

MECHANICAL	
PROJECT	2016-1340
DATE	8/18/2017
DRAWN	VW
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NO.	REVISIONS	DATE	DESCRIPTION

ICON ENGINEERING AND INSPECTION SERVICES, PLLC HAS RETAINED AN ELECTRONIC VERSION OF THESE DRAWINGS. THE CLIENT AGREES NOT TO REPRODUCE, REUSE, OR COPY THESE DRAWINGS, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN FOR THE SPECIFIC PROJECT LOCATION. THE CLIENT AGREES NOT TO TRANSFER THESE ELECTRONIC FILES TO OTHERS WITHOUT THE PRIOR WRITTEN CONSENT OF ICON ENGINEERING AND INSPECTION SERVICES, PLLC. THE CLIENT FURTHER AGREES TO WAIVE ALL CLAIMS AGAINST ICON ENGINEERING AND INSPECTION SERVICES, PLLC RESULTING IN ANY WAY FROM ANY UNAUTHORIZED CHANGES TO OR REUSE OF THE ELECTRONIC FILES FOR ANY OTHER PROJECT BY ANYONE OTHER THAN ICON ENGINEERING AND INSPECTION SERVICES, PLLC.

**SHEET METAL DUCTWORK**

- AIR DISTRIBUTION DUCTWORK, INCLUDING SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE FABRICATED FROM PRIME QUALITY GALVANIZED SHEET METAL IN ACCORDANCE WITH THE 2006 INTERNATIONAL MECHANICAL CODE AND SMACNA HVAC DUCT CONSTRUCTION MANUAL.
- AIR DISTRIBUTION DUCTWORK SHALL BE DELIVERED TO THE SITE IN UNDAMAGED AND CLEAN CONDITION. DUCTWORK SHALL BE PROTECTED DURING STORAGE AND INSTALLATION AGAINST DAMAGE AND CONTAMINATION.
- DUCTWORK SHALL BE SUPPORTED FROM SUITABLE BUILDING STRUCTURAL COMPONENTS. THE HVAC CONTRACTOR SHALL FURNISH ANY SUPPLEMENTARY STRUCTURAL MEMBERS REQUIRED TO PROPERLY SUPPORT THE DUCTWORK.
- BRANCH DUCT CONNECTIONS MAY BE MADE WITH FITTINGS OR TAPS. A BALANCING DAMPER SHALL BE INSTALLED AT EACH BRANCH DUCT CONNECTION. PROVIDE RAKE-OFFS OR SCOOPS AT EACH BRANCH CONNECTION.
- DIFFUSER RUNOUT CONNECTIONS SHALL BE MADE WITH SPIN-IN OR DOVETAIL TAPS. A BALANCING DAMPER SHALL BE INSTALLED FOR EACH RUNOUT.
- THE HVAC CONTRACTOR MAY SUBSTITUTE EQUIVALENT ROUND DUCT FOR THE RECTANGULAR DUCT SHOWN ON THE DRAWINGS.
- PROVIDE AIR TURNING VANES IN MITERED FITTINGS. PROVIDE SPLITTER DAMPERS IN RADIUS WYES OR TEES.
- DIFFUSER CONNECTIONS MAY BE MADE WITH METAL ELBOWS OR FLEX DUCT. FLEX DUCT RUNS SHALL NOT EXCEED 6'-0" IN LENGTH.
- ALL BALANCING DAMPERS SHALL BE ACCESSIBLE. PROVIDE ACCESS PANELS FOR DAMPERS LOCATED ABOVE HARD CEILINGS. MARK THE LOCATION OF DAMPERS LOCATED ABOVE LAY-IN CEILINGS.

**REFRIGERANT TUBING**

- REFRIGERANT TUBING SHALL BE SEALED AIR-TIGHT WITH MASTIC NON-HARDENING DUCT SEALANT.
- INSTALL REFRIGERANT PIPING IN ACCORDANCE WITH THE HVAC EQUIPMENT MANUFACTURER'S RECOMMENDATIONS, USING ACR COPPER TUBING. FURNISH AND INSTALL REFRIGERANT SPECIALTIES IN ACCORDANCE WITH THE HVAC EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. INSULATE SUCTION LINES WITH ARMAFLEX OR EQUAL INSULATION.

**FURNACE & HEATER VENTING & COMBUSTION AIR INTAKE**

- FURNISH AND INSTALL COMBUSTION AIR INTAKE AND EXHAUST VENT PIPING FOR CONDENSING FURNACE(S), USING PVC SCHEDULE 40 PIPE AND FITTINGS OR METAL VENT PIPING IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS/RECOMMENDATIONS. TERMINATE INTAKE AND EXHAUST PIPING IN ACCORDANCE WITH THE FURNACE MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE CONDENSATE DRAIN CONNECTION AND PIPING AT BASE OF COMBUSTION EXHAUST STACK.

