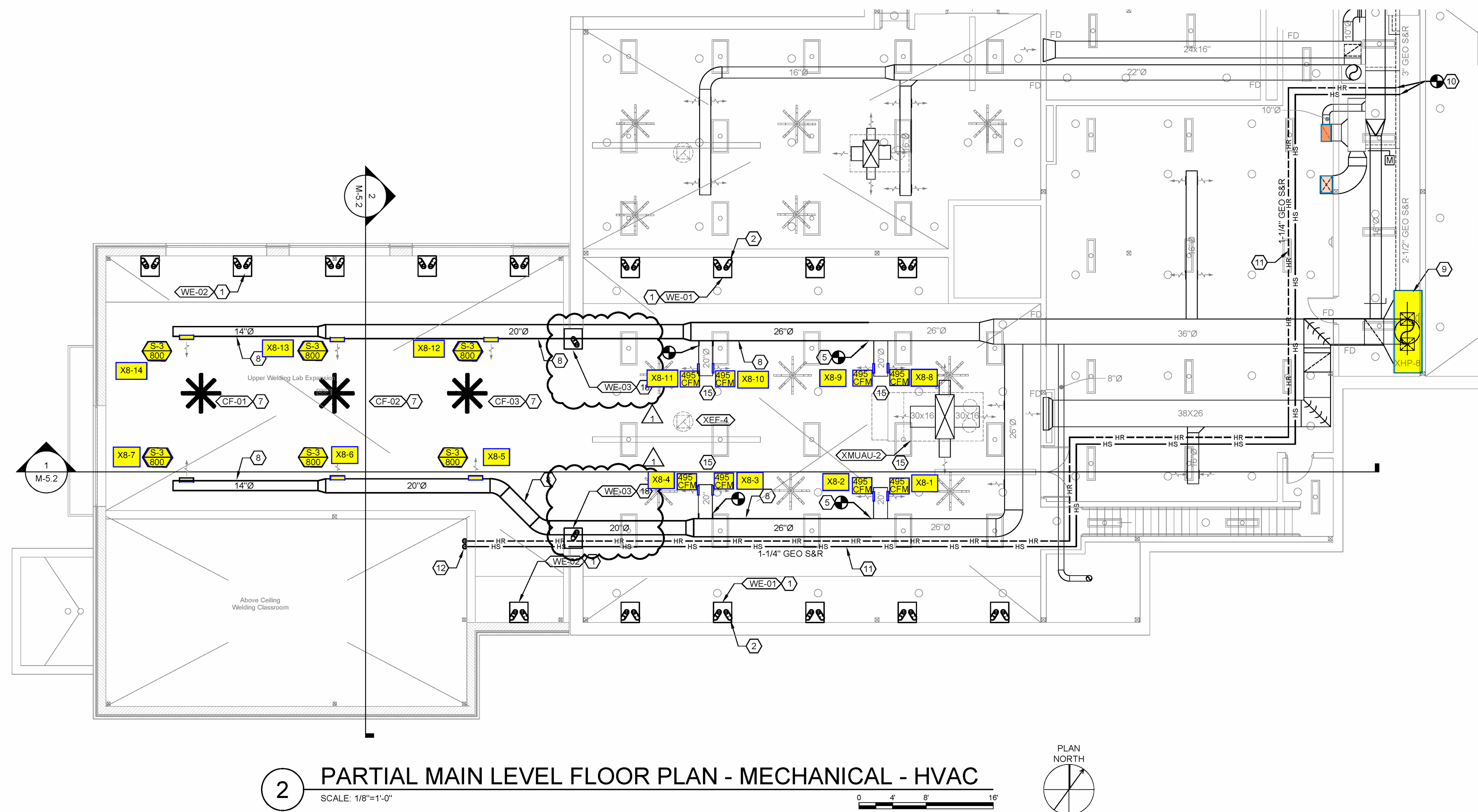


**1 PARTIAL LOWER LEVEL FLOOR PLAN - MECHANICAL - HVAC**  
SCALE: 1/8"=1'-0"



**2 PARTIAL MAIN LEVEL FLOOR PLAN - MECHANICAL - HVAC**  
SCALE: 1/8"=1'-0"

**GENERAL NOTES:**

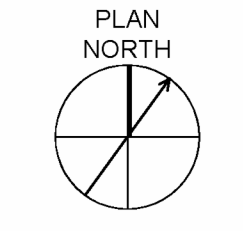
A. REFER TO SHEET M0.1 FOR GENERAL NOTES.

