MAINTENANCE TECHNICAL SUPPORT CENTER
HEADQUARTERS MAINTENANCE OPERATIONS
UNITED STATES POSTAL SERVICE

Maintenance Management Order

SUBJECT: Guidelines for Creating Detailed Local Building and Building Equipment Maintenance Preventive Maintenance Checklists

DATE: August 12, 2019

NO: MMO-100-18

TO: All Maintenance Capable Sites

FILE CODE: M
wvol:mm18206ab

Online Change Record		
Change #	**Date**	**Description of Change**
1	8/14/2019	In Attachment 1, Paragraph 1, Table 1.1, Item, Hot Water Heaters Domestic Type; deleted (Gas or Oil Fired) In Attachment 2, Paragraph 4.10; deleted (Gas or Oil Fired) from the title

This Maintenance Management Order (MMO) **supersedes MMO-011-14** and provides local maintenance managers with guidelines to develop detailed Building and Building Equipment Maintenance Preventive Maintenance (PM) checklists. Attachment 1 provides a table listing equipment and corresponding PM guidelines. Attachment 2 provides the PM guides. Attachment 3 provides sample USPS Building Equipment Annual Staffing Workhour Requirement Forms.

The PM requirements and tasks in Attachment 2 provide the minimum required PM checks and frequencies that should be modified as necessary based on manufacturer's recommendations, local conditions, usage, or local ordinances. Ensure all required safety precautions including but not limited to Personal Protective Equipment (PPE), Electrical Work Program (EWP), local Energy Control Procedures (ECP), and Safety Data Sheet (SDS) are added to the locally developed PM checklists.

The development of a facility's Building and Building Equipment Maintenance (BEM) Plan depends on a complete and accurate inventory. All building equipment that is to be maintained must be identified and listed in the site staffing software application. Failure to accurately inventory the facility equipment may result in inadequate support resources. The site staffing projection for building equipment maintenance is derived and calculated within the staffing software application and is based on the building equipment inventory, maintenance standards, and frequencies. Station/Branch and Associate Office building equipment entered into the staffing software application does not count toward building equipment maintenance staffing hours because those facilities are maintained by Field Maintenance and associated staffing hours are calculated in a separate section of the staffing software application. Other equipment or building

systems supported by contract or other means, must be listed, but designated as “maintained by contract”.

Route scheduling within eMARS should be coordinated to allow inspection of numerous smaller simplistic components at the same time to minimize travel within the facility. For example: Perform the inspections of Steam Traps, Chilled Water Valves, other miscellaneous HVAC valves and Air Handler Units at the same time when feasible.

Direct any questions or comments concerning this bulletin to the MTSC HelpDesk, online at https://tickets.mtsc.usps.gov/login.php or call (800) 366-4123.

Frederick L. Jackson III
Manager
Maintenance Technical Support Center
HQ Maintenance Operations

Attachments:
1. Equipment Inventory Reference Table
2. Building and Building Equipment Preventive Maintenance Guides
3. USPS Building Equipment Annual Staffing Workhour Requirement Forms

Table of Contents

THIS PAGE BLANK

ATTACHMENT 1

EQUIPMENT INVENTORY REFERENCE TABLE

1.0. EQUIPMENT INVENTORY TABLE

Table 1-1. Equipment Inventory Reference Table

ITEM	eMARS ACRO.	PM GUIDE NO(S)
Air Compressors	AIR (1)	MISC-1
Air-Conditioning Machine Package Unit	HVACPKG	HVAC-1, HVAC-15
Air-Conditioning, Window Units	HVACPKG	HVAC-2, HVAC-15
Air Handlers	AHU	HVAC-4, HVAC-13, HVAC-14
Boilers, Cast Iron and Steel	BOILER	HVAC-6, HVAC-5, HVAC-7, HVAC-8
Burner, Gas	(2)	HVAC-7
Burner, Oil	(2)	HVAC-8
Coils, Preheat, Reheat, etc. (at remote locations)	HVACO	HVAC-9
Condensers, Air Cooled	COOL	HVAC-3, ELEC-1
Condensers, Evaporative	COOL	PLUM-7, ELEC-1
Controls and Mechanisms for Roll-type Filters	HVACO	HVAC-14
Cooling Towers	COOL	HVAC-11, HVAC-12, ELEC-1
Dock Boards (also see Loading Ramp)	DOCKS	MISC-8, MISC-16
Doors, Main Entrance (non-powered)	DOOR	MISC-7
Doors, Main Entrance and Dock, Power Operated	DOOR	MISC-6
Drinking Water Coolers	PLUMB	PLUM-13
Fans, Centrifugal (Exhaust or Return Air)	HVACO	HVAC-12
Fans, Propeller, Pedestal or Wall-Mounted	HVACO	HVAC-16
Floor Scrubber, Automatic	BLDG	MISC-18
Filters, Roll Type, Disposable Media	FILTER	HVAC-13, HVAC-14
Filters, Throw Away	FILTER	HVAC-15
Fire Dampers (In Duct)	EMSYS	HVAC-24
Fire Doors - Sliding Type	DOOR	MISC-10
Fire Doors - Swinging Type, Stairwells and Exit ways	DOOR	MISC-9
Fire Extinguisher	EMSYS	PLUM-1
Generators, Emergency, Gasoline or Natural Gas Engines	EMSYS	ELEC-2, ELEC-3, ELEC-4
Heaters, Baseboard, Electric	HVACO	HVAC-21
Heaters, In Duct, Electric	HVACO	HVAC-20
Heaters, Unit, Gas-fired	HVACPKG	HVAC-23
Heaters, Unit, Steam or Hot Water	HVACO	HVAC-22
Heating/Cooling Units, Package Unit	HVACP	HVAC-17
Hot Water Heaters, Converters (Industrial)	PLUMB	PLUM-9, ELEC-1, PLUM-7
Hot Water Heaters, Domestic Type	PLUMB	PLUM-10, ELEC-1, PLUM-7
Lawnmowers and Edgers (Gasoline powered)	BLDG	MISC-2
Lifts, Power	DOCKS	MISC-14
Loading Ramps, Adjustable	DOCKS	MISC-8
Motors, Over 5 HP	MOTOR	ELEC-1
Paper Baler	BALER	MISC-4
Pumps, Centrifugal (Not Integral with Motor)	PUMP	PLUM-7, ELEC-1
Pumps, Condensate or Vacuum	PUMP	HVAC-10

ITEM	eMARS ACRO.	PM GUIDE NO(S)
Pumps, Sump (Sewage or Life)	PLUM	PLUM-2
Refrigeration Machines (Absorption type)	HVACA	HVAC-18, ELEC-1, PLUM-18
Refrigeration Machine (Centrifugal and Reciprocating)	COOL	HVAC-19, ELEC-1, PLUM-7
Roof, Inspection: Roof work should only include periodic visual inspection. Any required roof repairs need to be considered under and coordinated through the National Roof Contract. Note: (all roof types included)	ROOF	PLUM-8
Hot Water Heaters – Domestic	PLUMB	PLUM-10
Snow Blower - Walking Type	BLDG	MISC-15
Stationary Packers	BLDG	MISC-11, MISC-12, MISC-13
Sweepers Electric (Battery)	BLDG	MISC-17
Sweepers (Gasoline Powered)	BLDG	MISC-3
Traps, Steam (All Types)	BOILER	PLUM-6
Valves, Manually Operated (Mainline or Critical - over 2 in)	VALVE	PLUM-4
Valves, Motor Operated	VALVE	PLUM-5
Valves, Regulating (Steam)	VALVE	PLUM-3
Fire Pumps, Electric Motor Drive	PLUMB	PLUM-11
Fire Pumps, Internal Combustion Engine Drive	PLUMB	PLUM-12

1. Include Unfired Pressure Vessel (UPV), if applicable.
2. Use acronym for equipment or system on which this item is installed.

When creating an Equipment Record in the eMARS Equipment Module, the Site will generate one record for each piece or type of equipment depending on the specific equipment.

ATTACHMENT 2

BUILDING AND BUILDING EQUIPMENT

PREVENTIVE MAINTENANCE (PM) GUIDES

1.0. GUIDE SET HVAC

1.1. GUIDE NUMBER HVAC-1: AIR-CONDITIONING MACHINE PACKAGE UNITS

Frequency: Annual

Special Instructions: Observe current local ECP.

1. Remove panels. Clean entire unit.
2. Clean drip pans and drains. Check for corrosion.
3. Replace worn belts and adjust proper tension.
4. Lubricate motor(s) and fan(s) bearings.
5. Check motor alignment and verify hardware is tight.
6. Change filters with USPS approved products.
7. Operate unit and check for proper cooling.
8. Check thermostat.
9. Check fan and motor. Clean fan blades, motor, and lubricate bearings.
10. Run machine and check operation, water supply and control valves, suction and discharge pressures, need for refrigerant; recheck for leaks, functioning of controls, temperature of discharge, air, etc.
11. Restore panels and clean up area and machine.
12. Identify and report any deficiencies.

1.2. GUIDE NUMBER HVAC-2: AIR-CONDITIONING, WINDOW UNITS

Frequency: Annual

Special Instructions: Observe current local ECP. Review manufacturer instructions.

1. Remove necessary covers.
2. Clean condenser, cooling coil fins, and fans where accessible.
3. Remove dirt or dust from accessible interior parts.
4. Replace or clean filter.
5. Replace covers that were removed, if necessary.
6. Clean area.
7. Start unit and observe operation.

1.3. GUIDE NUMBER HVAC-3: AIR-COOLED CONDENSERS

Frequency: Annual

Special Instructions: Observe current local ECP.

1. Vacuum dirt on coils and fins.
2. Inspect and service unit following manufacturer recommendations.
3. Identify and report any deficiencies.

1.4. GUIDE NUMBER HVAC-4: AIR HANDLERS

Frequency: Annual

Special Instructions: Observe current local ECP.

