BTU/hr] | Details | Sensible [BTU/hr] | Latent [BTU/hr] |
| Exterior Wall Convection | 1167 sqft | 4677 | - | 1167 sqft | 1808 | - |
| Roof Convection | 787 sqft | 3626 | - | 787 sqft | 1707 | - |
| Window Convection | 624 sqft | 4167 | - | 624 sqft | 4325 | - |
| Skylight Convection | 0 sqft | 0 | - | 0 sqft | 0 | - |
| Door Convection | 105 sqft | 1493 | - | 105 sqft | 893 | - |
| Floor Convection | 1029 sqft | 5115 | - | 1029 sqft | 3014 | - |
| Interior Wall Convection | 1781 sqft | 4389 | - | 1781 sqft | 1428 | - |
| Ceiling Convection | 242 sqft | 995 | - | 242 sqft | 329 | - |
| Overhead Lighting Convection | 607 W | 837 | - | 0 W | 0 | - |
| Task Lighting Convection | 0 W | 0 | - | 0 W | 0 | - |
| Electric Equipment Convection | 0 W | 0 | - | 0 W | 0 | - |
| People Convection | 37 | 3108 | 9990 | 0 | 0 | 0 |
| Infiltration | 0 CFM | 0 | 0 | 0 CFM | 0 | 0 |
| Miscellaneous Equipment | - | 19700 | 1980 | - | 0 | 0 |
| Air Internal Energy Change | - | 0 | - | - | 0 | 0 |
| Safety Factor | 0% / 0% | 0 | 0 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 48107 | 11970 | - | 13504 | 0 |
| Key: | | Positive values are cooling loads<br>Negative values are heating loads | | | Positive values are heating loads<br>Negative values are cooling loads | |

**Note 1:** Surface convection line items show the combined effects of conductive heat gain to the surface and radiative heat gains absorbed at the surface which are then convected to room air.

**Note 2:** Lighting, equipment, and people line items include only the direct convective heat gain from the heat source to the room air. The radiative portion of the heat gain is first absorbed by surfaces in the room and then later convected from the surface to the air. Therefore the effect of the radiative portion of the heat gain is found in the surface convection line items.

**Note 3:** Solar heat gain is absorbed by surfaces in the room, re-radiated to other surfaces, and finally convected from the surfaces to room air. Therefore, the effect of solar heat gain is found in the surface convection line items.

### Air System Heat Balance Summary for RTU-2
**(In Alternative: HVAC Calcs)**

Project: 23374 DHC Oxnard, CA — 01/31/2024
Prepared by: Applied Engineering Group — 12:07 PM

**Table 1. System Loads**

| | | DESIGN COOLING - AUGUST 9:00 OA DB / WB 73.5 F / 56.0 F | | | DESIGN HEATING OA DB / WB 40.6 F / 34.1 F | | |
|---|---|---|---|---|---|---|---|
| COMPONENT LOADS | Details | Sensible [BTU/hr] | Latent [BTU/hr] | Details | Sensible [BTU/hr] | Latent [BTU/hr] |
| Zone Conditioning | - | 69266 | 10792 | - | 4198 | 0 |
| Plenum Load | - | 0 | 0 | - | 0 | 0 |
| Return Fan Load | 4214 CFM | 0 | - | 4214 CFM | 0 | - |
| Ventilation Load | 228 CFM | 412 | -2052 | 228 CFM | 7230 | 0 |
| Supply Fan Load | 4214 CFM | 6247 | - | 4214 CFM | -6247 | - |
| Zone Fan Coil Fans Load | - | 0 | - | - | 0 | - |
| >> Total System Loads | - | 75925 | 8740 | - | 5181 | 0 |
| Central Cooling Coil | - | 70398 | 9077 | - | 0 | 0 |
| Central Heating Coil | - | 0 | - | - | 5234 | - |
| >> Total Conditioning | - | 70398 | 9077 | - | 5234 | 0 |
| Key: | | Positive values are cooling loads<br>Negative values are heating loads | | | Positive values are heating loads<br>Negative values are cooling loads | |