**CONDENSATE DRAINAGE**

- PROVIDE CONDENSATE DRAIN PIPING FOR ALL HEATING AND/OR COOLING EQUIPMENT THAT PRODUCES CONDENSATION.
- ROUTE CONDENSATE DRAINAGE PIPING TO FLOOR DRAINS, FIXTURES, OR INDEPENDENT CONDENSATE DRAINAGE SYSTEM(S) AS SHOWN ON THE DRAWINGS.
- PROVIDE CONDENSATE RETURN RECEIVER & PUMP FOR FURNACE AH-10. PIPE DISCHARGE TO EXISTING FLOOR DRAIN IN MECHANICAL ROOM 123.

**SMOKE DETECTORS**

- PROVIDE SMOKE DETECTORS IN AIR HANDLING UNITS WITH AIR HANDLING CAPACITY GREATER THAN 2000 CFM. PROVIDE A SMOKE DETECTOR IN BOTH THE SUPPLY AND RETURN FOR UNITS GREATER THAN 5000 CFM. THE SMOKE DETECTOR SHALL BE CONNECTED TO SHUT DOWN THE UNIT IN THE EVENT THAT SMOKE IS DETECTED.
- SMOKE DETECTORS SHALL BE COMPATIBLE WITH THE FIRE ALARM SYSTEM IF A FIRE ALARM SYSTEM IS INSTALLED. COORDINATE WITH ELECTRICAL CONTRACTOR OR INDEPENDENT FIRE ALARM CONTRACTOR.
- COORDINATE WIRING OF SMOKE DETECTORS WITH ELECTRICAL CONTRACTOR.

**NATURAL GAS PIPING**

- INSTALL NATURAL GAS PIPING IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE AND INTERNATIONAL FUEL GAS CODE AS ADOPTED AND ENFORCED BY THE COMMONWEALTH OF KENTUCKY, AND THE CITY OF ELIZABETHTOWN GAS DEPARTMENT.
- BUILD AND INSTALL GAS METER LOOP IN ACCORDANCE WITH THE CITY OF ELIZABETHTOWN GAS DEPARTMENT STANDARDS.
- CONNECT NATURAL GAS PIPING TO GAS-FIRED APPLIANCES WITH DIRT LEG, GAS COCK, AND UNION.
- GAS PIPING SHALL BE SCHEDULE 40 BLACK IRON WITH 150# MALLEABLE IRON FITTINGS.
- INSTALL PIPE IDENTIFICATION USING SNAP-ON PIPE MARKERS.
- SUPPORT GAS PIPING FROM THE BUILDING STRUCTURE WITH CLEVIS HANGERS, ALL-THREAD ROD AND ATTACHMENTS TO SUIT THE STRUCTURAL MEMBER.
- TEST NATURAL GAS PIPING IN ACCORDANCE WITH APPLICABLE CODES AND GAS DEPARTMENT REQUIREMENTS.
- APPLY AND PAY FOR ALL REQUIRED PERMITS.

**FIRE AND SMOKE DAMPERS**

- PROVIDE FIRE DAMPERS IN DUCTS PENETRATING RATED WALLS, FLOORS, OR CEILINGS IN ACCORDANCE WITH THE KENTUCKY BUILDING CODE AND THE INTERNATIONAL MECHANICAL CODE.
- PROVIDE SMOKE DAMPERS IN DUCTS PENETRATING SMOKE PARTITIONS OR SMOKE BARRIERS.
- PROVIDE COMBINATION FIRE/SMOKE DAMPERS WHERE INDICATED ON THE DRAWINGS, OR BY NOTE.
- PROVIDE SLEEVES, FRAMING AND SUPPORTS FOR FIRE DAMPERS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- COORDINATE WIRING OF SMOKE OR FIRE/SMOKE DAMPERS WITH THE ELECTRICAL CONTRACTOR.
- FIRE DAMPERS SHALL COMPLY WITH UL STANDARD 555, STANDARD FOR SAFETY FOR FIRE DAMPERS.
- SMOKE DAMPERS SHALL COMPLY WITH UL STANDARD 555S, STANDARD FOR SAFETY FOR SMOKE DAMPERS.
- INSTALL FIRE DAMPERS, SMOKE DAMPERS, AND COMBINATION FIRE/SMOKE DAMPERS IN ACCORDANCE WITH NFPA 90A, STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS.