**SHEET KEYNOTES:**

1. WELDING EXHAUST FAN/FILTER UNIT WITH PICK-UP HOSE ASSEMBLY INTO TWO(2) BOOTHS. MOUNT UNIT ON WALL ABOVE BOOTH (TYPICAL).
2. EXISTING PICK-UP HOSE ASSEMBLY IN EXISTING BOOTH TO BE REUSED (TYPICAL FOR EXISTING BOOTHS).
3. EXISTING BOOTH PICK-UP HOSE ASSEMBLY TO BE RECONNECTED TO NEW EXHAUST FAN/FILTER UNIT VIA 6" ROUND EXHAUST DUCT (TYPICAL).
4. NEW PICK-UP HOSE ASSEMBLY WITHIN BOOTH CONNECTED TO NEW EXHAUST FAN/FILTER UNIT ABOVE BOOTH VIA 6" ROUND EXHAUST DUCT (TYPICAL).
5. EXTEND NEW SUPPLY AIR DUCTWORK INTO NEW WELDING LAB ADDITION.
6. NEW HVAC UNIT ABOVE CEILING TO SERVE NEW WELDING CLASSROOM. MOUNT BOTTOM OF UNIT 2'-0" ABOVE CEILING.
7. NEW CEILING VENTILATION FAN (TYPICAL). MOUNT TO SAME ELEVATION OF EXISTING FANS WITHIN EXISTING WELDING LAB AREA.
8. NEW SUPPLY AIR DUCTWORK INSTALLED BELOW ROOF STRUCTURE AT SAME ELEVATION AS EXISTING SUPPLY AIR DUCTWORK.
9. EXISTING HEAT PUMP UNIT SERVING WELDING LAB.
10. CONNECT NEW GEOTHERMAL HEAT PUMP SUPPLY AND RETURN PIPING TO EXISTING PIPING.
11. INSTALL PIPING AT BOTTOM OF ROOF STRUCTURE.
12. PIPING DOWN TO HEAT PUMP UNIT ABOVE CLASSROOM. SEE LOWER LEVEL PLAN FOR CONTINUATION. PROVIDE AIR VENT AT TURN DOWN.
13. PIPING UP. SEE MAIN LEVEL PLAN FOR CONTINUATION.
14. MOUNT TOP OF LOUVER 12'-0" AFF.
15. EXISTING DIFFUSERS TO BE RE-BALANCED TO CFM INDICATED.
16. ADJUST LOCATION OF EXISTING CARBON MONOXIDE SENSOR IF REQUIRED DUE TO EXTENTS OF EXISTING WALL DEMOLITION.
17. NEW CARBON MONOXIDE SENSOR MOUNTED 60" AFF. CONNECT SENSOR TO BUILDING AUTOMATION SYSTEM (BAS). SEE TEMPERATURE CONTROL SPECIFICATION FOR ADDITIONAL INFORMATION.
18. WELDING EXHAUST FAN/FILTER UNIT WITH SINGLE 8" ROUND EXTRACTOR PICK-UP HOSE ASSEMBLY. MOUNT UNIT ON WALL.
19. NEW 8" ROUND EXTRACTOR ARM PICK-UP HOSE ASSEMBLY CONNECTED TO NEW EXHAUST FAN/FILTER UNIT.
20. EXISTING WELDING EXHAUST HOOD TO REMAIN. PROVIDE NEW 12" ROUND EXHAUST DUCTWORK FROM HOOD TO NEW EXHAUST FAN/FILTER UNIT.
21. WELDING EXHAUST FAN/FILTER UNIT MOUNTED HORIZONTALLY WITH INLINE FAN. SUPPORT UNIT FROM ROOF STRUCTURE ABOVE.