1. Fans
   a. Clean and inspect fan blades.
   b. Clean and inspect fan housing.
2. Bearings

Lubricate bearings following manufacturer recommendations. Do not over lubricate bearings.

3. Drives (Belt and Direct)
   a. Inspect for excessive belt wear indicating misalignment, overloading, or improper belt tension.
   b. If belts are worn, they should be replaced to prevent untimely breakdown. Multi-belt drives should be replaced in matched sets. Adjust belt tension as necessary.
   c. Check couplings for alignment on direct drives and for tightness of assembly.
4. Coils
   a. Examine coils for leakage and debris.
   b. Clean coil exterior using manufacturer’s recommendations.
5. Freeze Protection
   a. Check pitch of coil to drainage point.
   b. Inspect test controls and devices used for freeze protection.
   c. Clean face and lubricate following manufacturer recommendation.
6. Controls
   a. Inspect and clean dampers, control linkage, and control motors following manufacturer recommendation.
   b. Lubricate as necessary following manufacturer recommendation.

1.5. GUIDE NUMBER HVAC-5: BOILERS, OIL FIRED

(Cleaning fireside only)

Frequency: Annual

Application: This is to provide for fireside cleaning to remove soot and maintain high efficiency.

Special instructions: Allow boiler to cool, lock out power to oil pumps and blowers, and close and lock out valves. Observe current local ECP. Ensure all safety requirements are followed.

1. Clean soot from chamber, tubes, and all heat transfer surfaces.
2. Look for signs of overheating, leakage, wear, abrasion, corrosion of pressure parts, or erosion of metal.
3. Clean or replace burner nozzle as necessary.
4. When unit is returned to service, check and adjust burner for optimum combustion efficiency.
5. Identify and report any deficiencies.

1.6. GUIDE NUMBER HVAC-6: BOILERS, CAST-IRON AND STEEL

Frequency: Annual

1. General
   a. Remove boiler from service. Take proper safety precautions before working inside boiler, including tagging of valves and controls, and letting boiler cool down.
   b. Remove fly ash and soot from flue passages.
   c. Check fire sides, valves, and trim, and report any leaks.
2. Water Sides
   a. Clean gauge glass and siphon loops to limit controls.
   b. See that petcocks and try cocks open freely.

If internal inspection is required:

   a. Remove hand-hole and man-hole plates.
   b. Clean interior of boiler, wash down shell and drums to remove mud, loose scale, and deposits.
   c. Turbine tubes: check tube ends for leakage and corrosion.
   d. Identify and report any deficiencies.
3. Exterior and Fire Sides
   a. Examine and clean water column and feed water regulators, high and low side alarms, drains, gauge glasses, siphon loops, petcocks, and try cocks.
   b. Look for signs of overheating, leakage, wear, abrasion; corrosion of pressure parts, or erosion of metal.
   c. Check tubes for evidence of blisters and pock marks.
   d. Check condition of all refractories for cracks, erosion, and caulk. Also check expansion joints, baffles, dampers and actuating mechanisms, stay-bolts, etc.
   e. Test all non-return and stop valves. Clean and replace as necessary.
   f. Check fusible plugs, if used. Replace yearly.
   g. Check and clean bonnets, flues, and uptakes for defective metal. Replace if necessary.
   h. Check exterior structure for strains and tension.
   i. Clean and lubricate forced-draft fan.
   j. Check condition of door gaskets.
   k. Carefully account for all tools before closing up boiler.
4. Identify and report any deficiencies.

1.7. GUIDE NUMBER HVAC-7: BURNER, GAS

Frequency: Annual

1. Check boiler room for adequate ventilation in accordance with AGA burner requirements.
2. Check operation of all gas controls and valves.
3. Check flue connections for tight joints and minimum resistance to airflow. Ensure combustion chamber, flues, breeching, and chimney are clear before firing.
4. Ensure draft regulators give slightly negative pressure in the combustion chamber at maximum input.
5. On forced-draft burners, gas manifold pressure requirements should correspond with modulating (butterfly) valve in full-open position and stable at all other firing rates.
6. Take CO2 flue gas temperature readings for determination of efficiency of the unit. CO2 for atmospheric gas burners should be 8 to 9.5%; for forced draft burners 9 to 10%. Determine combustion efficiency according to instructions with flue gas test apparatus. Combustion efficiency should be at least 80%. If efficiency is low, check baffling.
7. Check burner for flashback and tight shutoff of fuel.
8. Check operation of controls. Clean and adjust if necessary.
9. Ensure unit operates properly when adjustments are set per manufacturer instructions.
10. Identify and report any deficiencies.

1.8. GUIDE NUMBER HVAC-8: BURNER, OIL

Frequency: Annual

1. Test and inspect burner (with or without firing) at rated pressure for leaks.
2. Timed trial for ignition for pilots and burners should be in accordance with manufacturer instructions.
3. Check operation of automatic safety controls and combustion flame safeguards for abnormal discharge of oil on ignition failure, and sensors for presence of flame.
4. Check pre-ignition purging capability of burner, combustion chamber, boiler passes, and breeching. Stack dampers should be fully open during purge and light-off period.
5. Check delivery of fuel in relation to its response to the ignition system. Examine electrodes for carbon buildup, dislocation, distortion, and burning of parts.
6. Ensure ignition transformer provides dependable arc. Adjust and regulate as required for clearance and air gap.
7. Clean and adjust draft regulator and air shutter on a natural draft burner to ensure excess air quantities are minimal for complete combustion. Test with gas analyzer.
8. On mechanical draft burners clean and check power-driven fan blower.
9. Check forced-draft fan, clean fan and fan housing, check bearing, pulleys, and belts for wear and lubricate as necessary.
10. Check and clean filters, water separators, and primary and secondary strainers.
11. Clean, check operation, and adjust controls and safeties.
12. Burners designed to change firing rates automatically should be checked for adequate proportioning changes in fuel and air rates.
13. Check constant level device to see that burner maintains proper oil level (within 1/3") at rated output.
14. Ensure energy cannot feedback and energize ignition devices or feed valves after a control shuts off burner.
15. Replace nozzles and check for tight shutoff of fuel.
16. Check stacks for smoke or haze and adjust burner accordingly.
17. Take CO2, O2, and smoke readings. Compare CO2 and flue gas temperature for determination of boiler burner efficiency. CO2 should be 9 to 12%. Combustion efficiency should be at least 80%. Determine combustion efficiency according to instructions with flue gas test apparatus.
18. Identify and report any deficiencies.

20. **GUIDE NUMBER HVAC-9: COILS, PREHEAT, REHEAT, ETC. (REMOTE FROM AIR** Handler)

Frequency: Annual

Application: This guide applies to coils that are not part of an air-washer or air-handling unit.

1. Vacuum the fins, coils, etc.
2. Remove obstructions to airflow.
3. Check coils. Repair or report any leaks.
4. Test and inspect controls that protect against freezing.
5. Identify and report any deficiencies.

1.9. GUIDE NUMBER HVAC-10: CONDENSATE OR VACUUM PUMPS (ON STEAM RETURN SYSTEM)

Frequency: Annual

1. Operate unit to check for steam binding.
2. Check condensate temperature. Temperature should be approximately 30 degrees F. below steam temperature if traps are not leaking.
3. Examine flanges for steam leaks.
4. Pump receiver down.
5. Turn condensate to sewer.
6. Shut down unit.
7. Clean receiver.
8. Clean and adjust motor float switch and float operation on high-low water level. Inspect pressure switches.
9. Clean and examine receiver, vent pipe, inlet, and discharge openings for excessive corrosion. Report condition.
10. Check alignment of coupling with straight edge.
11. Lubricate pump and motor.
12. Adjust packing glands and change packing when necessary.
13. Examine vacuum breaker operation.
14. Inspect ball floats, rods, and other linkage. Adjust as necessary.
15. Identify and report any deficiencies.

1.10. GUIDE NUMBER HVAC-11: COOLING TOWERS

Frequency: Annual

Special Instructions: Observe current local ECP. Perform annual maintenance after cooling season.

1. Drain and flush down tower. Remove trash, dirt, and algae from pans, casings, fill, and screens.
2. Check structural members of tower for deterioration.
3. Replace tower fill material as needed.
4. Examine water nozzles for obstructions and proper water distribution.
5. Drain and replace lubricant in gear box.
6. Check alignment of motor to gear to fan.
7. Inspect motor, motor starter, belts, etc., for proper operation.
8. Clean and check operation of the water treatment equipment.
9. Fill tower. Adjust bleed float level. Charge with water treatment chemicals.
10. Identify and report any deficiencies.

1.11. GUIDE NUMBER HVAC-12: FANS, CENTRIFUGAL

Frequency: Annual

Special Instructions: Observe current local ECP.

1. Check over unit thoroughly. Look for signs of rust, corrosion, or deterioration. Inspect interior of housing, if there are openings to do so.
2. Check insulation; repair if needed.
3. Check bearings, shaft, pulley, and alignment with motor. If vibration is excessive, check balance of rotor.
4. Perform required lubrication.
5. Check belts; adjust tension, or replace as required.
6. Vacuum windings, if necessary.
7. Clean complete unit, including fan rotor.
8. Identify and report any deficiencies.

1.12. GUIDE NUMBER HVAC-13: FILTERS, ROLL-TYPE DISPOSABLE MEDIA

Frequency: 4 times annually (quarterly)

Application: To inspect roll filter media.

Special Instructions: Observe current local ECP.

1. Check filter media roll.
2. Replace filter media roll as needed utilizing the work order process.

1.13. GUIDE NUMBER HVAC-14: CONTROLS AND MECHANISMS ROLL TYPE FILTERS

Frequency: Annual

Special Instructions: Review manufacturer instructions. Observe current local ECP.