**Table 2. Zone Heat Balance Loads**

| | DESIGN COOLING - AUGUST 9:00 OA DB / WB 73.5 F / 56.0 F | | | DESIGN HEATING OA DB / WB 40.6 F / 34.1 F | | |
|---|---|---|---|---|---|---|
| Zone Heat Balance Component | Details | Sensible [BTU/hr] | Latent [BTU/hr] | Details | Sensible [BTU/hr] | Latent [BTU/hr] |
| Exterior Wall Convection | 43 sqft | 135 | - | 43 sqft | 47 | - |
| Roof Convection | 179 sqft | 873 | - | 179 sqft | 268 | - |
| Window Convection | 20 sqft | 125 | - | 20 sqft | 139 | - |
| Skylight Convection | 0 sqft | 0 | - | 0 sqft | 0 | - |
| Door Convection | 0 sqft | 0 | - | 0 sqft | 0 | - |
| Floor Convection | 799 sqft | 5035 | - | 799 sqft | 631 | - |
| Interior Wall Convection | 2676 sqft | 9453 | - | 2676 sqft | 1913 | - |
| Ceiling Convection | 620 sqft | 4846 | - | 620 sqft | 706 | - |
| Overhead Lighting Convection | 429 W | 531 | - | 0 W | 0 | - |
| Task Lighting Convection | 0 W | 0 | - | 0 W | 0 | - |
| Electric Equipment Convection | 0 W | 0 | - | 0 W | 0 | - |
| People Convection | 7 | 515 | 1435 | 0 | 0 | 0 |
| Infiltration | 0 CFM | 0 | 0 | 0 CFM | 0 | 0 |
| Miscellaneous Equipment | - | 49650 | 9850 | - | 0 | 0 |
| Air Internal Energy Change | - | 0 | - | - | 0 | 0 |
| Safety Factor | 0% / 0% | 0 | 0 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 71163 | 11285 | - | 3705 | 0 |
| Key: | | Positive values are cooling loads<br>Negative values are heating loads | | | Positive values are heating loads<br>Negative values are cooling loads | |

**Note 1:** Surface convection line items show the combined effects of conductive heat gain to the surface and radiative heat gains absorbed at the surface which are then convected to room air.

**Note 2:** Lighting, equipment, and people line items include only the direct convective heat gain from the heat source to the room air. The radiative portion of the heat gain is first absorbed by surfaces in the room and then later convected from the surface to the air. Therefore the effect of the radiative portion of the heat gain is found in the surface convection line items.

**Note 3:** Solar heat gain is absorbed by surfaces in the room, re-radiated to other surfaces, and finally convected from the surfaces to room air. Therefore, the effect of solar heat gain is found in the surface convection line items.

## LEGEND*

- EXISTING DUCTWORK
- NEW DUCTWORK
- SPIRAL DUCTWORK WITH INTERNAL INSULATION
- HIDDEN ROUND DUCT
- CEILING SUPPLY AIR DIFFUSER
- CEILING RETURN AIR GRILLE
- DUCT MOUNTED SUPPLY AIR DIFFUSER
- CEILING EXHAUST AIR GRILLE
- TURNING VANE
- BRANCH TAKE-OFF WITH BALANCING DAMPER
- S — SMOKE DETECTOR
- H — HORN/STROBE
- T R — THERMOSTAT/REMOTE SENSOR
- XX — CARBON DIOXIDE SENSOR
- XX-1 / ??? — AIR DEVICE TYPE / CFM AMOUNT
- SUPPLY AIRFLOW
- RETURN AIRFLOW
- OA — OUTSIDE AIR
- SA — SUPPLY AIR
- RA — RETURN AIR
- FD — FIRE DAMPER

* ALL SYMBOLS MAY NOT BE USED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REGISTERED PROFESSIONAL ENGINEER — M 31814 EXP. 09.30.25 — MECHANICAL — STATE OF CALIFORNIA

**PROJECT #:** 23374
**DRAWN BY:** — **CHECKED BY:** DRR

### REVISIONS

- 01/05/24 - DD SET
- 02/12/24 - PERMIT SET
- 1 07/08/24 - REVISION 1 CITY COMMENTS
- 2 07/30/24 - REVISION 2 CITY COMMENTS
- _
- _
- _

DAVE'S HOT CHICKEN

**STORE#** ----

**ADDRESS**
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OXNARD, CA 93036

**SHEET TITLE**
MECHANICAL PLAN

**SHEET NUMBER:**
M200

DWG TAG — 23374-M200 | CAD OPER — ? |