

**USF St. Petersburg
Operations & Maintenance of Facilities
Preventative Maintenance Guide**

GUIDE	EQUIPMENT TYPE & TASKS	FREQUENCY
A-1	<u>Air Dryer</u> 1. Lubricate valves and replace packing, if necessary 2. Check dryer operating cycle. 3. Inspect and clean heat exchanger. 4. Check automatic blow down device. 5. Inspect and replace inlet filter. 6. Clean and lubricate condenser fan motor	ANNUAL
A-4	<u>Air Compressor</u> 1. Change compressor crankcase oil. 2. Clean air intake filter. 3. Inspect belt alignment and condition. Adjust or replace. 4. Clean heat exchange surface. 5. Check accuracy of gauges with calibrated test gauge. 6. Check relief valve. 7. Check cut in and cut out of compressor controller.	SEMI-ANNUAL
A-5	<u>Air Conditioning</u> 1. Thoroughly inspect and clean interior and exterior with vacuum. 2. Clean drain pan. Treat rusted areas with rust inhibitor.	MONTHLY
A-6	<u>Air Conditioning Package Unit</u> 1. Thoroughly inspect and clean interior and exterior with vacuum. 2. Clean drain pan. Paint or treat any corrosion. 3. Check for refrigerant leaks using halogen detector. Repair any leaks. 4. Clean coils using coil cleaner and high pressure water. 5. Lubricate motor and fan bearings. Check alignment of fan and motor. 6.	ANNUAL
A-7	<u>Air Conditioning Package Unit (Special Purpose)</u> 1. Thoroughly inspect and clean interior and exterior with vacuum. 2. Clean drain pan and paint corrosion. 3. Check for refrigeration leaks using halogen detector. 4. Clean coils using coil cleaner and high pressure water. 5. Replace pre-filters if needed. 6. Check and tighten all electrical connections.	MONTHLY
A-8	<u>Air Conditioning Window Unit</u> 1. Clean cooling coil fins, drain pan and fans. 2. Inspect fins. Straighten with fin comb as required. 3. Remove dirt, or rust from interior and paint as required. 4. Replace or clean filter. 5. Lubricate motor and fan bearings. 6. Check for refrigerant leaks with halogen detector.	ANNUAL
A-9	<u>Air Cooled Condenser</u> 1. Remove debris from air screen and clean underneath unit. 2. Pressure wash coil with coil cleaning solution. 3. Straighten fin tubes with fin comb. 4. Check for and remove all corrosion, prime and paint as necessary. 5. Check and tighten all electrical connections.	ANNUAL
A-10	<u>Heat Pumps</u> 1. Inspect for refrigerant leaks using leak detector. 2. Inspect all wiring for deterioration and tighten all electrical components. 3. Lubricate fan and motor. Check for excessive vibrations. 4. Clean air intake and screens, change filter as necessary. 5. Pressure wash coil surfaces. 6. Check reversing valve operation.	ANNUAL
A-11	<u>Air Handler Unit</u> 1. Check fan blades for buildup and clean if necessary. 2. Check fan bearing collar set screws for tightness. 3. Check dampers for dirt accumulation and clean as necessary. 3. Check damper actuators for proper operation. 4. Clean coils by brushing, blowing or pressure washing.	ANNUAL

