

Order Plans

SECTION 15B - HEATING, VENTILATION, AIR

CONDITIONING AND REFRIGERATION

GENERAL PROVISIONS

1. SCOPE: PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE ACCOMPANYING DRAWINGS TO PROVIDE A COMPLETE AND PROPERLY OPERATING HEATING, VENTILATING, AIR CONDITIONING, REFRIGERATION SYSTEMS BY OTHERS. WORK UNDER THIS SECTION INCLUDES, BUT IS NOT NECESSARILY LIMITED TO:

1.1. GENERAL REQUIREMENTS: ALL WORK UNDER THIS CONTRACT SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH FEDERAL, STATE, AND LOCAL CODES. WHERE THESE PLANS AND SPECIFICATIONS ARE IN CONFLICT WITH SUCH CODES, THE CODES SHALL GOVERN. PAY FOR AND OBTAIN NECESSARY CONSTRUCTION PERMITS AND CERTIFICATES OF INSPECTION.

NOTE:

WHERE ENERGY CALCULATIONS ARE REQUIRED, THESE SHALL BE PREPARED BY THE MECHANICAL ENGINEER AT THE DIRECTION OF THE ARCHITECT. A COPY OF THE CALCULATION SHALL BE FORWARDED TO POPEYES DEVELOPMENT FOR THEIR RECORDS.

COORDINATION: COORDINATE WORK WITH OTHER TRADES. LOCATIONS SHOWN ON DRAWINGS ARE APPROXIMATE. FIELD LOCATE ROOF CURBS BASED ON THE GENERAL DIRECTIONS GIVEN ON CONSTRUCTION DOCUMENTS.

MATERIALS AND PERFORMANCE:

- MATERIALS: ALL MATERIALS SHALL BE NEW AND OF THE QUALITY INDICATED BY THE SPECIFIED BRAND NAMES. SUBSTITUTIONS OF MATERIAL OF EQUAL QUALITY BY OTHER FIRST-LINE MANUFACTURERS MAY BE ACCEPTABLE PROVIDED A LIST OF SUCH SUBSTITUTIONS IS APPROVED IN WRITING BY POPEYES DEVELOPMENT. A SUBSTITUTIONS LIST SHALL BE SUBMITTED IN TRIPLICATE FIVE (5) DAYS BEFORE THE CONTRACT IS TO BE LET.
- NATIONAL ACCOUNTS: ROOFTOP HVAC EQUIPMENT, TOILET EXHAUST FANS, HVAC DUCT SYSTEMS, AND HVAC DIFFUSERS, GRILLS, AND PLENUM BOXES ARE AVAILABLE FROM NATIONAL ACCOUNTS INDICATED ON THE DRAWING COVER SHEET. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH PLANS AND MANUFACTURERS' INSTRUCTIONS. FOR NATIONAL ACCOUNTS INFO REFER TO DIRECTORY.
- ROUTING OF DUCT SYSTEMS: COORDINATE ROUTING OF DUCT SYSTEMS WITH OTHERS. LINE UP WORK TRUE TO ADJACENT SPACES AND IN A WORKMANLIKE MANNER. AND USE STANDARD RADIUS 90 ELBOWS, WHERE REQUIRED. DUCTWORK IS TO BE STURDILY SUPPORTED AND SEPARATED IN ACCORDANCE WITH ASHRAE & SMACNA STANDARDS.
- DUCTWORK FOR HVAC SYSTEM:

NOTE:

A LICENSED TEST AND BALANCE CONTRACTOR SHALL PROVIDE ALL TOOLS AND TEST EQUIPMENT NECESSARY FOR BALANCING ALL HVAC AND EXHAUST AIR SYSTEMS. A "DIGITAL" ANEMOMETER MODEL DA 4000 WITH A 275 PROBE IS RECOMMENDED FOR MEASURING HOOD EXHAUST.

4.1. GENERAL NOTES:

- VOLUME DAMPERS SHALL BE INSTALLED AT ALL BRANCH RUNOUTS.
- DUCT DIMENSIONS INDICATED ARE INSIDE DIMENSIONS DIMENSIONS.
- DUCT WORK SHALL BE BUILT IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS.
- DUCT BOARD IS NOT ALLOWED.