1. Inspect framework and structure. Look for loose or missing bolts, air leaks, condition of flashing or caulking, etc.
2. Inspect all moving parts for proper alignment, freedom of motion, excessive clearance or play, etc. Clean, adjust, or tighten as necessary.
3. Inspect powered roll and take up roll for correct tracking of media. On manual operation check wheel or hand crank.
4. On motor drives, check pressure sensing device(s) and/or pressure switches. Test settings for starting and stopping motor.
5. Inspect motor, starter, controls, and selector switch for auto warning or indicator lights.
6. Check oil in gear case. Change or replenish as required. Perform required lubrication.
7. Identify and report any deficiencies.

1.14. GUIDE NUMBER HVAC-15: FILTERS, THROW-AWAY

(Includes package units)

Frequency: 4 times annually (quarterly)

Special Instructions: Observe current local ECP. Change filters when the static pressure approaches the design maximum for the unit.

1. Remove and discard old filters.
2. Clean frame with vacuum.
3. Inspect frame, doors, etc.
4. Install new media.

1.15. GUIDE NUMBER HVAC-16: FANS PROPELLER,

Frequency: Annual

Special Instructions: This guide is for the large fans used in the workroom or other areas to provide air circulation. Observe current local ECP, and ensure all safety requirements are followed.

1. Disconnect from electric power and clean entire unit including the blade and motor.
2. Examine line cord for frayed insulation or evidence of deterioration if applicable.
3. Wrench test blade set-screw, motor mount bolts, and blade guard mounting bolts to verify tightness.
4. Lubricate unit and clean up excess lubricant.
5. Operate unit and check for excess vibration and unusual noise.

1.16. GUIDE NUMBER HVAC-17: HEAT/COOLING UNIT, ROOF TOP

Frequency: Semiannual

Special Instructions: Observe current local ECP. This applies to roof top heating/cooling units, which are gas-fired heating, and having air-cooled condenser. Ensure all safety requirements are followed.

1. Remove panels. Clean entire unit.
2. Clean drip pans and drains.
3. Replace worn belts and adjust for proper tension.
4. Clean fans.
5. Lubricate motor(s) and fan(s) bearings.
6. Check alignment of motor and tighten.
7. Change filters.
8. Identify and report any deficiencies.

1.16.1 SPRING

1. Clean evaporator and condenser coils.
2. Operate unit and check refrigeration. Charge unit as required.
3. Check thermostat.

1.16.2 FALL

1. Clean and check heat exchanger for leaks.
2. Check gas train and safety controls for adequate and proper operation.
3. Adjust pilot or electronic ignition device.
4. Set burner for maximum combustion efficiency.

1.17. GUIDE NUMBER HVAC-18: REFRIGERATION MACHINES, ABSORPTION TYPE

Frequency: Annual

Special Instructions: Consult operating data to determine the temperature difference across the various system components as a guide to determining the condition of the evaporator and condenser tubes.

1. Evaporator Circuit
   a. Check and service evaporator pump, motor controls, starters, etc. Lubricate as prescribed.
   b. Clean and flush out seal, water tank seal chamber, and associated lines.
   c. Check purge valve diaphragm. Replace if necessary.
   d. Inspect ball in check valve.
   e. Inspect and clean evaporator spray header, nozzles, etc. Replace defective units.
   f. If operating data indicated the refrigerant temperature is slowly rising, test sample for the presence of solution. If excessive, follow manufacturer instructions for distilling refrigerant.
2. Solution Circuit
   a. Check and service solution pump, motor controls, starters, etc. Lubricate as prescribed.
   b. Check absorber and generator sight glasses. Replace if required.
   c. Check purge valve diaphragm. Replace if required.
   d. Inspect and clean solution spray nozzles. Replace defective units.
3. Condenser Circuit
   a. Clean condenser water tubing in the condenser and absorber. Use nylon brush or other soft material.
   b. Allow condenser water tubing to dry to determine if scale exists. Have scale chemically tested if necessary. Acid clean if necessary and flush.
4. Purge System
   a. If purge system indicates the system is not tight, follow manufacturer recommendations for removing solution and for leak testing.
   b. Clean purge tank, and purge with water following steps prescribed by the manufacturer.
   c. Change oil, in purge pump, when it becomes contaminated or emulsified.
   d. Inspect discharge valve and oil distributor rubbers; renew if necessary.

5. Controls
   a. Check adjustment of pressure-control, restrictor, high level cutout, and low temperature cutout.
   b. Check all control interlocks for proper operation.
   c. Check capacity control valve, linkage, and stem. Lubricate according to manufacturer instructions.
   d. Identify and report any deficiencies.

1.18. GUIDE NUMBER HVAC-19: REFRIGERATION MACHINES (CENTRIFUGAL AND RECIPROCATING)

Frequency: Annual

Special Instructions: Observe current local ECP.

1. Compressor
   a. Take sample of oil and have analyzed for acid and metal content. Record the results of the analysis in the eMARS equipment record. Drain, flush, and change oil in reservoirs including filters, strainers, and traps. Do not change oil in reciprocating machines, unless contaminated.
   b. Clean and inspect main and auxiliary oil pumps, including packing, seals, alignment, pulleys, belts, and couplings.
   c. Check speed increaser. Drain oil from gear box. Flush and inspect gears for indication of wear, pitting, and misalignment.
   d. Remove head from oil coolers, inspect and clean tubes as necessary. Change oil filters.
   e. Refill oil sump.
   f. Remove access caps to compressor internals, and clean where possible.
   g. Clean and adjust pilot positioner for guide vanes.
   h. Examine bearing for clearances and wear.
   i. Clean and lubricate coupling.
   j. Check hot and cold alignment between drive and driven compressor.
   k. Check all relief valve rupture discs.
   l. Test entire system for refrigerant leaks.
   m. Calibrate and adjust all gauges and instruments. Calibrate the chilled water inlet and outlet thermometers together by placing the sensing element in a container of melting ice and water. This provides a 32 degrees Fahrenheit temperature for calibration purposes.
   n. Check safety controls for setting operation; tighten electrical connections, and clean when necessary.
   o. Review manufacturer literature for further details on service required on compressor.
   p. Perform maintenance on purge unit in accordance with manufacturer instructions.
2. Chiller
   a. Review chiller performance records. (Inlet and outlet chilled water temperature and refrigerant temperatures).
   b. If efficiency is reduced, inspect for control malfunction or sensing element failure.

c. Systems requiring minimum or no raw water make-up should be drained and inspected only in emergencies. The pH should be maintained between 7 and 8. To determine that the system is tight, disconnect automatic make-up water system and feed by hand. Frequency for cleaning on such systems should be once every five years. **Note**: New installations must be cleaned after one year of operation.

d. Clean tubes with nylon brush or similar material.

e. Blow tubes free of trapped water if unit is to be exposed to freezing temperatures.

f. Replace heads. Install new gaskets.

g. Treat water to control corrosion.

3. Water-Cooled Condensers

a. Review condenser performance by inlet and outlet temperatures, head pressure, and temperature of refrigerant.

b. Remove condenser heads.

c. Remove mud, debris, scale, and other sediment collected during operation.

d. Clean water boxes and tube sheets.

e. Clean tubes with nylon brush or other similar material, and inspect for signs of corrosion.

f. Blow trapped water from tubes after cleaning if unit is exposed to freezing temperature.

g. Replace heads. Install new gaskets.

h. Chemically test scale, if necessary.

i. If condenser is chemically cleaned, neutralize after cleaning.

1.19. GUIDE NUMBER HVAC-20: HEATER, ELECTRIC, IN-DUCT

Frequency: Annual

1. Vacuum all dust and dirt from coils.
2. Remove airflow obstruction.
3. Visually inspect for cracked or broken insulators, distorted or burned coils, and loose connections. Replace as needed.
4. Inspect operating contacts and replace if needed.

1.20. GUIDE NUMBER HVAC-21: HEATER, ELECTRIC, BASEBOARD

Frequency: Annual

1. Remove cover; clean coil, fins, and cover grille with vacuum.
2. Replace cover.

1.21. GUIDE NUMBER HVAC-22: UNIT HEATERS (STEAM AND HOT WATER)

Frequency: Annual

1. Clean strainer ahead of valve. Check valve head and seats for wear and cutting.
2. Replace valve(s) as necessary.
3. Steam quality should be examined for foreign matter if valves are being damaged.
4. Examine pilot lines for dirt.
5. Check steam gauges.
6. Check safety or pressure relief valve for relieving and seating.
7. Check diaphragms for failure.
8. Check binding of valve stem.
9. Clean and adjust heater deflector fins and element.
10. Clean fan and lubricate motor.
11. Adjust weighted lever or spring-control tension.
12. Identify and report any deficiencies.

1.22. GUIDE NUMBER HVAC-23: UNIT HEATERS (GAS FIRED)

Frequency: Annual

Special Instructions: Observe current local ECP. Ensure all safety requirements are followed. For infrared units follow manufacturer recommendations.

1. Clean and adjust heater deflector fins and element.
2. Clean fan and lubricate motor.
3. Clean burner, chamber, thermo-couple, and control.
4. Adjust pilot or electric ignition device.
5. Inspect vent and damper operation.
6. Remove lockout from unit.
7. Operate unit and adjust burner.
8. Check operation of safety pilot, gas shutoff valve, and other burner safety devices.
9. Identify and report any deficiencies.

1.23. GUIDE NUMBER HVAC-24: FIRE DAMPERS (IN-DUCT)

Frequency: Annual

Special Instructions: Fusible link must never be replaced with wire. On first inspection, make sure that the damper is not installed backwards. In all cases, the air movement should tend to close damper.

1. Determine that the access door is reasonably airtight and latches properly.
2. If damper is closed, check for ruptured fusible links, broken attachment or hinge damage, corrosion, etc.
3. Remove fusible link and check for proper rating.
4. Determine that damper is self-closing and properly latches. Adjust if necessary.
5. Lubricate friction points, and exercise damper to ensure complete freedom of movement.
6. Each year, install new fusible links of proper rating and tensile strength in areas of vibration.
7. Reinstall fusible link (locations where vibration is not a problem).
8. Close access door and check for wind noise.