	<p>5. Flush and clean condensate pan, prime and paint as necessary.</p> <p>6. Check belts for wear and adjust tension or alignment.</p> <p>7. Lubricate all bearings.</p>	
B-1	<p><u>Battery Charger</u></p> <p>1. Clean interior and exterior.</p> <p>2. Check tightness of electrical connections.</p> <p>3. Check charger output voltage.</p>	QUARTERLY
B-2	<p><u>Boiler</u></p> <p>1. Apply hydrostatic test of safety pop-off valve.</p> <p>2. Brush all tubes clean of scale.</p> <p>3. Brush plate surface clean.</p> <p>4. Replace any worn or damaged gaskets.</p>	ANNUAL
B-6	<p><u>Boiler Instruments/Controllers</u></p> <p>1. Check operation of panel switches for excessive looseness or wear.</p> <p>2. Check for correct supply pressure or voltage to the station.</p>	ANNUAL
C-2	<p><u>Remote Air Intake Dampers</u></p> <p>1. Check dampers for freedom of movement and proper operation.</p> <p>2. Check damper surfaces for wear and clean vanes.</p> <p>3. Clean off corrosion or rust and paint.</p>	SEMI-ANNUAL
C-3	<p><u>Coils, Preheat/Reheat</u></p> <p>1. Vacuum or blow out fins, coils, etc.</p> <p>2. Check for rust or corrosion, clean, prepare and paint.</p>	ANNUAL
C-4	<p><u>Central Computer HVAC Systems</u></p> <p>1. Clean, calibrate and adjust all central, remote and interface systems.</p> <p>2. Test and analyze results of system integrity.</p> <p>3. Test all software and fir ware programs for applied results.</p>	QUARTERLY
C-5	<p><u>Mixing Boxes (VAV Systems)</u></p> <p>1. Check that operating controls activate damper per design specifications.</p> <p>2. Check damper linkage for tightness and lightly lubricate.</p> <p>3. Inspect dampers for free movement.</p> <p>4. Inspect actuators for tightness to mounting brackets.</p> <p>5. Tighten electrical connections to servo motor.</p>	ANNUAL
C-6	<p><u>Controls, Central System (HVAC)</u></p> <p>1. Check set point of controls.</p> <p>2. Check unit over its range of control.</p>	ANNUAL
C-9	<p><u>Cooling Tower, Maintenance</u></p> <p>1. Inspect lovers for correct position and alignment.</p> <p>2. Inspect condition of access door and hinges. Repair as necessary.</p> <p>3. Inspect stairways and handrails for corrosion, paint as required.</p> <p>4. Check ladders for security and check all rungs.</p> <p>5. Apply protective coating to exterior as needed.</p> <p>6. Inspect distribution systems for decay.</p> <p>7. Check drift eliminators and supports.</p> <p>8. Check all interior structural supports. Test columns and diagonal members for soundness.</p> <p>9. Check and clean all sumps.</p>	ANNUAL
C-10	<p><u>Cooling Tower, Cleaning</u></p> <p>1. De-energize, tag and lock out electrical systems.</p> <p>2. Ensure that there are safe and secure ladders and platforms to perform work.</p> <p>3. Pressure wash all horizontal and vertical interior surfaces.</p>	QUARTERLY
C-11	<p><u>Evaporative Condenser</u></p> <p>1. Check alignment of gear, motor and fan(s).</p> <p>2. Examine bearings, belts an pulleys for excessive wear.</p> <p>3. Check motor for excessive heat and vibration.</p> <p>4. Check motor starters. Check amps and voltage at operating load.</p>	ANNUAL
C-14	<p><u>Chain Hoist</u></p> <p>1. Inspect trolley bearings and lubricate.</p> <p>2. Inspect travel chain for wear.</p> <p>3. Inspect hook swivel for condition.</p> <p>4. Check safety latch on hook for condition and operation.</p>	ANNUAL
C-21	<p><u>Carts and Scooters</u></p> <p>1. Remove and clean battery terminals.</p> <p>2. Check electrolyte specific gravity.</p> <p>3. Add water as required.</p>	WEEKLY

	4. Check brakes, wheels, tires, steering, and frame.	
D-1	<u>Door, Power Operated</u> 1. Inspect general arrangement of door and mechanism, mountings, guides, wind locks, anchor bolts, and counter balance. Clean tighten and adjust as required. 2. Operate from stop to stop. Observe operation of various components, such as limit switch, brake, motor, gear box, etc.	SEMI-ANNUAL
D-3	<u>Drains, Roof and Gutter</u> 1. Remove all trash debris or unsecured material from roof. 2. Clean out all drains and gutters. 3. Test drains and/or downspouts by flushing with water.	SEMI-ANNUAL
D-6	<u>Drains: Areaway, Driveway, and Storm</u> 1. Remove grate if it exist. 2. Clean drain and area leading to drain. Remove debris and trash. 3. Test drain for free water flow by flushing with hose. 4. Replace grate.	ANNUAL
D-10	<u>Door, Manual and Overhead</u> 1. Check operation from open to closed. 2. Lubricate all moving parts. 3. Check operating chain for excessive wear.	ANNUAL
E-1	<u>Elevator, Electric or Hydraulic</u> Major service is contracted; insure that contractor is performing according to contract. 1. Perform fireman service test and sign log.	MONTHLY
E-17	<u>Expansion Joints in Piping</u> 1. Examine joint closely, look for evidence of displacement, loose or defective anchors or bolts. 2. Observe packing gland, adjust to stop weeping or leaks.	ANNUAL
E-18	<u>Emergency Lights</u> 1. Inspect for structural defects and deposits 2. Push test button and observe light operation. 3. Clean exterior with dry cloth	QUARTERLY
E-26	<u>Low Voltage Molded Case Circuit Breaker</u> 1. Visually inspect breaker for signs of cracking or overheating. 2. Tighten electrical contacts.	THREE YEAR
E-28	<u>Low Voltage Circuit Breaker (Over 50 Amps)</u> 1. Visually inspect for broken parts, contact arcing or any evidence of overheating. 2. Check line and load connections and heater mounting screws for tightness.	THREE YEAR
E-28	<u>Motor Starters (100 HP and up)</u> 1. Visually inspect for broken parts, contact arcing or any evidence of overheating. 2. Check line and load connections and heater mounting screws for tightness.	THREE YEAR
E-34	<u>Disconnects (Isolating Switch)</u> 1. Inspect for sign of overheating and loose or broken hardware. 2. Torque connections to bus and cable. Clean cubical with vacuum.	ANNUAL
E-35	<u>Motor Control Center</u> 1. Tighten all connections to main bus. 2. Inspect starter coils. Clean contacts, replace as required. 3. Inspect all interlocks and controls. Clean and lightly lubricate all friction points.	ANNUAL
E-36	<u>Automatic Transfer Switch</u> 1. Clean inside of switch cubicle. 2. Tighten all connectors checking for signs of overheating.	SEMI-ANNUAL
E-37	<u>Aluminum Bus Duct and Connectors</u> 1. Inspect and tighten all connections. 2. Inspect and clean insulators between bus bars. 3. Inspect along length of bus for hot spots which would indicate loose connections.	SEMI-ANNUAL
E-38	<u>High Voltage Air Circuit</u> This testing requires special equipment and should be contracted out. Contact testing company and schedule testing.	ANNUAL
E-40	<u>Emergency Generator</u> 1. Change engine oil and filter, and perform other lubrication of engine. 2. Inspect generator heaters. 3. Clean engine of excess oil and dirt.	ANNUAL
F-2	<u>Dry Pipe, Deluge and Pre-action Valves</u>	MONTHLY