4.2. METAL DUCT WORK:

- DUCT WORK SHALL BE CONSTRUCTED OF G-90 GALVANIZED SHEET METAL.
- THE GAUGES OF METAL TO BE USED AND THE CONSTRUCTION AND BRACING OF JOINTS SHALL BE IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS.
- METAL DUCT SHALL BE SUPPORTED FROM BUILDING STRUCTURE ON STRIP HANGERS NOT OVER 5'-0" APART.

4.3. EXTERNAL SIA, RIA DUCT WRAP:

- INSULATE EXTERIOR OF ALL SIA, RIA METAL DUCT WITH 1 1/2" THICK FIBERGLASS, 3/4 LB DENSITY, FIBERGLASS FIBERGLASS FOIL BACKING AND UL LABELED.
- INSULATION SHALL HAVE A FLAME SPREAD RATING OF FIVE (5) OR LESS AND A SMOKE DEVELOPED RATING OF FIFTY (50) OR LESS.
- INSULATION SHALL BE JOINTS, CORNING FRK25 OR EQUAL.
- INSULATION SHALL BE LIGHTLY LAPPED WITH 2" WIDE VAPOR BARRIER PRESSURE-SENSITIVE TAPE. SEE DETAIL ON M4 SHEET.
- DUCT WRAP SHALL BE INSTALLED IN A NEAT AND COMPETENT MANNER WITH ALL EDGES COVERED WITH APPROVED METALLIC DUCT TAPE TO VAPOR-PROOF THE ENTIRE DUCT.

4.4. FLEX CONNECTIONS/FLEX JOINTS:

- INSULATION AND VAPOR BARRIERS PRESENT ON ALL FLEX CONNECTIONS SHALL BE FITTED OVER THE CORE CONNECTION AND SHALL BE SUPPLEMENTARILY SECURED WITH A DRAW BAND AND TAPED. SEE DETAIL ON M4 SHEET.

5. TEMPERATURE SET POINTS: AT CONCLUSION OF PROJECT, SET POINTS SHALL BE APPROXIMATELY COOLING 78 DEGREES F/ HEATING 68 DEGREES F, AND INSTRUCT OWNER HOW TO RESET.

6. TESTING AND ADJUSTING OF HVAC SYSTEM:

- UPON COMPLETION OF THE INSTALLATION, THE PROJECT SHALL BE TESTED AND ADJUSTED AS FOLLOWS:
 - ADJUST FAN DRIVES TO ACHIEVE REQUIRED AND RATED CFM.
 - ADJUST TEMPERATURE AND FAN CONTROL SEQUENCE.
 - ADJUST THE ENTIRE INSTALLATION AS TO MINIMIZE NOISE AND VIBRATION FROM FANS.
 - ELIMINATE ANY DUCT PULSATION BY USE OF STIFFENERS OR ADDITIONAL SUPPORTS AS REQUIRED.
 - CORRECT ANY EQUIPMENT OR COMPONENT WHICH IS GENERATING OBJECTIONABLE NOISE IN THE OPINION OF THE OWNER OR BY LOCAL AUTHORITIES.
 - BALANCE EXHAUST AND OUTSIDE AIR TO QUANTITIES INDICATED ON THE PLANS. REFER TO BUILDING AIR BALANCE SCHEDULE.
 - PROVIDE OWNER AND ENGINEER OF RECORD TWO(2) COPIES OF A WRITTEN AIR BALANCE REPORT INDICATING ALL FINAL EXHAUST, SUPPLY, AND OUTSIDE AIR FLOWS.

8. PIPING TO BE HERMETICALLY SEALED.

9. CONTROLS: FURNISH AND INSTALL AS INDICATED ON DRAWINGS. FURNISH AND INSTALL ALL CONTROL WIRING AND CABLES FROM HVAC UNITS, TEMPERATURE SENSORS, PHOTOCELL, AND CONTRACTOR PANEL IF USED. ROUTE CONTROL WIRING IN RACEWAY IN EQUIPMENT IF PROVIDED.

10. CLEANUP: AFTER COMPLETION OF THE WORK BEFORE FINAL INSPECTION CLEAN HVAC EQUIPMENT.

11. FILTERS: PROVIDE CLEAN SET OF FILTERS FOR EACH HVAC UNIT WHEN TURNED OVER TO THE OWNER.

12. HVAC OPERATOR'S MANUAL AND DIAGRAMS:

12.1. PROJECTS PARTICIPATING IN THE NATIONAL ACCOUNTS PROGRAM SHALL FOLLOW THE PROCEDURE OUTLINED IN THE NATIONAL ACCOUNT.