2.0. GUIDE SET ELEC

2.1. GUIDE NUMBER ELEC-1: MOTORS

Frequency: Annual

Application: This guide is for squirrel-cage, wound-rotor, and synchronous motors in excess of 5 horse power. The maintenance specified by this guide is not intended to require disassembly of the motor.

Special Instructions: Obtain and review manufacturer instructions. Observe current local ECP.

1. Clean motor with a clean rag or vacuum.
2. Perform lubrication according to manufacturer instructions.
3. Inspect for moisture and protection from water.
4. Check motor mountings, supports, and couplings for tightness or defects.
5. Identify and report any deficiencies.

2.2. GUIDE NUMBER ELEC-2: BACK-UP GENERATOR- GAS OR NATURAL GAS ENGINES

Frequency: Annual

Special Instructions: This task applies to fixed generators only. If local staff does not have appropriate skills for steps below, this maintenance task should be contracted. Have approved type fire extinguishers readily available. Do not allow open flames or smoking in area. Use safety-type fuel cans only. Review manufacturer instructions.

1. Set distributor point dwell. Replace points, capacitor, rotor, and spark plugs after 100 hours of operation.
2. Set timing and distributor advance. Timing should be set at both idle and operating speed of generator.
3. Adjust carburetor and governor for proper operating speed.
4. Check fuel supply. Replace fuel within the manufacturer recommendations.
5. Change engine oil and filter, and perform other lubrication of engine and generator.
6. Inspect cooling system for leaks, air obstructions, V belt tension, and proper antifreeze solution. Make needed adjustments.
7. Inspect generator winding and clean if needed.
8. Clean commutator and collector rings; check brush wear and tension in accordance with manufacturer instructions.
9. Inspect generator heaters.
10. Identify and report any deficiencies.

2.3. GUIDE NUMBER ELEC-3: EMERGENCY GENERATORS - DIESEL POWER

Frequency: Annual

Special Instructions: This task applies to fixed generators only. If local staff does not have appropriate skills for steps below, this maintenance task should be contracted. Have approved type fire extinguishers readily available. Do not allow open flames or smoking in area. Use safety-type fuel cans only.

1. Change fuel filters.
2. Inspect and adjust rack on unit injector or fuel distributor pump according to manufacturer instructions.
3. Check governor. Adjust for correct speed.
4. Determine fuel level, drain water from tank, and inspect for contamination. Prior arrangements should be made for local procurement of fuel in emergencies.
5. Change engine oil and filter, and perform other lubrication on engine and generator.
6. Inspect cooling system for leaks, air obstructions, V belt tension, and proper antifreeze solution. Make needed adjustments.
7. Inspect generator winding, and clean if needed.
8. Clean commutator and collector rings. Check brush wear and tension in accordance with manufacturer instructions.
9. Inspect generator heaters.
10. Identify and report any deficiencies.

2.4. GUIDE NUMBER ELEC-4: EMERGENCY GENERATORS – ALL TYPES OF ENGINES

Frequency: Monthly

Application: This guide provides for the operation test of emergency generators.

Special Instructions: Check fire extinguishers for location and type. Allow no open flames or smoking in the area. Use only safety type fuel cans. Obtain and review manufacturers instructions and specifications.

Checkpoints:

1. Drain condensate from bottom of fuel tank and check fuel for quantity and contamination.
2. Check engine oil level
3. Check coolant level and inspect for leaks. Inspect engine air cleaner; replace if dirty
4. Test and determine specific gravity of starting batteries. Clean terminals. Set proper charge rate after generator has been operated.
5. Examine generator for moisture and/or dirt.
6. Start and operate under full load for 1 hour. It is important that the unit be operated under load. If a portion of the building load cannot be connected, a resistance load should be used.
7. While the unit is operating, thoroughly observe operation for indication of defects or possible malfunctions.
8. After unit has operated for 50 minutes, log the operation to show at least the following information: engine and generator speed in RPM, operating voltage, operating amperes, engine temperature, engine oil pressure, and hour meter readings.
9. After unit has been operated, check lubricant and coolant according to manufacturer’s instruction to assure it will be ready to operate in an emergency.
10. Report any needed repairs or observed defects.

3.0. GUIDE SET MISC

3.1. GUIDE NUMBER MISC-1: AIR COMPRESSORS

Frequency: Annual

Special Instructions: Review manufacturer instructions.

1. Test the pressure gauge(s) and cutout and cut-in pressure. Use test gauge to test accuracy of gauge on machine. Gauge should be within 10%.
2. Check safety valve.
3. Tank to be inspected and tested by qualified inspector.
4. On two-stage compressor(s), check intermediate pressure.
5. Listen for knocks, and inspect for mechanical failures.
6. Test compression; correct or repair as necessary.
7. On water-cooled compressor(s) check for corrosion.
8. Clean moisture traps in system. Check operation of timed-moisture-release system, if so equipped.
9. Change oil in crankcase.
10. Check controls, belts, pulleys, alignment, etc.
11. Check air-cooled heat exchanger.
12. Check motor, bearings, starting switches, controller, pressure switches, etc.
13. Clean equipment.
14. Comply with lubrication schedule.
15. Identify and report any deficiencies.

3.2. GUIDE NUMBER MISC-2: LAWNMOWERS AND EDGERS

Frequency: Semiannual

Application: Gasoline-powered, hand-operated, rotary mowers, and edgers.

Maintenance should be scheduled once a season. Routine daily lubrication should be accomplished by operator.

1. Change engine oil. Oil should be changed, and gasoline drained at end of season prior to storing up unit for winter.
2. Service air and fuel filters.
3. Sharpen or replace cutting blade.
4. Clean and gap or replace spark plug.
5. Inspect unit, clean debris from cooling air passages, and make other needed adjustments.

3.3. GUIDE NUMBER MISC-3: SWEEPERS (GASOLINE)

Frequency: 2 – 6 times Annually

Special Instructions: Review manufacturer maintenance recommendations.

Application: Gasoline or gas powered riding type sweepers used in driveways, parking lots, sidewalks, etc. Daily lubrication should be accomplished by the operator.

1. Change oil, and change or clean filter, as appropriate, every fifty operating hours.
2. Service air and fuel filters.
3. Inspect engine, clean cooling air passages.
4. Clean and gap, or change spark plug.
5. Check oil level in gear boxes.
6. Adjust tension and/or replace V-belts.
7. Adjust brakes, brushes, and operating mechanisms as recommended by the manufacturer instructions.
8. Inspect entire unit.
9. Identify and report any deficiencies.

3.4. GUIDE NUMBER MISC-4: PAPER BALERS

Frequency: Annual

Special Instructions: Observe current local ECP.

1. Dust or wipe clean all parts of machine. Examine structural features.
2. Inspect upper and lower limit switch, etc. Clean and adjust as required.
3. Check drive unit, mechanical features, and all moving parts.
4. Comply with lubrication schedule recommended by manufacturer.
5. Adjust operating mechanism.
6. Identify and report any deficiencies.

3.5. GUIDE NUMBER MISC-5: DOORS, POWER OPERATED

Frequency: Semiannual

Application: Warehouse or large overhead doors.

Special Instructions: Review manufacturer instructions.

1. Inspect general arrangement of door and mechanism, mountings, guides, wind locks, anchor bolts, counter-balances, weather stripping, etc. Clean, tighten, and adjust as required.
2. Operate with power from stop to stop and at intermediate positions. Observe performance of various components, such as brake, limit switches, motor, gearbox, etc. Clean and adjust as needed.
3. Check operations of electric eye, treadle, or other operating devices.
4. Check manual operation. Note brake release, motor disengagement, functioning or hand pulls, chains, sprockets, clutch, etc.
5. Examine motor, starter, push button, etc. Vacuum if required.
6. Inspect gearbox. Change or add oil as required.
7. Perform required lubrication.
8. Clean unit and mechanism thoroughly.
9. Identify and report any deficiencies.

3.6. GUIDE NUMBER MISC-6: DOOR, POWER-OPERATED MAIN ENTRANCE AND DOCK

Frequency: Quarterly

1. Check alignment of door and mechanism. Inspect mountings, hinges, mats, trim, weather stripping, etc. Replace, tighten, and adjust as required.
2. Operate with power, observing operating of actuating and safety mats, door speed, and checking functions.
3. Check manual operation.
4. Inspect power unit, add oil, and tighten hydraulic lines as required.
5. Check operation of controls.
6. Inspect door-operating unit, tighten lines, and adjust as required.
7. Clean and lubricate door pivot points.
8. Identify and report any deficiencies.

3.7. GUIDE NUMBER MISC-7: DOORS, MAIN ENTRANCE

Frequency: Semiannual

Application: Entrance doors used in main entries to buildings.

3.7.1 Hinged Doors

1. Inspect the frame and supporting structure.
2. Inspect hardware; hinges, latch keeper, lock, etc. Apply appropriate lubricant where needed; wipe off excess.
3. Inspect glass, seals, or retaining pieces. Correct any deficiencies.
4. Operate door to observe functioning of check. Adjust and service as needed.
5. Identify and report any deficiencies.

3.7.2 Revolving Doors

1. Remove obstructions and clean out track.
2. Fold door. Note action and freedom of motion.
3. Inspect locking device; adjust as needed.
4. Clean pivot points and apply appropriate lubricant.
5. Inspect felt or rubber seals.
6. Identify and report any deficiencies.

3.8. GUIDE NUMBER MISC-8: DOCK LEVELERS, POWERED

Frequency: Quarterly

Special Instructions: Observe current local ECP. Review manufacturer instructions.

Safety: Block dock levelers in up position with an approved device.