	This service is performed by licensed contractor. Contact contractor and arrange service.	
F-2A	<u>Dry Pipe, Deluge and Pre-action Valves</u> Same as F-2	QUARTERLY
F-5	<u>Fire Pump (Motor or Engine Driven)</u> 1. Check for proper oil and coolant levels, fuel supply. 2. With valves in normal position start motor or engine. 3. Observe oil pressure or ammeter for normal operating range. 4. Run engine until coolant reaches normal operating temperature.	WEEKLY
F-6	<u>Fire Pump (Motor or Engine Driven)</u> 1. Alter environmental condition programmed to start pump. 2. Observe operation of pump for normal conditions.	MONTHLY
F-7	<u>Fire Pump</u> 1. Change crankcase oil. 2. Flush cooling system and check hoses, replace coolant. 3. Clean air and fuel filters, replace when needed.	ANNUAL
F-10	<u>Fire Department Pumper Connections</u> 1. Remove any obstructions. 2. Inspect for any corrosion or missing parts. Replace any missing parts.	ANNUAL
F-14	<u>Automatic Fire Detection or Alarm Devices</u> This service is performed by a licensed contractor. Contact contractor and arrange service.	QUARTERLY
F-15A	<u>Fire Alarm Control Panel</u> 1. Check standby batteries for signs of overcharging, heat, and leaks. 2. Test manual overrides electrically. 3. Clean interior of panel.	QUARTERLY
F-18	<u>Fire and Smoke Dampers</u> 1. Check that access door is reasonably air tight and latches. 2. Check operation of motorized damper control. Lubricate all friction points.	TWO YEARS
F-19	<u>Fire Hydrant</u> 1. Check for leaks at hose outlet. 2. Flush hydrant and check water flow. 3. Lubricate nozzle caps.	ANNUAL
F-24	<u>Fire Extinguisher Inspection</u> 1. Check that extinguisher is in designated place. 2. Check that extinguisher has not been activated or tampered with. 3. Check extinguisher for physical damage that would make prevent operation.	MONTHLY
F-25	<u>Fire Extinguisher System: Carbon Dioxide, Halon, Dry Chemical</u> This service is performed by a licensed contractor. Contact contractor and schedule service.	SEMI-ANNUAL
F-27	<u>Fan, Centrifugal</u> 1. Check blades for dust buildup, clean if necessary. 2. Check fan RPM to design specifications. 3. Check bearing collar set screws to make sure that they are tight. 4. Lubricate fan bearings and motor.	ANNUAL
F-29	<u>Filter, Roll Type, Disposable</u> 1. Remove old filter media roll and install new one. 2. Vacuum heavy accumulation of dust and debris. 3. Inspect for proper alignment and operation.	QUARTERLY
F-30	<u>Filter, Viscous Type</u> 1. Remove filters and replace with filters that have been cleaned and recoated.	QUARTERLY
F-32	<u>Filter, Throw Away</u> 1. Remove old filters. 2. Vacuum filter section of air handler. 3. Install new filters making sure direction of air flow is correct.	QUARTERLY
F-33	<u>Filter, Electrostatic</u> 1. Wash down each manifold until clean. 2. While filters are drying look for defects.	QUARTERLY
F-38	<u>Lightning Protection</u> 1. Inspect air terminals for corrosion. 2. Inspect grounding attachments. 3. Check loops and sharp bends for frayed conductors.	ANNUAL
F-39	<u>Cafeteria Exhaust Hood</u> This service is performed by a contractor. Contractor and schedule services.	ANNUAL