1 PARTIAL MAIN LEVEL FLOOR PLAN - MECHANICAL - HVAC  
 SCALE: 1/4"=1'-0"



**GENERAL NOTES:**

A. REFER TO SHEET M0.1 FOR GENERAL NOTES.

**SHEET KEYNOTES:**

1. RELOCATE EXISTING WATER SOURCE HEAT PUMP UNIT AS REQUIRED FOR PLACEMENT OF ASSOCIATED DUCTWORK AND OTHER DUCTWORK RELATED TO RANGE HOOD VENTILATION SYSTEMS. REWORK EXISTING PIPING TO UNIT AS REQUIRED.
2. CONNECT NEW CONVENTIONAL WATER SOURCE HEAT PUMP PIPING TO EXISTING PIPING ABOVE CEILING.
3. CONNECT NEW CONDENSATE DRAIN PIPING TO EXISTING PIPING ABOVE CEILING.
4. PROVIDE DRYERBOX MODEL DB-425 IN WALL AND 4" ROUND DRYER VENT UP TO ABOVE CEILING. CONNECT VENT PIPING TO EXISTING VENT PIPING THROUGH ROOF. LIMIT AMOUNT OF ELBOWS USED TO TWO.
5. COORDINATE ALL NEW AND EXISTING WORK ABOVE CEILING AS REQUIRED FOR PROPER INSTALLATION OF ALL SYSTEMS. RELOCATE EXISTING MECHANICAL COMPONENTS AS IF/AS REQUIRED.
6. ENLARGE EXISTING 24X16 TRANSFER AIR OPENING ABOVE CEILING TO 36X16.

**Grant County ATC - Addition and Renovations**  
 715 Warsaw Road  
 Dry Ridge, Kentucky 41035  
 Grant County Board of Education  
 Mr. Matt Morgan, Superintendent



ADDENDA

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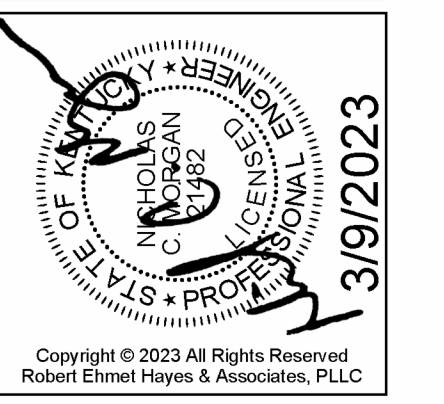
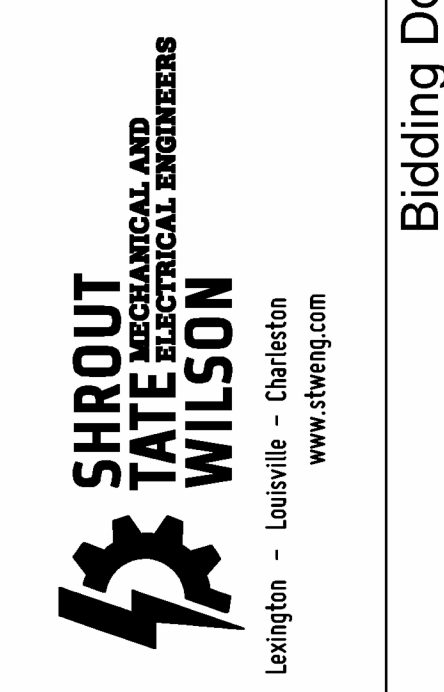
SHEET TITLE  
 PARTIAL MAIN LEVEL  
 FLOOR PLAN -  
 MECHANICAL - HVAC