**AUTOMATIC TEMPERATURE CONTROLS/BUILDING AUTOMATION SYSTEM**

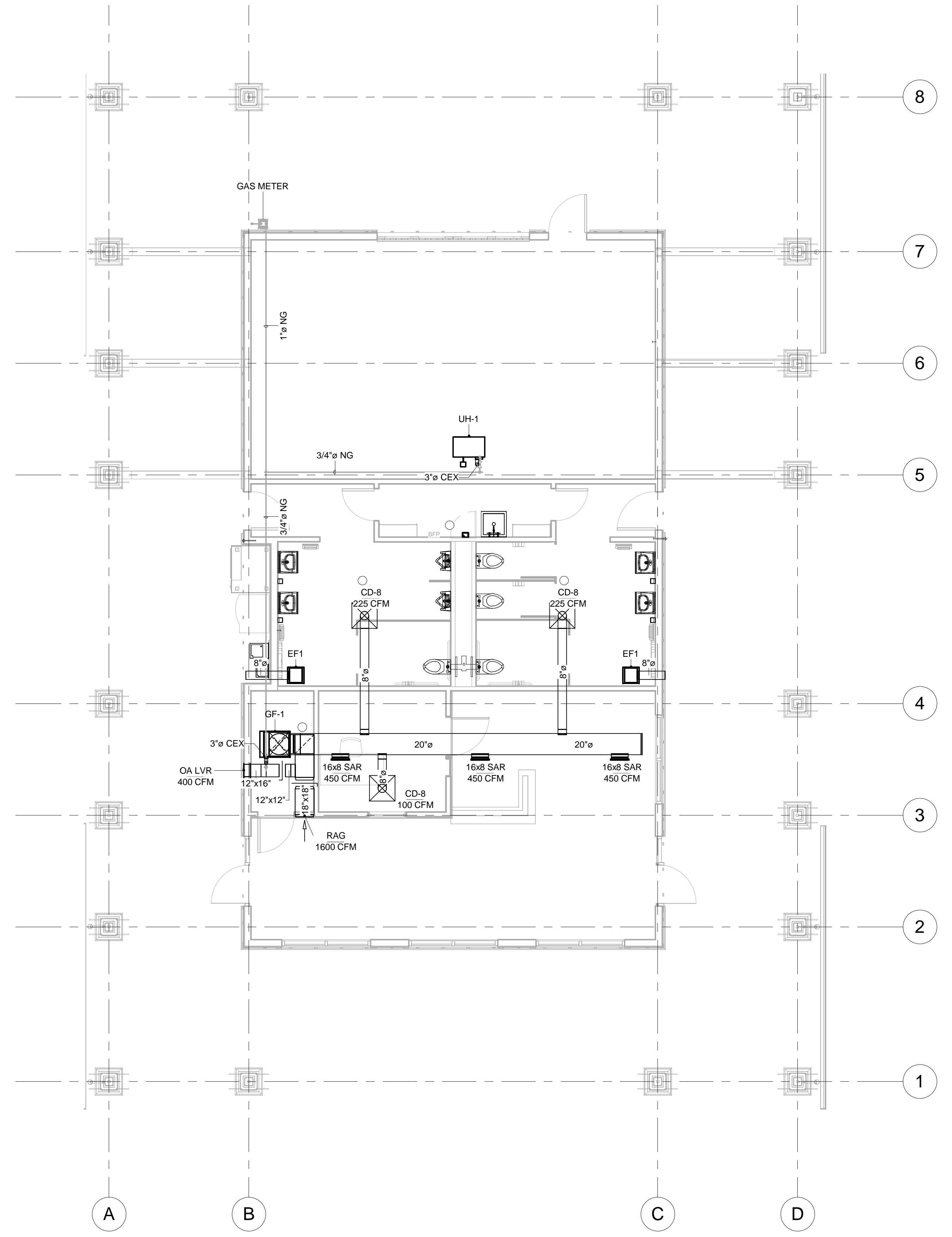
- FURNISH AND INSTALL AUTOMATIC TEMPERATURE CONTROLS OR BUILDING AUTOMATION SYSTEM AS INDICATED ON DRAWINGS.
- INSTALL LOW-VOLTAGE CONTROL WIRING IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE NFPA 70 AS ADOPTED AND ENFORCED BY THE COMMONWEALTH OF KENTUCKY.
- CONTROL CABLE INSTALLED IN RETURN AIR PLENUMS SHALL BE PLENUM RATED.
- CONTROL CABLE OR WIRING CONDUCTORS INSTALLED OUTSIDE THE BUILDING SHALL BE INSTALLED IN METALLIC RACEWAYS AND/OR SUITABLE FLEXIBLE CONDUIT AS ALLOWED BY THE NEC. UNDERGROUND CONTROL WIRING SHALL BE INSTALLED IN NON-METALLIC RACEWAYS LISTED FOR UNDERGROUND USE.

**START-UP**

- PROVIDE FACTORY STARTUP FOR ALL MAJOR EQUIPMENT.
- PROVIDE TECHNICAL ASSISTANCE FOR FACTORY STARTUP TECHNICIANS.
- PROVIDE DOCUMENTATION OF STARTUP PROCEDURES FOR FACTORY STARTUP, FACTORY ASSISTED STARTUP, AND CONTRACTOR STARTUP PROCEDURES.
- CONTRACTOR STARTUP PROCEDURES SHALL BE CONDUCTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

**TESTING, ADJUSTING, AND BALANCING**

- PROVIDE TAB SERVICES VIA INDEPENDENT TAB CONTRACTOR IF SO SPECIFIED. TAB CONTRACTOR SHALL BE CERTIFIED BY NEBB, AABC, TABB OR EQUIVALENT CERTIFICATION AGENCY.
- IF CONTRACTOR PERFORMS TESTING, ADJUSTING, AND BALANCING, FIRM AND TECHNICIANS SHALL BE CERTIFIED BY NEBB, AABC, TABB OR EQUIVALENT AGENCY.
- PROVIDE TAB REPORT AT CONCLUSION OF TESTING, ADJUSTING, AND BALANCING.



**1 - HVAC DUCTWORK PLAN**  
SCALE: 3/16" = 1'-0"