F-44	<u>Fountain, Memorial or Decorative</u> 1. Drain fountain. 2. Clean scale from heads. 3. Clean overflows and strainers. 4. Fill and observe operation	SEMI-ANNUAL
H-2	<u>Hot Water Heater, Gas</u> 1. Drain several gallons from tank to remove sediment. 2. Manually check operation of safety valve. 3. Check operation and setting of aqua stat. 4. Check pilot and burner assembly. Clean adjust nozzles for proper flame. 5. Check flue for proper draft.	ANNUAL
H-3	<u>Hot Water Heater, Electric</u> 1. Drain several gallons from tank to remove sediment. 2. Manually check operation of safety valve. 3. Check operation of aqua stat. 4. Check amperage draw of upper and lower elements. 5. Clean and tighten element connections.	ANNUAL
I-2	<u>Fan Coil Unit</u> 1. Check v-belt tension and condition. Adjust as needed or replace. 2. Replace disposable filter. 3. Lubricate bearings and motor. 4. Clean coils. 5. Clean strainers.	ANNUAL
L-1	<u>Lawn Mower and Edger</u> 1. Change engine oil and filter. 2. Service air and fuel filters.	SEMI-ANNUAL
L-2	<u>Loading Ramp, Adjustable</u> 1. Inspect structural features, framework, supports, anchor bolts, pit, platform, etc. 2. Inspect motor, controls, starter, push buttons, solenoids, etc. 3. Inspect cylinder, ram, packing glands, etc. 4. Change oil as required.	SEMI-ANNUAL
L-4	<u>Lighting, Outside</u> 1. Open and tag switch 2. Remove old lamp and clean fixture. 3. Inspect wiring, contacts, terminals and sockets. 4. Install new lamp. 5. Put back into service and test operation.	SEMI-ANNUAL
L-5	<u>Lawn Sprinklers</u> 1. Check nozzle and remove corrosion/encrustation. 2. Replace washers/or "O" rings. 3. Clean unit thoroughly and check for freedom of operation.	ANNUAL
M-3	<u>Motors</u> 1. Check ventilation ports for soil accumulation, clean if necessary. 2. Clean exterior of motor surface. 3. Lubricate bearings. 4. Perform thermal check on motor in operation.	ANNUAL
M-6	<u>Material Handling Equipment</u> This service is performed by contractor. Contact and schedule service.	SEMI-ANNUAL
P-4	<u>Pump, Centrifugal</u> 1. Check pump for normal operation observing any vibration or abnormal sounds. 2. Lubricate pump bearings. 3. Perform thermal imaging looking for above average heat.	ANNUAL
R-2	<u>Roof Inspection</u> 1. Check for debris and clean up. 2. Check for presence of leaks. 3. Check for wrinkles, exposed nails, bubbles, buckles sponginess. 4. Check seams on built up roofing. 5. Check all flashing.	SEMI-ANNUAL
R-5	<u>Refrigeration Machine, Centrifugal</u> This service is contracted. Notify and schedule contractor.	ANNUAL
R-13	<u>Non-Destructive Chiller Tube Analysis</u> This service is contracted. Notify and schedule contractor.	THREE YEARS
S-2	<u>Sewage Ejector</u> 1. Remove cover plate, flush pit and pump out.	ANNUAL

	<ol style="list-style-type: none"> 2. Clean pump and lubricate. 3. Inspect check valve. 4. Inspect interior of pit for cracks. 5. Inspect cover plate gasket and replace if necessary. 	
S-7	<u>Sump Pump</u> <ol style="list-style-type: none"> 1. Flush Pit and pump out. 2. Inspect and lubricate motor. 3. Inspect check valve. 	ANNUAL
W-8	<u>Water Treatment for Cooling Towers</u> <ol style="list-style-type: none"> 1. Test system for proper ph, total dissolved solids, conductivity, biological dosage level, scale and corrosion. 	MONTHLY
X-29	<u>Chemical Feeder</u> <ol style="list-style-type: none"> 1. Drain chemical from feeder into storage container. 2. Flush and clean feeder. 3. Remove agitator and clean shaft and propeller; lubricate as required. 4. Lubricate pump pistons. 5. Check operation of pressure relief valve. 	SEMI-ANNUAL