BG #  
 23-083

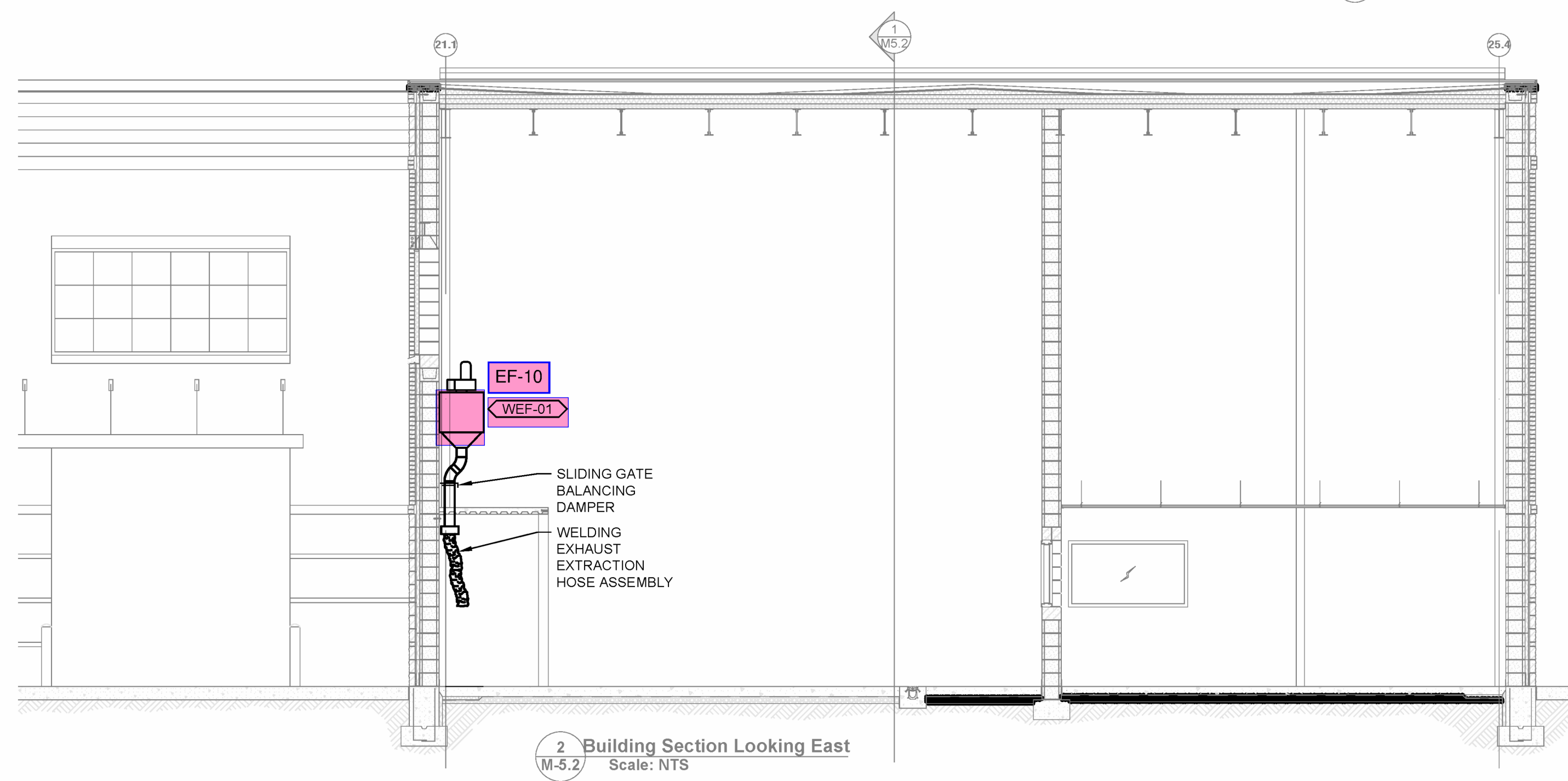
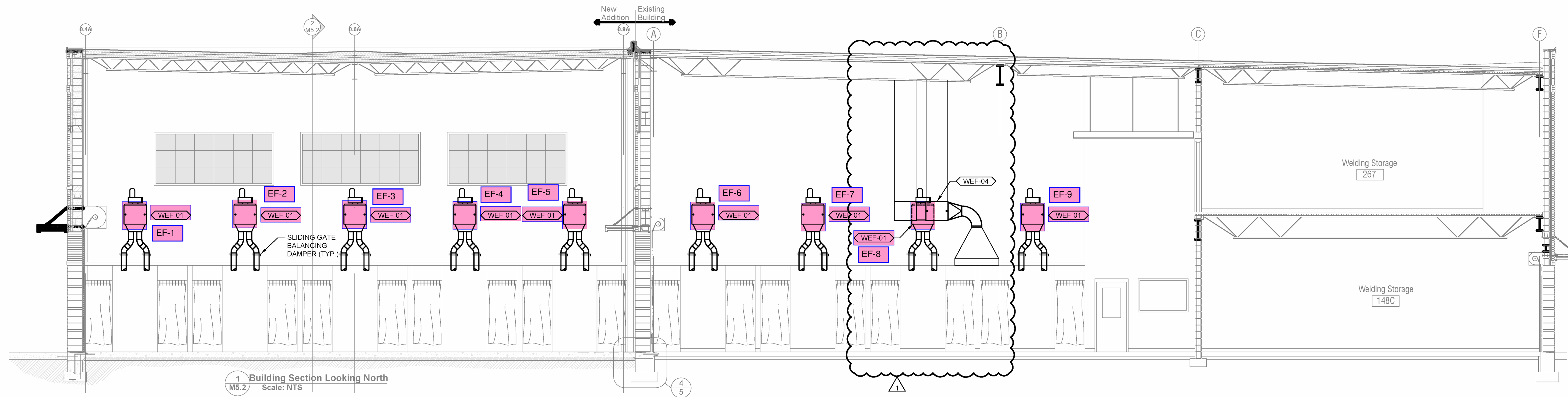
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DATE  
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**M1.2**