12.2. PROJECTS NOT PARTICIPATING IN THE NATIONAL ACCOUNT SHALL FOLLOW THE FOLLOWING PROCEDURE:

- PREPARE IN DUPLICATE A MANUAL DESCRIBING THE PROPER MAINTENANCE AND OPERATION OF THE SYSTEM. THIS MANUAL SHALL NOT CONSIST OF STANDARD FACTORY-PRINTED INSTRUCTIONS, ALTHOUGH THESE MAY BE INCLUDED, BUT SHALL BE PREPARED TO DESCRIBE THIS PARTICULAR PROJECT.
- THE MANUALS SHALL BE BOUND, INDEXED, DATED, AND SIGNED BY THE GENERAL CONTRACTOR. ONE (1) COPY SHALL BE SENT TO POPEYES DEVELOPMENT AND THE OTHER TO THE OWNER. QUALIFIED REPRESENTATIVES OF THE AIR CONDITIONING CONTRACTOR SHALL MEET WITH THE DESIGNATED REPRESENTATIVE OF THE OWNER. THE OWNER'S REPRESENTATIVE SHALL BE INSTRUCTED IN THE PROPER OPERATION AND MAINTENANCE OF THE HVAC AND CONTROL SYSTEM.

13. GUARANTEE: MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR ONE (1) YEAR FROM DATE OF COMPLETION. IN ADDITION, ALL REFRIGERATION COMPRESSORS SHALL BEAR A NON-PRORATED 5-YEAR FACTORY WARRANTY, AND ALL OTHERS SHALL BE AS SHOWN.

14. SERVICE ACCESS:

14.1. PROVIDE SERVICE ACCESS AS REQUIRED IN MANUFACTURER'S INSTALLATION INSTRUCTIONS. IF SERVICE ACCESS IS NOT AVAILABLE, NOTIFY OWNER AND ATTEMPT TO SEE IF NECESSARY CHANGES CAN BE WORKED OUT WITH THE TRADES. DO NOT INSTALL EQUIPMENT WHICH DOES NOT MEET MANUFACTURER'S REQUIREMENTS FOR ACCESS. IN NO CASE BID, SUBMIT, OR INSTALL EQUIPMENT IN SITUATION THAT DO NOT MEET THE MANUFACTURER'S WARRANTY REQUIREMENTS.

GENERAL NOTES:

1. THE HVAC CONTRACTOR SHALL VERIFY THAT ALL EQUIPMENT, AS SHOWN ON THESE DRAWINGS, WILL NOT CONFLICT WITH ANY DRAINS, SLOTTINGS, JOINTS, VENTS, ETC.

2. ALL ROOF MOUNTED EQUIPMENT AND PENETRATIONS SHALL BE FLASHED A MINIMUM OF 12" ABOVE THE ROOF. PROVIDE AMPLE CURBS.

3. ALL OUTSIDE AIR INTAKES SHALL BE A MINIMUM OF 10'-0" FROM ANY EXHAUST FAN OR PLUMBING VENT. REFER TO ROOF PLAN.

4. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR ADMINISTERING ALL WARRANTIES ON EQUIPMENT WHICH HE INSTALLS, AND OTHER ITEMS FURNISHED BY OTHERS AS WELL AS THOSE FURNISHED BY HIM.

5. CONDENSATE DRAINAGE FROM ROOF TOP HVAC UNITS SHALL BE TRAPPED. REFER TO ROOF PLAN.

6. PROVIDE VIBRATION ISOLATION GASKETS AT FLANGE MARRIAGES. SEE DETAIL ON M4 SHEET.

7. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.

8. MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCT AND DIFFUSER LOCATIONS WITH LIGHTING LAYOUTS AS REQUIRED.

9. THE CONTRACTOR SHALL PROVIDE COMPLETE INFORMATION AND COOPERATION TO THE OTHER CONTRACTORS AND TRADES AS REQUIRED FOR COMPLETION AND COORDINATION OF THE COMPLETE PROJECT.