1. Inspect structural features, framework, support members, anchor bolts, pit, platform, etc. Examine condition of bumper.
2. Remove dirt and trash from pit, and verify pit drain is open.
3. Inspect motor, controls, starter, pushbuttons, solenoids, etc. Clean, adjust, and lubricate as necessary.
4. For hydraulic units:
   a. Inspect coupling, pump, control valves, piping, relief valve, reservoir, fill pipe, cap, vents, etc. Clean adjust, and lubricate as needed.
   b. Inspect cylinder, ram, packing glands, etc. Add or renew packing as required.
   c. Change oil as required.
5. For electro-mechanical and air bag units:
   a. Clean and inspect air bag, coupling, reduction gear, sprockets, chain, gear trains, screw and lever, and/or other mechanical features. Look for misalignment, loose bolts, evidence of binding or wear, excessive clearance, etc. Tighten as necessary.
   b. Examine lubrication devices. Service if required.
   c. Test operation of ramp in all directions using a load if possible. Ensure ramp holds and does not creep when load is applied or removed. Adjust if necessary.
   d. Check manual operation, power disengagement, etc.
   e. Lubricate as required.
6. Identify and report any deficiencies.

3.9. GUIDE NUMBER MISC-9: FIRE DOORS - STAIRWELLS AND EXITWAYS (SWINGING)

Frequency: Quarterly

1. Remove all hold-open devices, except approved smoke or magnetic operated releases.
2. Check hang and swing for close fit. Doors must latch on normal closing cycle and have a neat fit.
3. Remove any obstructions that retard full swing or movement of door.
4. Test operation of panic hardware.
5. Inspect door coordinates on pairs.
6. Check operation of any special devices such as smoke detectors or magnetic door releases.
7. Inspect door for damage.
8. Identify and report any deficiencies.

3.10. GUIDE NUMBER MISC-10: FIRE DOORS - SLIDING TYPE

Frequency: Quarterly

1. Clean track.
2. Lubricate all pulleys.
3. Inspect for damage, worn and binding cable or chain, and proper threading through pulleys.
4. Replace fusible links and other heat-actuated devices that have been painted. Check operation of heat-actuated devices, other than fusible links.
5. Replace damaged or stretched cables or chains. Adjust to proper length.
6. Check counterweight for proper suspension.
7. Operate door by disconnecting or lifting counterweight, or by other appropriate means.
8. Check for proper fit in binders and tight fit of wedge against stay roll. Inspect stay roll for wear.
9. Check for breaks in face covering of doors.
10. Examine metal clad doors for deterioration.
11. Inspect all hardware for damage or wear.
12. Identify and report any deficiencies.

3.11. GUIDE NUMBER MISC-11: STATIONARY PACKERS

Frequency: Weekly

Observe all safety precautions. Observe current local ECP before performing activities listed below.

1. Oil shaft bearing under packer with appropriate lubricant.
2. Lubricate container roller fittings in axle.
3. Oil all moving joints on container door latch with appropriate lubricant.
4. Oil all container door hinges with appropriate lubricant.
5. Oil tie rod (Lock Hook) with appropriate lubricant. Inspect condition of cotter pins.
6. Wipe clean and apply heavy grease along top slide.
7. Wipe clean and apply heavy grease throughout length of slide channel.
8. Inspect cotter pins, closed end of packer cylinder. Look for signs of worn or broken cotter pins.
9. Ensure all dirt and debris has been cleared from under and around carriage of compaction unit.
10. Check open-end packer cylinder mounting pin.
11. Identify and report any deficiencies.

3.12. GUIDE NUMBER MISC-12: STATIONARY PACKERS

Frequency: Monthly

Observe all safety precautions. Observe current local ECP before performing activities listed below.

1. Remove breather cap on oil tank. Clean breather holes and replace cap. Do not press on so tightly as to block air passage.
2. Inspect mounting hardware on side and bottom slides. Check for lost or broken cotter pins and loose belts.
3. Check and tighten mounting hardware on scraper bar.
4. Identify and report any deficiencies.

3.13. GUIDE NUMBER MISC-13: STATIONARY PACKERS

Frequency: Quarterly

1. Observe all safety precautions. Observe current local ECP before performing activities listed below.
2. Check hydraulic oil for proper level and presence of contamination. Add or change oil as required.
3. Remove, clean, or replace oil filter.
4. Lubricate coupling following manufacturer specifications.
5. Identify and report any deficiencies.

3.14. GUIDE NUMBER MISC-14: POWER LIFTS

(Vert-A-Lift, etc. or other lift devices used in building maintenance)

Frequency: Monthly

Special Instructions: Daily battery charging, cleaning, and minor maintenance is done by personnel using the lift.

1. Visually check for needed repairs, leaks, etc.
2. Check battery water level and specific gravity.
3. Check electrical terminals. Tighten and clean as required.
4. Check and tighten critical structural bolts.
5. Lubricate in accordance with manufacturer instructions.
6. Identify and report any deficiencies.

3.15. GUIDE NUMBER MISC-15: SNOW BLOWER, WALKING TYPE

Frequency: Annually or every 50 run hours

Application: Gasoline-powered, walk-behind type. Routine daily lubrication should be accomplished by the operator.

1. Change engine oil. Oil should be changed, and gasoline drained at end of season prior to storage.
2. Service fuel filters.
3. Check for rust, and apply paint or preservative as appropriate.
4. Clean and gap or replace spark plug.
5. Inspect for proper adjustment and operation.
6. Identify and report any deficiencies.

3.16. GUIDE NUMBER MISC-16: DOCK LEVELERS, MANUAL

Frequency: Quarterly

Safety: Block dock boards in up position with an approved device.

1. Clean trash and dirt from pit.
2. Check clevis pins for wear and presence of clevis pin retainers.
3. Check springs and cable for wear.
4. Lubricate moving parts as required.
5. Check for proper operation.
6. Identify and report any deficiencies.

3.17. GUIDE NUMBER MISC-17: SWEEPERS, ELECTRIC (BATTERY)

Frequency: 4-12 Times Per Year

Checkpoints:

1. Check battery for correct water level. Add water if required.
2. Check battery terminals and cable clamps for corrosion and looseness.
3. Check hydraulic pump, hoses, lines, fittings, etc. for noise, leakage, and damage.
4. Check condition of tank and dust filter. Clean filter in solvent as necessary.
5. Check belts and chains for proper tension, wear, alignment, and general condition.
6. Check operational controls for proper operation.
7. Check dust skirts for proper adjustment.
8. Check hydraulic fluid and add lubricant #HY-2 as required. Replace filter as necessary.
9. Follow manufacturer's instructions regarding preventive maintenance.

3.18. GUIDE NUMBER MISC-18: FLOOR SCRUBBER, AUTOMATIC

(Battery-powered scrubber vacuum)

Frequency: 4-12 Time Per Year

Special Instructions: The daily charging of the batteries shall be done by the operator.

Checkpoints:

1. Check condition and adjustment of squeegee brushes, etc. and replace as needed.
2. Check electrical terminals. Clean and renew as needed.
3. Check the specific gravity of battery electrolyte and replace to determine that batteries are good and being properly charged.
4. Visually check machine for need of repairs, leaks, etc.
5. Lubricate in accordance with manufacturer's instructions.

4.0. GUIDE SET PLUM

4.1. GUIDE NUMBER PLUM-1: FIRE EXTINGUISHER, PORTABLE, STORED-PRESSURE

Frequency: Annual

Special Instructions: This maintenance is a thorough examination for deficiencies requiring replacement. Fire extinguishers needing repair are to be replaced. Extinguishers removed from service must be immediately replaced with one of suitable extinguishing capabilities. The monthly inspection must be performed at the same time this annual maintenance is performed. Unless otherwise indicated, this guide is applicable to stored-pressure type extinguishers, with or without pressure gauge, regardless of the extinguishing agent used, e.g., multipurpose dry chemical, etc. Review MS-56 for additional information on fire extinguishing equipment.

1. Read the Form 4705 inspection tag, and note if hydrostatic testing is required before the next annual maintenance. Report those due for testing to maintenance supervisor or control office for replacement before due date. See MS-56 for test frequency.
2. Inspect the shell for corrosion, mechanical damage (denting or abrasion), paint condition, presence of repairs (welding, soldering, brazing, etc.), and broken hanger attachment concealing surface damage (nicks or corrosion).
3. Inspect the nameplate for illegible wording, corrosion, and loose plate. Replace labels with the new, pictographic type. See MS-56.
4. Inspect the nozzle for damage, deformation, cracks, blocked openings, damaged threads (corroded, cross-threaded, or worn), and aging (brittleness).
5. Inspect hose assembly for damaged hose (cut, cracked, worn, or plugged), damaged couplings, or swivel joint (cracked or corroded), damaged threads (corroded, cross-threaded, or worn), and inner tube cut at couplings.
6. Ensure the valve-locking device is in place and inspect for damage (bent, corroded, or binding).
7. If extinguisher has a pressure gauge, tap gauge lightly to determine if pointer is stuck or jammed. Inspect for missing pointer; missing, deformed, or broken crystal; illegible or faded dial; corrosion, dented case, and damaged crystal retainer. Read gauge. If not in operating range, remove and replace extinguisher.
8. If extinguisher is a non-gauge type, inspect for immovable or corroded pressure-indicating stem.
9. Ensure seal or tamper indicator is not missing or broken. Replace extinguisher if seal or tamper indicator is missing or broken.
10. Complete applicable portions of Form 4705, Fire Inspection Tag.
11. Check for proper alarm and signal operation.
12. Tighten loose parts as necessary.

13. Identify and report any deficiencies.

4.2. GUIDE NUMBER PLUM-2: SUMP PUMPS

Frequency: Annual

1. Pump out and remove pit sediment.
2. Inspect and clean strainer.
3. Flush pit and wipe pump down.
4. Repack (if required) and lubricate pumps.
5. Check bail, float, rod, and guides.
6. Inspect motor, switch, controls, etc. Clean, adjust, and lubricate as required.
7. Check pumps operation. Observe operation of check valve(s).
8. Inspect piping, pipe supports, etc.
9. Clean up area.
10. Identify and report any deficiencies.

