



District Energy St. Paul Preventive Maintenance Checklist

A preventive maintenance program is a way to increase the likelihood that all mechanical equipment is operating efficiently and using energy wisely.

The following is a list of common tasks that most manufacturers recommend for certain equipment. It is not a comprehensive list for any individual building and not all manufacturers recommend the same maintenance.

For personnel safety and to protect equipment, maintenance tasks should only be performed by qualified and trained individuals (recommended contractor in parenthesis after each task).

The list below is intended as a guide but is not to replace manufacturer recommended maintenance, and District Energy St. Paul is not responsible for any use of this checklist.

Recommended prior to the start of heating season

Building Loop

- Test the system water/glycol mixture for proper glycol levels and chemical treatment levels for corrosion inhibitors, pH, microbiological growth, etc. as recommended by the chemical treatment consultant. (Chemical)
- Check that the air pressure on the expansion tank is set to the system water pressure and that the tank is not flooded or the diaphragm is not completely compressed. (Mechanical)
- Verify system loop pressure is within normal range based on height of building and system size. Too low of pressure may indicate piping/valve/coil leak. Too high of pressure could indicate heat exchanger(s) failure and incoming water from the District Energy loop. (Mechanical)
- Confirm all electronic valves are working properly. (Mechanical)
- If applicable, manually switch 2-pipe system from cooling to heating mode by isolating current energy mode for six hours prior to slowly starting new mode of operation to reduce the thermal stress to the building systems (summer/winter). (Mechanical)

Heat Exchangers

- Visually inspect heat exchanger for leaks at the connection points to the heat exchanger as well as the body of the heat exchanger. Insulation may be hiding small leaks, so also check for areas of wet or water stained insulation. (Mechanical)
- Check the pressure gauges and thermometers for accuracy. (Mechanical)

- Check the heat exchanger and strainers for pressure drop. If the pressure drop is greater than 5 psi, clean the strainer screens. Annually blowdown the strainer regardless of pressure drop. (Mechanical)
- Flush the heat exchanger(s) with mild cleaning solution every 5 years to remove buildup on heat transfer surfaces. Use chemical dilutions and velocities as recommended by approved chemical vendor. (Mechanical)
- Test the safety relief valves. (Mechanical)

Controls – Heat Exchangers

- Manually cycle temperature control valves. (Controls/Mechanical)
- Check accuracy and calibrate instruments and transmitters as necessary. (Controls)
- Check the room thermostats and repair or replace if necessary. (Controls)
- Verify that control valves positively shut off when no heat transfer is required. (Controls/Mechanical)
- If using pneumatic controls, check for tube leaks and fix as required. Perform all recommended maintenance procedures on the air compressor per manufacturer's instructions. (Controls/Mechanical)

Pumps

- Visually check the pump alignment and coupling. (Mechanical)
- Check VFD operating conditions if installed. (Electrical)
- Inspect, clean, and check the VFD heat sink and cooling fan. (Electrical)
- Lubricate the pump bearings according to the manufacturer's recommendations. (Mechanical)
- Check the motor mounts and vibration pads. Repair or replace if necessary. (Mechanical)
- Inspect the mechanical seals or pump packing. Replace if necessary. (Mechanical)
- Blow-down (if possible) or remove strainer screens, clean and put back in service. (Mechanical)

Air Handling/Makeup Air Units (Fans and Coils)

- Brush and vacuum the coil, fan, and housing. (Mechanical)
- Lubricate the fan and motor bearings according to the manufacturer's recommendations. (Mechanical)
- Clean the condensate drain pans (including the drains from the pans). (Mechanical)

- Clean the outside air intake screen. (Mechanical)
- Inspect, clean, and check the VFD heat sink and cooling fan. (Electrical)
- Check the belts and sheaves. Tighten or replace the belts and adjust if necessary. (Mechanical)
- Check the minimum setting for the outside air damper. Ensure proper operation and a tight shutoff. Replace any seals that are cracked or falling off. (Mechanical)
- Lubricate and adjust the dampers and linkage. (Mechanical)
- Check the fan motor mounts and vibration pads. (Mechanical)
- Check the control valve packing and lubricate if necessary. (Mechanical)
- Adjust the schedule of system starts and stops based on current occupant loading (i.e. stagger start times of critical equipment by at least 15-20 minutes to avoid electrical and thermal peaks). (Controls/Mechanical)
- Test freeze stat for proper operation. (Mechanical)
- Replace all air filters per manufacturer's recommendations.
- If applicable, check CO2 sensor is functioning and communicating with BAS system. (Controls)
- Verify air flow measuring stations are calibrated and communicating with the BAS. If necessary, clean damper blades/tubes. (Mechanical/Controls)
- Check functionality of energy recovery wheel. Confirm control sequence is operating the wheel, the motor is working, and dampers are opening and closing properly. (Controls)

Radiators and Reheat Coils

- Visually inspect the fins on the radiation element and coils. Vacuum clean if necessary. (Mechanical)
- Check air vents to make sure they are in operating condition. (Mechanical)
- Check system air releases and remove air from the loop if necessary. (Mechanical)

Domestic Hot Water

- Inspect circulation pump for proper operation. (Mechanical)
- Flush potable side of the heat exchanger with citric acid approved by chemical vendor annually. (Mechanical)
- Verify correct return temperature and adjust mixing valve as necessary. (Mechanical)

Recommended prior to the start of cooling season

- Check system air releases and remove air from the loop if necessary. (Mechanical)
- If applicable, manually switch 2-pipe system from heating to cooling mode by isolating current energy mode for six hours prior to slowly starting new mode of operation to reduce the thermal stress to the building systems (summer/winter). (Mechanical)
- Maintain water circulation during summer months for water treatment. (Mechanical)

For any questions please contact District Energy customer service at 651.297.8955.