10. THIS CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES. ALL REQUIRED OPENINGS, WALLS AND ROOFS SHALL BE DESIGNED INTO THE STRUCTURE INITIALLY BY THE USE OF SLEEVES, CURBS, ETC. CUTTING AND PATCHING SHALL BE HELD TO A MINIMUM.

11. THERMOSTATS SHALL BE LOCATED GENERALLY AS SHOWN BUT THEIR EXACT LOCATION SHALL BE FIELD COORDINATED TO AVOID INTERFERENCE WITH WALL MOUNTED ITEMS. MOUNT 54" AFF.

12. MECHANICAL CONTRACTOR TO INSULATE BACKSIDE OF ALL DIFFUSERS.

13. ALL DAMAGED COIL FINS SHALL BE COMBED STRAIGHT.

HVAC CONTROL NOTES:

THE HVAC CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING DIAGRAMS FOR THE HVAC EQUIPMENT. 24 VOLT WIRING AND CONDUIT SHALL BE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR. PROVIDE ADDITIONAL 24 VOLT TRANSFORMERS AS REQUIRED.

ROOFTOP AIR CONDITIONING UNITS:

THE AIR CONDITIONING UNIT FANS, HEATING AND COOLING SHALL BE CONTROLLED FROM 24 VOLT ROOM THERMOSTATS LOCATED APPROXIMATELY AS SHOWN ON THE PLANS. THE THERMOSTATS SHALL BE MOUNTED BY THIS CONTRACTOR 54" A.F.F.

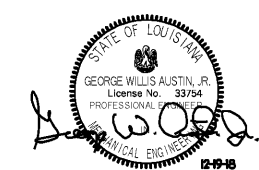
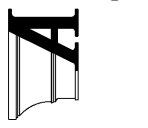
HVAC UNITS RTU-1 AND RTU-2 SHALL BE PROGRAMMED FOR "FAN-ON" DURING OCCUPIED TIMES. FAN SHALL CYCLE WITH UNITS DURING UNOCCUPIED TIMES.

SMOKE DETECTORS:

PROVIDE EACH AIR CONDITIONING UNIT WITH A DUCT MOUNTED SMOKE DETECTOR IN THE RETURN AND SUPPLY AIR DUCT SYSTEM PRIOR TO MIXTURE OF OUTSIDE AIR. CAPABLE OF SHUTTING DOWN ITS RESPECTIVE AIR CONDITIONING UNIT UPON ACTIVATION. THE DETECTOR SHALL COME WITH A SIMPLY DUCT DETECTOR WITH PHOTOELECTRIC DETECTOR AND SENSING TUBE. ALL LOW VOLTAGE WIRING AND CONDUIT SHALL BE THE ELECTRICAL CONTRACTOR'S AND ALL OTHER WORK SHALL BE BY THE HVAC CONTRACTOR. INSTALLATION OF A DUCT SMOKE DETECTOR SHALL INDICATE A VISIBLE AND AUDIBLE SUPERVISING SIGNAL AT A CONSTANTLY ATTENDED LOCATION.

HVAC SYMBOL LEGEND

- AFF ABOVE FINISHED FLOOR
- CFM CUBIC FEET PER MINUTE
- HP HORSEPOWER
- KW KILOWATT
- OA OUTSIDE AIR
- RPM REVOLUTIONS PER MINUTE
- RTU ROOFTOP UNIT
- SA SUPPLY AIR (SA) DUCTWORK
- RA RETURN AIR (RA) DUCTWORK
- EA EXHAUST AIR (EA) DUCTWORK
- WB WET-BULB
- RTU-1 WALL MOUNTED THERMOSTAT FOR UNIT INDICATED
- S REMOTE DUCT TEMPERATURE SENSOR
- FL FUSIBLE LINK
- 24 x 12 DUCT SECTION, POSITIVE PRESSURE, FIRST FIGURE IS ARROW SIDE
- DUCT SECTION, EXHAUST
- DUCT SECTION, NEGATIVE PRESSURE, RETURN
- A CEILING DIFFUSER
- R CEILING RETURN
- Y CEILING EXHAUST
- RADIUS ELBOW - INSIDE RADIUS MINIMUM ONE HALF DUCT WIDTH
- SQUARE TO ROUND TRANSITION
- P REMOTE HOOD PULL STATION
- CONNECT EXISTING TO NEW



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