4.3. GUIDE NUMBER PLUM-3: VALVES, REGULATING

(Steam valves at pressure reduction stations)

Frequency: Annual

Application: Single or double seated; diaphragm or spring loaded, pilot operated valves.

1. Clean strainer ahead of valve.
2. Check valve head and seats for wear or cuts.
3. Replace valve(s) as necessary.
4. Examine steam quality for foreign matter if valves are damaged.
5. Examine pilot lines for dirt.
6. Check steam gauges.
7. Check diaphragms for failures.
8. Check binding valve stem.
9. Adjust weighted lever or spring control tension.
10. Identify and report any deficiencies.

4.4. GUIDE NUMBER PLUM-4: VALVES, MANUALLY OPERATED (MAIN LINE)

Frequency: Main line: Annual; Other valves over 2 inches: 5 Years

Application: For valves other than those used on Fire Protection systems. Maintenance for valves used on fire protection systems is described under the appropriate guide for the specific item of fire protection equipment.

1. Exercise valve from one limit to the other (fully open to fully closed) to test freedom of motion. Lubricate stem and moving parts with appropriate lubricant.
2. Verify valve seats and holds properly.
3. Check packing gland, adjust, and lubricate. Repack as required.
4. For valves equipped with wheel and chain for remote operation, verify freedom of motion.
5. Identify and report any deficiencies.

4.5. GUIDE NUMBER PLUM-5: VALVES, MOTOR OPERATED

Frequency: Annual

1. Clean unit and examine all parts.
2. Operate from limit to limit. Observe operation; look for binding, sluggishness, action of limits, etc.
3. Verify valve seats and holds properly.
4. Apply appropriate lubricant to moving parts of valve.
5. Lubricate motor and gear box as necessary.
6. Inspect contacts, brushes, motor controls, switches, etc. Clean and adjust as necessary.
7. Identify and report any deficiencies.

4.6. GUIDE NUMBER PLUM-6: STEAM TRAPS, ALL TYPES

Frequency: Annual (All types, low or high pressure)

Special Instructions: Check trap operation under steam pressure. Remove and replace faulty traps or trap elements. Ensure all safety requirements are followed.

1. Thermostatic traps (bellows or diaphragm type)
   a. Remove cap or bonnet.
   b. Clean interior of trap, valve, and seat.
   c. Inspect bellows or diaphragm and note by sound whether it contains liquid charge.
   d. Replace bellows or diaphragms as necessary.
   e. If valve seat is cut, replace seat.
2. Float and/or Thermostatic traps
   a. Remove bonnet.
   b. Inspect linkage and float operation for leakage, defective operation, or deterioration.
   c. Examine, clean, and check operation of bellows as in 1 above.
3. Inverted bucket trap
   a. Remove bonnet.
   b. Clean interior trap.
   c. Inspect valve linkage mechanism and seating of valve.
   d. Examine condition of bucket.
   e. Examine vent or race, inlet, and outlet for evidence of corrosion.
4. Impulse trap
   a. Remove bonnet.
   b. Inspect valve disc, inlet valve, and outlet surface.
   c. See that fulcrum point is free of dirt.
   d. Clean body of trap.
5. Identify and report any deficiencies.

4.7. GUIDE NUMBER PLUM-7: PUMPS, CENTRIFUGAL

Frequency: Annual

1. While pump is in operation, check performance, bearing temperature, stuffing box operation, pressure gauge, and flow indicators.
2. Shut down, lock out, and drain pump housing. Suction and discharge valves should hold.
3. Remove gland.
4. Examine shaft sleeve for wear; replace as necessary.
5. Adjust gland evenly, finger tight.
6. On pumps with oil ring lubrication, drain oil, flush, and then fill to proper oil level with new oil.
7. Perform lubrication in accordance with manufacturer instructions.
8. Clean strainers.
9. Put pump into operation. Stop and start pump. Check undue vibration noise, pressure, and action of check valve.
10. If test is satisfactory, start pump again, and adjust to slight leakage through gland.
11. When pump reaches normal operating temperatures, check pump and drive alignment.
12. Identify and report any deficiencies.

4.8. GUIDE NUMBER PLUM-8: ROOF, INSPECTION

Frequency: Semiannual

Sites develop local calculations for the roof inspection and justification is required.

4.8.1 Roofing System

Safety: Comply with all safety rules for working on roof-top. Check all tools and equipment for safe condition (ladders, rope safety lines, etc.). Review EL-801, Supervisor's Safety Handbook.

Clean all trash and debris from drains. Check each drain for missing, broken or corroded covers, proper drainage, tightness, gravel stop, etc. Carefully inspect roof mat around each drain.

4.9. GUIDE NUMBER PLUM-9: HOT WATER HEATERS (CONVERTERS)

Frequency: Annual

Application: This guide applies to converters and heat exchangers that use steam to heat water for hot water heating systems.

1. With system in operation, check for steam and water leaks (interior and exterior).
2. Drain and flush tanks (storage and expansion).
3. Remove rust and scale; note rate of corrosion.
4. Remove coil or element; clean and examine condition.
5. Clean, adjust, and calibrate as required: thermometers, aquastats, pressure reducing and relief valves and gauges, temperature relief, and steam regulating and control valves.
6. Check operation and condition of all traps.
7. Clean pump. Clean out dirt from motor; check controls, switches, and starters. Check condition of packing or seal and replace as required.
8. Identify and report any deficiencies.

4.10. GUIDE NUMBER PLUM-10: HOT WATER HEATERS - DOMESTIC TYPE

Frequency: Annual

Application: This applies to domestic-type hot water heaters like those in residences, but which can be much larger (50 to 400 gallon tanks) and have a circulating pump.

1. Check for leaks.
2. Flush tank to remove scale and sediment.
3. Check thermostat and controls for proper setting.
4. Clean combustion chamber at fireside heat transfer surfaces.
5. Set burner for efficient operation on oil fired units. Take flue gas CO2 reading to determine proper burner adjustment.
6. Clean and lubricate circulating pump.
7. Operate try lever on pressure-temperature relief device (valve). Water should now flow freely and stop when try lever is released. Replace valve if defective.
8. Identify and report any deficiencies.

4.11. GUIDE NUMBER PLUM-11: FIRE PUMPS, ELECTRIC MOTOR DRIVE

Frequency: Annual

Special Instructions: Review manufacturer instructions. Observe current local ECP. Give special attention to notifying all required officials that the fire pump will be out of service. Notice shall include estimated period of downtime and other special problems that may develop. If these work procedures can cause activation of an alarm and/or supervisory signal, the control center or fire department must be notified prior to starting work.

1. Clean motor with clean rag or vacuum.
2. Visually inspect windings for cleanliness. Check for coating of oil or grease without disassembling motor.
3. Perform lubrication according to manufacturer's recommendations.
4. Inspect for moisture and protection from water.
5. Check motor mountings, supports, and couplings for tightness or other defects.
6. Remove lockout and operate pump long enough to observe general operation. Note pressures, sound, vibration, odor, or temperatures.
7. If pump has automatic starting equipment, start it by activating the mechanism so the automatic devices are tested at the same time as the pump.
8. Secure pump and leave in ready-to-run condition.
9. Notify proper officials that unit is back in service.
10. Clean up area and return tools to proper storage.
11. Identify and report any deficiencies.

4.12. GUIDE NUMBER PLUM-12: FIRE PUMPS, INTERNAL COMBUSTION ENGINE DRIVE

Frequency: Annual

Special Instructions: Have approved fire extinguisher available. Do not allow flames or smoking in area. Use safety fuel cans only. Give special attention to notifying all required officials that the fire pump will be out of service. Notice shall include estimated period of downtime and other special problems that may develop. If these work procedures can cause activation of an alarm and/or supervisory signal, the control center and the fire department must be notified prior to starting work.

4.12.1 Gasoline or Natural Gas Engines:

1. Check distributor point dwell. Replace points, capacitor, rotor, and spark plugs after 100 hours of operation.
2. Set timing and distributor advance. Check at idle and operating speed.
3. Adjust governor and carburetor for proper operation and speeds.
4. Check fuel supply. Replace fuel within the manufacturer’s recommendations.
5. Change engine oil and filter and perform other lubrication of engine and pump.
6. Inspect cooling system for cleanliness, leaks, and anti-freeze solution. Check V-belt for proper tension. Adjust as necessary.

4.12.2 Diesel Engines:

1. Change fuel filters.
2. Inspect and adjust racks, injectors, or unit injectors according to manufacturer's instructions.
3. Check governor for proper speed; adjust as necessary.
4. Check fuel level, presence of water in fuel tank, or other contamination.
5. Change engine oil and filter. Perform other lubrication on engine and pump.
6. Inspect cooling system for leaks, cleanliness, and antifreeze solution. Check V-belt for proper tension. Adjust as necessary.

4.12.3 Diesel and Gas Engines:

1. Check mountings, supports, and couplings for tightness or defects.
2. Remove lockout and operate pump long enough to observe general operation. Note pressure, sound, vibration, odor, and temperatures.
3. If pump has automatic starting equipment, start it by activating the mechanism so the automatic devices are tested at the same time as the pump.
4. Secure pump and leave in ready-to-run condition.
5. Notify proper officials that the unit is back in service.
6. Clean up area and return tools to proper storage.
7. Identify and report any deficiencies.

4.13. GUIDE NUMBER PLUM-13: DRINKING WATER COOLERS

Frequency: Annual

Checkpoints:

1. Clean coils (vacuum) and fan blades.
2. Inspect P-trap, water supply valves, connections, and bubbler valve for proper operation.
3. Check belt for tightness and wear (if applicable).
4. Lubricate motor (if applicable).
5. Inspect for and repair leaks in refrigerant lines.

