



**TOPEKA METRO**

**REQUEST FOR BIDS  
Quincy Street Station  
HVAC Maintenance  
TO-22-06**

**Appendix III  
Maintenance Requirements**

## **Appendix 3 Maintenance Requirements**

### **Request for Bids Quincy Street Station HVAC Maintenance Page 1**

#### Natural Gas Boiler – Forced Draft Burner

##### Fall and Winter Inspections

- a. preliminary inspection of all boiler system components (i.e. boiler housing, hot water pumps, breeching and flue, controls and gas train, snow melt system)
- b. exercise all manual shutoff gas valves and lubricate per manufacturer's recommendations.
- c. test each of the following safety controls and record condition and settings:
  1. low water cutoff
  2. high temperature cutoff
  3. flame safeguard control
  4. high and low gas pressure switches
  5. boiler pressure relief valve
  6. gas safety shutoff valve
  7. vent line solenoid
  8. main gas pressure regulating valve
  9. burner air flow switch
- d. complete operational test of the following devices and log on appropriate log sheet:
  1. hot water inlet and outlet temperature
  2. outside air temperature
  3. stack temperature
  4. hot water temperature controller setting
  5. operating low water level control
  6. butterfly gas control valve
  7. air-fuel mixture drive motor and intake
- e. combustion efficiency test during fall inspection:
  1. run combustion efficiency test at all firing rates using Orsat Flue Gas Analyzer
  2. record ratio in percentage of CO<sub>2</sub>, O<sub>2</sub> and CO in the flue gas
  3. evaluate the ratios recorded above at the measured flue temperature to determine efficiency
  4. make minor adjustments to fuel/air ratio to maximize boiler efficiency
- f. review correct blow-down procedure and frequency with operating personnel

### Circulating Pump

#### Fall and Winter Inspections

- a. preliminary inspection of all unit components (i.e. motor, starter and disconnecting device, mounting pad)
- b. lubricate pump motor and pump bearings
- c. inspect the pump/motor coupling and record condition
- d. inspect condition of pump shaft seals and record condition
- e. check contacts of pump motor starter for pitting and proper function and record condition
- f. check and clean strainer and record condition
- g. check operation of shutoff valves and record condition

### Air Handling Equipment

#### Quarterly Inspections

- a. preliminary inspection of all unit components (i.e. supply fan/motor assembly, damper assemblies, control/starter panels)
- b. provide and replace 2” pleated filters
- c. inspect the supply fan/motor belts and lubricate the motor and fan shaft bearings
- d. check electrical connections and contactors
- e. check outside and return air damper assembly operation
- f. inspect the direct expansion coil as follows:
  1. check for fouling and blockage
  2. record the entering and leaving air temperatures
  3. clean condensate drain pan
  4. check the vacuum coil
- g. inspect the hot water coils as follows:
  1. check for fouling and blockage
  2. record the entering and leaving water temperatures
  3. record the entering and leaving air temperatures
  4. check the vacuum coil

### Backflow Preventers

#### Annual Inspections

- a. preliminary inspection of all unit components
- b. perform pressure test
- c. adjust, repair or replace parts as needed
- d. file the necessary inspection report with the City of Topeka

### Air Cooled Condenser

#### Spring and Summer Inspections

- a. preliminary inspection of all unit components (i.e. condenser fan/motor assemblies, condenser coils, filter section, fan coil assembly)
- b. clean the condenser coils using water and a mild detergent
- c. check contacts of compressor starter for pitting/function and record condition
- d. complete the operating log by recording information on the following items:
  1. suction pressure and temperature
  2. condensing pressure and temperature
  3. superheat
  4. sub-cooling
  5. running voltage
  6. running amps
  7. ambient temperature

### Natural Gas Unit Heater

#### Fall and Winter Inspections

- a. preliminary inspection of all unit components (i.e. supply fan, controls)
- b. check electrical connections and contactors
- c. lubricate fan motor and bearings, and check drive belt condition
- d. perform the following inspections on the gas-fired heat exchanger section:
  1. check operation of pilot assembly
  2. check the heat exchanger ribbon assemblies for fouling
  3. check fuel/air mixture
  4. check for cracks

### Exhaust Fan

#### Quarterly Inspections

- a. preliminary inspection of all unit components (i.e. casing, fan/motor assembly)
- b. lubricate exhaust fan motor bearings and fan bearings in accordance with manufacturer's recommendations
- c. check supply fan belts for wear, tension and alignment
- d. check electrical components at exhaust fan
- e. change all filters each quarter
- f. clean all exhaust grilles with vacuum

### General

- a. annual checking of fittings, filters, and other parts
- b. monthly walk-throughs