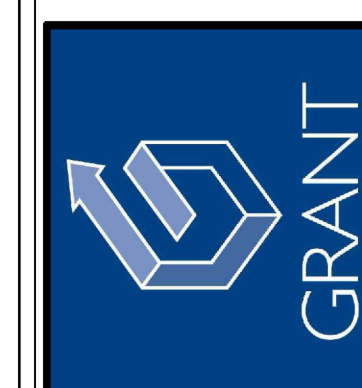


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 Robert Edward Hays, & Associates, PLLC



**Grant County ATC - Addition and Renovations**

715 Warsaw Road  
Dry Ridge, Kentucky 41035  
Grant County Board of Education  
Mr. Matt Morgan, Superintendent



ADDENDA

ADD #1 - 5/8/2023

SHEET TITLE  
DETAILS -  
MECHANICAL

BG #  
23-083

REH #  
180-1121-B (NCO)

DATE  
3/9/2023

**M5.2**

| MAKE-UP AIR UNIT SCHEDULE (ENERGY RECOVERY) |                |               |                                      |                    |            |         |                             |                 |                            |                       |                     |                 |                      |                       |                    |                  |                   |            |          |          |         |       |              |      |     |      |     |      |      |      |      |     |
|---|----------------|---------------|--------------------------------------|--------------------|------------|---------|-----------------------------|-----------------|----------------------------|-----------------------|---------------------|-----------------|----------------------|-----------------------|--------------------|------------------|-------------------|------------|----------|----------|---------|-------|--------------|------|-----|------|-----|------|------|------|------|-----|
| TAG   | MANUFACTURER   | MODEL         | DX COIL DEHUMIDIFICATION PERFORMANCE |                    |            |         | ER WHEEL - DEHUMIDIFICATION |                 |                            |                       | HEATING PERFORMANCE |                 |                      |                       | ER WHEEL - HEATING |                  | ELECTRICAL        |            |          |          | REMARKS |       |              |      |     |      |     |      |      |      |      |     |
|   |                |               | OUTSIDE AIR                          | RETURN/EXHAUST AIR | PERCENT OA | ESP     | OUTSIDE AIR TEMP            | RETURN AIR TEMP | LEAVING AIR TEMP - DX COIL | WHEEL SUPPLY AIR TEMP | OUTSIDE AIR TEMP    | RETURN AIR TEMP | UNIT SUPPLY AIR TEMP | WHEEL SUPPLY AIR TEMP | VOLTAGE            | SUPPLY FAN MOTOR | EXHAUST FAN MOTOR | COMPRESSOR | UNIT MCA | UNIT MOP |         |       |              |      |     |      |     |      |      |      |      |     |
| MAU-01                                      | UNITED COOLAIR | AAH100G1ASTA5 | CFM                                  | CFM                | %          | IN. H2O | DB °F                       | WB °F           | DB °F                      | WB °F                 | DB °F               | WB °F           | DB °F                | WB °F                 | DB °F              | WB °F            | DB °F             | WB °F      | DB °F    | WB °F    | DB °F   | WB °F | KW           | AMPS | KW  | AMPS | LRA | RLA  | AMPS | AMPS |      |     |
|   |                |               | 450                                  | 450                | 100        | 0.5     | 95.0                        | 78.0            | 75.0                       | 63.0                  | 50.0                | 49.2            | 79.1                 | 67.2                  | 0.0                | -1.0             | 68.0              | 53.0       | 69.8     | 52.4     | 55.7    | 46.1  | 208/230-1-60 | 0.4  | 2.0 | 0.4  | 2.0 | 21.9 | 3.9  | 9.3  | 15.0 | ALL |

REMARKS:

- UNITED COOLAIR IS BASIS OF DESIGN.
- UNIT TO BE ETL.
- ENTHALPY ENERGY RECOVERY WHEEL
- SINGLE PACKAGE - HORIZONTAL
- ECM FANS - SUPPLY AND EXHAUST
- SOLID DOUBLE WALL LINER WITH 1" R-8 THERMAL/ACOUSTIC FIBERGLASS INSULATION
- SUBCOOLING COIL FOR INCREASE EFFICIENCY
- STAINLESS STEEL DRAIN PANS - EVAPORATOR & CONDENSER
- BUILT-IN PRESSURE TRANSDUCERS FOR AIRFLOW MEASUREMENT
- 4" MERV 13 PLEATED THROWAWAY SUPPLY FILTER
- 2" MERV 8 PLEATED THROWAWAY SUPPLY FILTER
- QUICK CONNECT REFRIGERANT FITTINGS TO SHIP SPLIT FIELD ASSEMBLED
- ISOLATED ELECTRICAL CONTROL BOX
- MICROPROCESSOR WITH BUILT-IN DISPLAY INTERFACE AND BACNET (MS/TP)
- PREHEAT REQUIRED IN WINTER FOR FROST PREVENTION. WINTER OUTSIDE AIR TEMPERATURE AFTER PREHEAT - 6.5 DB; 4.29 WB.
- PROVIDE WITH EXTERNAL CONDENSATE PUMP.
- MODULATING HOT GAS REHEAT
- COOLING SUPPLY AIR TEMPERATURE AFTER REHEAT - 74.4 DB; 59.0 WB.

| WATER-SOURCE HEAT PUMP UNIT SCHEDULE |              |         |          |               |   |                  |                  |            |          |          |          |          |          |          |                |                   |                            |              |           |          |          |          |          |                |                             |              |            |              |                |         |               |                    |          |     |  |
|--------------------------------------|--------------|---------|----------|---------------|---|------------------|------------------|------------|----------|----------|----------|----------|----------|----------|----------------|-------------------|----------------------------|--------------|-----------|----------|----------|----------|----------|----------------|-----------------------------|--------------|------------|--------------|----------------|---------|---------------|--------------------|----------|-----|--|
| Mark                                 | Manufacturer | Model   | Capacity | Airflow (CFM) | External Static Pressure (inH <sub>2</sub> O) | Fluid Flow (gpm) | Water PD (ft/hd) | Fluid Type | Cooling  |          |          |          |          |          |                |                   |                            |              | Heating   |          |          |          |          |                |                             |              | Electrical |              |                | Remarks |               |                    |          |     |  |
|                                      |              |         |          |               |   |                  |                  |            | EWT (°F) | LWT (°F) | EDB (°F) | EWB (°F) | LDB (°F) | LWB (°F) | Total (Btu/hr) | Sensible (Btu/hr) | Heat of Rejection (Btu/hr) | EER (Design) | EER (AHR) | EWT (°F) | LWT (°F) | EAT (°F) | LAT (°F) | Total (Btu/hr) | Heat of Absorption (Btu/hr) | COP (Design) | COP (AHR)  | Voltage      | Compressor RLA |         | Fan Motor FLA | Total Unit MCA (A) | Max Fuse |     |  |
| HP-8A                                | DAIKIN       | WGDH030 | FULL     | 1075.00       | 0.5   | 7.50             | 15.02            | Water      | 85.0     | 94.0     | 75.0     | 63.0     | 58.4     | 54.5     | 26093          | 19315             | 33573                      | 11.9         | 15.7      | 50.0     | 44.1     | 68.0     | 93.2     | 29434          | 21944                       | 3.9          | 3.2        | 208-230/60/3 | 8.7            | 2.8     | 11.5          | 13.7               | 20       | 1-6 |  |
|                                      |              |         | PART     | 1000.00       | 0.5   | 7.50             | 15.02            | Water      | 85.0     | 94.0     | 75.0     | 63.0     | 57.0     | 53.6     | 37567          | 27314             | 47855                      | 12.4         | 16.9      | 50.0     | 44.5     | 68.0     | 93.8     | 39156          | 28702                       | 3.3          | 3.3        | 208-230/60/3 | 14.2           | 5.9     | 20.1          | 23.7               | 35       | 1-7 |  |
| HP-42A                               | DAIKIN       | WGDH042 | FULL     | 1400.00       | 0.5   | 10.50            | 15.13            | Water      | 85.0     | 94.1     | 75.0     | 63.0     | 57.0     | 53.6     | 37567          | 27314             | 47855                      | 12.4         | 16.9      | 50.0     | 44.5     | 68.0     | 93.8     | 39156          | 28702                       | 3.3          | 3.3        | 208-230/60/3 | 14.2           | 5.9     | 20.1          | 23.7               | 35       | 1-7 |  |
|                                      |              |         | PART     | 1225.00       | 0.5   | 10.50            | 15.89            | Water      | 80.0     | 66.4     | 70.0     | 59.0     | 54.6     | 50.4     | 28056          | 20523             | 33459                      | 17.7         | 20.5      | 75.0     | 69.6     | 70.0     | 96.9     | 35843          | 28341                       | 3.7          | 3.7        |              |                |         |               |                    |          |     |  |