THIS PAGE BLANK

ATTACHMENT 3

USPS BUILDING EQUIPMENT

ANNUAL STAFFING WORKHOUR REQUIREMENT FORMS

1.0. STAFFING WORKHOUR REQUIREMENT FORMS

The following forms are an output from the entries made in the staffing software application.

- **PS Form 4893** - Annual Building Equipment Operational and Preventive Maintenance Workhour Summary (Figure 3-1)
- **PS Form 4893B** – Annual Building Equipment Override and Supplemental Maintenance Justification (Figure 3-3)
- **PS Form 4894, Page 1 of 2** – Annual Standard Requirement Building Operational Maintenance (Figure 3-3)
- **PS Form 4894, Page 2 of 2** – Annual Standard Requirement Building Operational Maintenance (Figure 3-4)
- **PS Form 4895** – Annual Workhour Requirement for Central Chill Water Plant Operational Maintenance (Figure 3-5)
- **PS Form 4896, Page 1 of 2** – Annual Supplemental Requirement for Building Preventive and Operational Maintenance (Figure 3-6Figure 3-6)
- **PS Form 4896, Page 2 of 2** – Annual Supplemental Requirement for Building Preventive and Operational Maintenance (Figure 3-7Figure 3-6)
- **PS Form 4896A, Page 1 of 3** – Annual Standard Requirement Building Preventive Maintenance (Figure 3-8Figure 3-8)
- **PS Form 4896A, Page 2 of 3** – Annual Standard Requirement Building Preventive Maintenance (Figure 3-9Figure 3-8)
- **PS Form 4896A, Page 3 of 3** – Annual Standard Requirement Building Preventive Maintenance (Figure 3-10Figure 3-8)

FOR REVIEW PURPOSES - BLANK FORM

U.S. POSTAL SERVICE ANNUAL BUILDING EQUIPMENT OPERATIONAL AND PREVENTIVE MAINTENANCE WORKHOUR SUMMARY	BUILDING(s):	GROSS INTERIOR SQFT:	DATE: PREPARED BY:

LINE NO.	WORK DESCRIPTION	PREVENTIVE MAINTENANCE		OPERATIONAL MAINTENANCE			CORRECTIVE MAINTENANCE	TOTAL ANNUAL WORKHOURS
		4896A	4896	4894	4895	4896		
A	B	C	D	E	F	G	H	I
1	HVAC							
2	ELEC							
3	PLUM							
4	EMS							
5	MISC							
6	SUBTOTALS							
7	CORRECTIVE / MISC	*	*				**	
	TOTAL WORKHOURS							
	TOTAL FTE							

* 8% of the Subtotal
** 8 Hours per 1000 Gross Interior SQFT

PS FORM 12/28/2018 **4893 - BLANK FORM**

Figure 3-1. PS Form 4893 - Annual Building Equipment Operational and Preventive Maintenance Workhour Summary

FOR REVIEW PURPOSES - BLANK FORM

U.S. POSTAL SERVICE ANNUAL BUILDING EQUIPMENT OVERRIDE AND SUPPLEMENTAL MAINTENANCE JUSTIFICATION		BUILDING(s):	DATE: PREPARED BY:

TABLE A: OPERATIONAL MAINTENANCE				
GUIDE CAT/NO	TASK DESCRIPTION	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	JUSTIFICATION
OVERRIDE TASKS				
*				
*				
*				
*				
*				
SUPPLEMENTAL TASKS				
*				
*				
*				
*				
*				

TABLE B: PREVENTIVE MAINTENANCE				
GUIDE CAT/NO	TASK DESCRIPTION	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	JUSTIFICATION
OVERRIDE TASKS				
*				
*				
*				
*				
*				
SUPPLEMENTAL TASKS				
*				
*				
*				
*				
*				

PS FORM 12/28/2018 **4893B - BLANK FORM**

Figure 3-2. PS Form 4893B – Annual Building Equipment Override and Supplemental Maintenance Justification

FOR REVIEW PURPOSES - BLANK FORM

U.S. POSTAL SERVICE ANNUAL STANDARD REQUIREMENT BUILDING OPERATIONAL MAINTENANCE		BUILDING(s):	DATE: PREPARED BY:

TABLE A: HVAC						
GUIDE NO	TASK DESCRIPTION	QUANTITY	FREQUENCY	WORK HOURS (per freq)	ANNUAL TRAVEL TIME	TOTAL ANNUAL WORKHOURS
HVAC-12	FANS CENTRIFUGAL >15HP		12	0.03		
NONE	FANS PROPELLER >=24INCHES		12	0.03		
SUBTOTAL						

TABLE B: ELEC						
GUIDE NO	TASK DESCRIPTION	QUANTITY	FREQUENCY	WORK HOURS (per freq)	ANNUAL TRAVEL TIME	TOTAL ANNUAL WORKHOURS
NONE	BATTERY SYSTEM, 24 VOLT		1	0.08		
NONE	BATTERY SYSTEM, 48 VOLT		1	0.16		
NONE	BATTERY SYSTEM, 120 VOLT		1	0.33		
EMS-11	GROUND FAULT CIRCUIT INTERRUPTER (GFCI)		2	0.02		
NOGUIDE1	MAIN ELECTRICAL CUBICLE/SWITCHGEAR ROOMS (>600VAC)		52	0.08		
NOGUIDE2	SWITCHBOARD ROOMS (<600VAC)		52	0.05		
NOGUIDE3	TRANSFORMER VAULTS		52	0.06		
SUBTOTAL						

TABLE C: PLUM						
GUIDE NO	TASK DESCRIPTION	QUANTITY	FREQUENCY	WORK HOURS (per freq)	ANNUAL TRAVEL TIME	TOTAL ANNUAL WORKHOURS
NOGUIDE4	HYDRO-PNEUMATIC SYSTEM (INCL FIRE PROTECTION SYSTEM)			0.08		
NONE	PRESSURE REDUCING AND REGULATING STATIONS - STEAM AND WATER		1	0.02		
NONE	PUMPS >5HP, REMOTE FROM OTHER EQUIPMENT		1	0.03		
NONE	SUMP PUMP, OPERATIONAL		12	0.05		
SUBTOTAL						

TABLE D: EMS						
GUIDE NO	TASK DESCRIPTION	QUANTITY	FREQUENCY	WORK HOURS (per freq)	ANNUAL TRAVEL TIME	TOTAL ANNUAL WORKHOURS
EMS-10	EMERGENCY EXIT SIGNS		1	0.02		
EMS-4	EMERGENCY EXIT SIGNS		12	0.02		
EMS-1	EMERGENCY EYEWASHES		52	0.10		
EMS-3	EMERGENCY LIGHTS		12	0.02		
EMS-9	EMERGENCY LIGHTS		1	0.02		
EMS-2	EMERGENCY SHOWERS		52	0.10		
EMS-7	FIRE EXTINGUISHER, PORTABLE, STORED-PRESSURE		12	0.02		
EMS-8	FIRE PUMPS		52	0.40		
SUBTOTAL						

Figure 3-3. PS Form 4894, Page 1 of 2 – Annual Standard Requirement Building Operational Maintenance

TABLE E: MISC						
GUIDE NO	TASK DESCRIPTION	QUANTITY	FREQUENCY	WORK HOURS (per freq)	ANNUAL TRAVEL TIME	TOTAL ANNUAL WORKHOURS
SUBTOTAL						

PS FORM 12/28/2018 **4894 - BLANK FORM**

Figure 3-4. PS Form 4894, Page 2 of 2 – Annual Standard Requirement Building Operational Maintenance

FOR REVIEW PURPOSES - BLANK FORM

U.S. POSTAL SERVICE ANNUAL WORKHOUR REQUIREMENT FOR CENTRAL CHILL WATER PLANT OPERATIONAL MAINTENANCE		BUILDING(s):	DATE: PREPARED BY:

BUILDING				
LINE NO.	EQUIPMENT DESCRIPTION	OPERATING DAYS	WORKHOURS (per day)	ANNUAL WORKHOURS
1			0.5	
2	SUBTOTAL			
3	BUILDING CHILLER OPERATING DAYS		0.5	
	TOTAL WORKHOURS *			

* Operational Checks are limited to one hour per operating day for the first chiller.
All additional chillers are workloaded at 0.5 hours per operating day.

PS FORM 12/28/2018 **4895 - BLANK FORM**

Figure 3-5. PS Form 4895 – Annual Workhour Requirement for Central Chill Water Plant Operational Maintenance

FOR REVIEW PURPOSES - BLANK FORM

U.S. POSTAL SERVICE ANNUAL SUPPLEMENTAL REQUIREMENT FOR BUILDING PREVENTIVE AND OPERATIONAL MAINTENANCE	BUILDING(s):	DATE: PREPARED BY:

TABLE A: PREVENTIVE MAINTENANCE

GUIDE	TASK DESCRIPTION	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	FREQUENCY (per year)	WORKHOURS (per freq)	TOTAL WORKHOURS
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
	SUBTOTAL					0

TABLE B: OPERATIONAL MAINTENANCE

GUIDE	TASK DESCRIPTION	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	FREQUENCY (per year)	WORKHOURS (per freq)	TOTAL WORKHOURS
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0

Figure 3-6. PS Form 4896, Page 1 of 2 – Annual Supplemental Requirement for Building Preventive and Operational Maintenance

TABLE B: OPERATIONAL MAINTENANCE

GUIDE	TASK DESCRIPTION	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	FREQUENCY (per year)	WORKHOURS (per freq)	TOTAL WORKHOURS
						0
						0
						0
						0
						0
	SUBTOTAL					0

PS FORM 12/28/2018 **4896 - BLANK FORM**

Figure 3-7. PS Form 4896, Page 2 of 2 – Annual Supplemental Requirement for Building Preventive and Operational Maintenance

FOR REVIEW PURPOSES - BLANK FORM

U.S. POSTAL SERVICE ANNUAL STANDARD REQUIREMENT BUILDING PREVENTIVE MAINTENANCE	BUILDING(s):	DATE: PREPARED BY:

TABLE A: HVAC					
GUIDE NO.	TASK DESCRIPTION	QUANTITY	FREQUENCY (per year)	WORK HOURS (per freq)	TOTAL WORK HOURS
HVAC-1	AC PACKAGE UNIT <10 TONS		1	8.50	
HVAC-1	AC PACKAGE UNIT >=10 TONS		1	10.00	
HVAC-2	AIR-CONDITIONING, WINDOW UNITS		1	0.50	
HVAC-3	AIR COOLED CONDENSERS <= 10 TONS		1	0.75	
HVAC-3	AIR COOLED CONDENSERS >10 TONS and <=30 TONS		1	1.00	
HVAC-3	AIR COOLED CONDENSERS >30 TONS		1	1.75	
HVAC-4	AIR HANDLERS >10HP		1	4.50	
HVAC-4	AIR HANDLERS <=10HP		1	2.50	
HVAC-5	BOILERS, OIL FIRED		1	10.00	
HVAC-6	BOILERS, CAST-IRON AND STEEL		1	10.00	
HVAC-7	BURNER, GAS		1	5.00	
HVAC-8	BURNER, OIL		1	5.00	
HVAC-9	COILS, PREHEAT, REHEAT, ETC. (REMOTE FROM AIR HANDLER)		1	1.00	
HVAC-10	CONDENSATE OR VACUUM PUMPS (ON STEAM RETURN SYSTEM)		1	2.00	
HVAC-11	COOLING TOWERS 501 - 1000 TON (PER CELL)		1	29.00	
HVAC-11	COOLING TOWERS 51 - 500 TON (PER CELL)		1	14.50	
HVAC-11	COOLING TOWERS <= 50 TON (PER CELL)		1	7.00	
HVAC-11	COOLING TOWERS > 1000 TON (PER CELL)		1	38.50	
HVAC-12	FAN, CENTRIFUGAL <7HP		1	1.75	
HVAC-12	FAN, CENTRIFUGAL >=7HP		1	2.75	
HVAC-13	FILTERS, ROLL-TYPE, DISPOSABLE MEDIA		4	1.75	
HVAC-14	CONTROLS AND MECHANISMS ROLL TYPE FILTERS		1	1.50	
HVAC-15	FILTERS, THROW-AWAY		4	0.10	
HVAC-16	FAN, PROPELLER, PEDESTAL AND WALL MOUNTED		1	0.75	
HVAC-17	HEAT/COOLING UNIT, ROOF TOP		2	8.50	
HVAC-18	REFRIGERATION MACHINES, ABSORPTION TYPE <= 40 TONS		1	15.25	
HVAC-18	REFRIGERATION MACHINES, ABSORPTION TYPE 41 - 100 TONS		1	19.25	
HVAC-18	REFRIGERATION MACHINES, ABSORPTION TYPE 101 - 400 TONS		1	23.00	
HVAC-18	REFRIGERATION MACHINES, ABSORPTION TYPE > 400 TONS		1	30.75	
HVAC-19	REFRIGERATION MACHINES (CENTRIFUGAL AND RECIPROCATING) <= 40 TONS		1	23.00	
HVAC-19	REFRIGERATION MACHINES (CENTRIFUGAL AND RECIPROCATING) 41 - 100 TONS		1	31.00	
HVAC-19	REFRIGERATION MACHINES (CENTRIFUGAL AND RECIPROCATING) 101 - 350 TONS		1	39.00	
HVAC-19	REFRIGERATION MACHINES (CENTRIFUGAL AND RECIPROCATING) 351 - 500 TONS		1	59.00	
HVAC-19	REFRIGERATION MACHINES (CENTRIFUGAL AND RECIPROCATING) 501 - 750 TONS		1	66.00	
HVAC-19	REFRIGERATION MACHINES (CENTRIFUGAL AND RECIPROCATING) 751 - 1000 TONS		1	77.00	

Figure 3-8. PS Form 4896A, Page 1 of 3 – Annual Standard Requirement Building Preventive Maintenance

TABLE A: HVAC					
GUIDE NO.	TASK DESCRIPTION	QUANTITY	FREQUENCY (per year)	WORK HOURS (per freq)	TOTAL WORK HOURS
HVAC-19	REFRIGERATION MACHINES (CENTRIFUGAL AND RECIPROCATING) > 1000 TONS		1	96.00	
HVAC-20	HEATER, ELECTRIC, IN-DUCT		1	0.25	
HVAC-21	HEATER, ELECTRIC, BASEBOARD		1	0.15	
HVAC-22	UNIT HEATERS (STEAM AND HOT WATER)		1	1.00	
HVAC-23	UNIT HEATERS (GAS FIRED)		1	1.50	
HVAC-24	FIRE DAMPERS (IN DUCT)		1	0.20	
	SUBTOTAL				

TABLE B: ELEC					
GUIDE NO.	TASK DESCRIPTION	QUANTITY	FREQUENCY (per year)	WORK HOURS (per freq)	TOTAL WORK HOURS
ELEC-1	MOTORS		1	1.00	
ELEC-2	BACK-UP GENERATOR- GAS OR NATURAL GAS ENGINES		1	2.00 to 6.00	
ELEC-3	EMERGENCY GENERATORS, DIESEL POWER		1	3.00 to 8.00	
ELEC-4	GENERATORS, ALL OTHER TYPES		12	1.00 to 2.00	
	SUBTOTAL				

TABLE C: PLUM					
GUIDE NO.	TASK DESCRIPTION	QUANTITY	FREQUENCY (per year)	WORK HOURS (per freq)	TOTAL WORK HOURS
PLUM-1	FIRE EXTINGUISHER, PORTABLE, STORED-PRESSURE		1	0.10	
PLUM-2	SUMP PUMPS		1	3.75	
PLUM-3	VALVES, REGULATING		1	1.00 to 4.00	
PLUM-4	VALVES, MANUALLY OPERATED (MAIN LINE)		1	1.00	
PLUM-4	VALVES, MANUALLY OPERATED (OTHER VALVES OVER 2 INCHES)		0.2	0.50	
PLUM-5	VALVES, MOTOR OPERATED		1	1.50	
PLUM-6	STEAM TRAPS, ALL TYPES		1	0.50	
PLUM-7	PUMPS, CENTRIFUGAL >=25HP		1	6.00	
PLUM-7	PUMPS, CENTRIFUGAL >5HP AND <25HP		1	4.00	
PLUM-8	ROOF, INSPECTION		2	1.00 to 2.00	
PLUM-9	HOT WATER HEATERS (CONVERTERS)		1	4.50	
PLUM-10	HOT WATER HEATERS, DOMESTIC TYPE		1	1.50	
PLUM-11	FIRE PUMPS, ELECTRIC MOTOR DRIVE		1	0.75	
PLUM-12	FIRE PUMPS, INTERNAL COMBUSTION ENGINE DRIVE		1	0.75 to 1.50	
PLUM-13	DRINKING WATER COOLERS		1	1.00	
	SUBTOTAL				

TABLE D: EMS					
GUIDE NO.	TASK DESCRIPTION	QUANTITY	FREQUENCY (per year)	WORK HOURS (per freq)	TOTAL WORK HOURS
EMS-5	EMERGENCY GENERATORS		12	1.00 to 2.00	
EMS-6	FIRE ALARM BOXES (MANUAL)		4 to 6	0.10	
	SUBTOTAL				

Figure 3-9. PS Form 4896A, Page 2 of 3 – Annual Standard Requirement Building Preventive Maintenance

TABLE E: MISC					
GUIDE NO.	TASK DESCRIPTION	QUANTITY	FREQUENCY (per year)	WORK HOURS (per freq)	TOTAL WORK HOURS
MISC-1	AIR COMPRESSORS		1	1.00	
MISC-2	LAWNMOWERS AND EDGERS		2	1.00	
MISC-3	SWEEPERS (GASOLINE)		2 to 6	2.00	
MISC-4	PAPER BALERS		1	3.00	
MISC-5	DOORS, POWER OPERATED		2	2.00	
MISC-6	DOOR, POWER-OPERATED MAIN ENTRANCE AND DOCK		4	1.00	
MISC-7	DOORS, MAIN ENTRANCE		2	1.00	
MISC-8	DOCK LEVELERS, POWERED		4	1.25	
MISC-9	FIRE DOORS, STAIRWELLS AND EXITWAYS (SWINGING)		4	0.10	
MISC-10	FIRE DOORS, SLIDING TYPE		4	0.10	
MISC-11	STATIONARY PACKERS		52	1.00	
MISC-12	STATIONARY PACKERS		12	1.00	
MISC-13	STATIONARY PACKERS		4	2.00	
MISC-14	POWER LIFTS		12	1.00	
MISC-15	SNOW BLOWER, WALKING TYPE		1	1.00	
MISC-16	DOCK LEVELERS, MANUAL		4	0.50	
MISC-17	SWEEPERS (BATTERY)		4 to 12	1.00	
MISC-18	FLOOR SCRUBBERS, AUTOMATIC; VACUUM, BATTERY POWERED		4 to 12	1.00	
MMO03718	COMPACTOR, PTR		1	38.65	
	FORKLIFT		1	50.00	
	PALLET TRUCK, MOTORIZED		1	50.00	
	PALLET TRUCK, NON MOTORIZED		1	1.00	
	TOW TRACTOR		1	52.00	
	SUBTOTAL				

PS FORM 12/28/2018 **4896A - BLANK FORM**

Figure 3-10. PS Form 4896A, Page 3 of 3 – Annual Standard Requirement Building Preventive Maintenance