REMARKS:

- HORIZONTAL UNIT
- TWO-STAGE UNIT
- UNIT MOUNTED DISCONNECT
- PROVIDE FLEXIBLE DUCT CONNECTIONS
- UNIT TO HAVE ECM VARIABLE SPEED FAN MOTOR
- PROVIDE UNIT WITH CONTROL FOR COMPRESSORS, FAN, REVERSING VALVE, AND REFRIGERANT SAFETIES (DDC READY CONTROLS). UNIT TO BE CONTROLLED BY ROOM THERMOSTAT TO BE CONNECTED TO BUILDING AUTOMATION SYSTEM VIA BACNET.
- TCC TO FURNISH ISOLATION/CONTROL VALVE TO MECHANICAL CONTRACTOR FOR INSTALLATION. TCC TO WIRE VALVE TO THERMOSTAT.
- OTHER ACCEPTABLE MANUFACTURERS INCLUDE: TRANE, CLIMATE MASTER, WATER FURNACE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

| AIR DEVICE SCHEDULE |              |       |        |              |         |      |     |        |          |       |         |
|---------------------|--------------|-------|--------|--------------|---------|------|-----|--------|----------|-------|---------|
| MARK                | MANUFACTURER | MODEL | MODULE | NECK         | MAX CFM | S.P. | OBD | MAX NC | MOUNTING | COLOR | REMARKS |
| S-1                 | PRICE        | ASCD  | 24x24  | 8" ROUND     | 275     | 09"  | NO  | 20     | LAY-IN   | WHITE | 1,2     |
| S-2                 | PRICE        | ASCD  | 24x24  | 10" ROUND    | 300     | 09"  | NO  | 20     | LAY-IN   | WHITE | 1,2     |
| S-3                 | PRICE        | 620D  | 20X14  | 18X12        | 800     | 05"  | YES | 20     | DUCT     | WHITE | 4       |
| R-1                 | PRICE        | 85    | 24X24  | SEE DRAWINGS | 2000    | 05"  | NO  | 26     | LAY-IN   | WHITE | 1,3     |

REMARKS:

- COORDINATE AIR DEVICE LOCATIONS WITH REFLECTED CEILING PLANS PRIOR TO INSTALLATION. LIGHTING HAS PRIORITY OVER HVAC
- ALUMINUM SQUARE CONE DIFFUSER WITH 4-WAY THROW.
- 45 DEGREE ANGLED, SIGHT RESISTANT CUBE CORE.
- ALUMINUM DOUBLE DEFLECTION GRILLE.
- OTHER ACCEPTABLE MANUFACTURERS INCLUDE: KRUEGER, TITUS.

| LOUVER SCHEDULE |              |         |                  |       |        |       |         |                    |                |                   |         |
|-----------------|--------------|---------|------------------|-------|--------|-------|---------|--------------------|----------------|-------------------|---------|
| MARK            | MANUFACTURER | MODEL   | INTAKE / EXHAUST | SIZE  |        |       | MAX CFM | PRESSURE DROP (IN) | VELOCITY (FPM) | FREE AREA (SQ FT) | REMARKS |
|                 |              |         |                  | WIDTH | HEIGHT | DEPTH |         |                    |                |                   |         |
| L-01            | GREENHECK    | ESD-435 | EXHAUST          | 16"   | 16"    | 4"    | 450     | 0.070              | 728            | 0.6               | 1,2,3   |
| L-02            | GREENHECK    | ESD-435 | INTAKE           | 16"   | 16"    | 4"    | 450     | 0.090              | 728            | 0.6               | 1,2,3   |

REMARKS:

- LOUVER COLOR SELECTED BY ARCHITECT
- COORDINATE ALL LOUVER LOCATIONS WITH ARCHITECT AND ENGINEER PRIOR TO INSTALLATION
- ALUMINUM CONSTRUCTION; MAXIMUM NC LEVEL 25. PROVIDE WITH BIRD SCREEN.
- OTHER ACCEPTABLE MANUFACTURERS INCLUDE: RUSKIN, UNITED ENERTECH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

| CEILING FAN SCHEDULE |              |            |      |     |            |      |       |          |         |     |  |
|----------------------|--------------|------------|------|-----|------------|------|-------|----------|---------|-----|--|
| MARK                 | MANUFACTURER | MODEL      | SIZE | RPM | ELECTRICAL |      |       | MOUNTING | REMARKS |     |  |
|                      |              |            |      |     | V/Ø/Hz     | AMPS | WATTS |          |         |     |  |
| CF-01,02,03          | DAYTON       | IND86MR4LP | 56"  | 320 | 120/1/60   | 0.7  | 85    | 15       | CEILING | ALL |  |

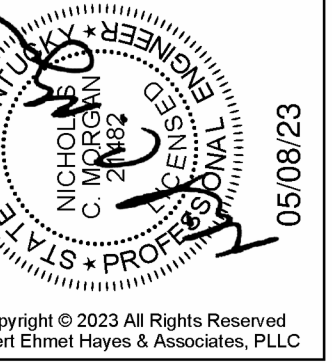
REMARKS:

- CONTROL WITH WALL MOUNTED SWITCH TO CONTROL ALL FANS. SEE ELECTRICAL DRAWINGS FOR LOCATION.
- MOUNT ROOF STRUCTURE.
- PROVIDE WITH WIRE GUARD - DAYTON MODEL ZJFX8
- OTHER ACCEPTABLE MANUFACTURERS INCLUDE: CARNES, GREENHECK. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

| WELDING EXHAUST SYSTEM FAN/FILTER SCHEDULE |              |              |                     |      |              |       |            |            |    |      |         |
|--|--------------|--------------|---------------------|------|--------------|-------|------------|------------|----|------|---------|
| MARK                                       | MANUFACTURER | FILTER MODEL | FAN MODEL           | CFM  | ESP (IN H2O) | SONES | DRIVE TYPE | ELECTRICAL |    |      | REMARKS |
|  |              |              |                     |      |              |       |            | V/Ø/Hz     | HP | MOCP |         |
| WEF-01                                     | CAR-MON      | CMX-24-D     | CMW-11              | 1100 | 3            | 69    | DIRECT     | 208/3/60   | 1  | 15   | 1,2     |
| WEF-02                                     | CAR-MON      | CMX-24-D     | CMW-11              | 1100 | 3            | 69    | DIRECT     | 208/3/60   | 1  | 15   | 1,2,3   |
| WEF-03                                     | CAR-MON      | CMX-24-D     | CMW-11              | 950  | 3            | 69    | DIRECT     | 208/3/60   | 1  | 15   | 1,2,4   |
| WEF-04                                     | CAR-MON      | CMX-24-D     | GREENHECK BSQ-160HP | 1800 | 3            | 72    | BELT       | 208/3/60   | 2  | 15   | 1,2,5   |

REMARKS:

- PROVIDE ALUMINUM PREFILTER AND HEPA (MERV 16) FINAL FILTER. PROVIDE UNIT WITH EXTRA MERV 16 FILTER.
- PROVIDE FILTER UNIT WITH DWYER SERIES 200 MAGNETIC AIR FILTER GUAGE.
- PROVIDE WITH TWO (2) 6" CAR-MON WXT-047 EXTRACTOR ARMS.
- PROVIDE WITH ONE (1) 8" CAR-MON WXS-100 EXTRACTOR ARM.
- PROVIDE WITH INLINE FAN AS SPECIFIED. PROVIDE FAN OUTLET WITH WOVEN WIRE MESH PROTECTION COVERING.
- OTHER ACCEPTABLE MANUFACTURERS INCLUDE: PLYMOVENT, LINCOLN ELECTRIC. REFER TO SPECS. FOR ADDITIONAL RQMTS.



Grant County ATC - Addition and Renovations  
 715 Warsaw Road  
 Dry Ridge, Kentucky 41035  
 Grant County Board of Education  
 Mr. Matt Morgan, Superintendent



ADDENDA  
 ADD #1 - 5/8/2023

SHEET TITLE  
 SCHEDULES - MECHANICAL

BG #  
 23-083

REH #  
 180-1121-B (NCO)

DATE  
 3/9/2023

M6.1