

FORM 5-05
CENTER PREVENTIVE MAINTENANCE PLAN (PMP)
MINIMUM REQUIREMENTS

1	CUSTODIAL	SOURCE
a	Schedule custodial maintenance and housekeeping activities for each facility (to include mechanical and electrical rooms) at appropriate frequencies to ensure a safe, clean, sanitary, and clutter-free environment for Job Corps students. Areas that are used every day by students and staff must be cleaned at least daily and other areas not used frequently (i.e., electrical and mechanical rooms) are cleaned at least weekly.	Industry Standard
b	Perform deep-cleaning of carpets, flooring, and furniture upholstery at least annually or more frequently if specified in manufacturer's manual.	Industry Standard Manufacturer's Manual
2		
2	CLEANING OF HARD VOCATIONS	SOURCE
a	In addition to the listed Custodial requirements, implement a routine and planned inspection and cleaning process to identify and remove dust accumulation in hard vocations, especially welding, carpentry, and Basic Construction Trades (BCT), to reduce health and explosion hazards. Vacuuming is the preferred method of cleaning, but when impractical, sweeping and water washdown can be considered.	Industry Standard
b	Portable vacuum cleaners used for cleaning of hard vocations shall meet the minimum requirements as outlined in NFPA 654, 2017, Section 8.2.3.1 and shall be listed for the purpose and Class II electrically classified locations or shall be fixed pipe suction systems with remotely located exhauster. Vacuum cleaners used for metal dust (i.e. welding vocations) shall meet the requirements of NFPA 484 such as VACU-U-MAX industrial vacuums, Raptor Vac model 61430, or equivalent.	NFPA 654 and NFPA 484
3		
3	WASTE MANAGEMENT	SOURCE
a	Ensuring waste (including recycling waste) is collected at least daily and removed from Center as required and at least weekly to maintain clean and sanitary conditions.	Industry Standard

b	Ensure waste and recycling operations are in accordance with (IAW) Center's Solid Waste Management Plan and support waste diversion goals.	Center SWMP
c	Recycle or reuse materials where local markets exist.	Federal requirement
4	SECURITY SYSTEMS	SOURCE
a	Perform daily inspections of security fences, CCTV and lighting and document any issues that may compromise security of the Center. Track any required repairs to completion.	Industry Standard
b	Inspect fence stability, card reader functionality and door hardware (closers and latches) crash bars, and local fire alarms monthly in accordance with NFPA 731 and document any issues that may compromise security of the Center. Track any required repairs to completion.	NFPA 731
5	PEST MANAGEMENT	SOURCE
a	Address all federal and local requirements for development and implementation of Integrated Pest Management (IMP) plan, licensure requirements for pest specialists, and handling requirements for chemicals and pesticides.	USC Title 7, Section 136r-1
b	Conduct weekly monitoring, inspections, and mitigation of pests, such as termites and rodents, to ensure a clean and safe environment.	Industry Standard
6	GROUNDS / SNOW REMOVAL	SOURCE
a	Grounds maintenance activities are scheduled at appropriate frequencies to ensure safe, clean, neat, and sanitary grounds and landscaping.	Industry Standard
b	Snow and ice are removed immediately from pavements and walkways after snow or ice accumulation.	Industry Standard
7	PAVEMENTS MAINTENANCE	SOURCE
a	Conduct and document quarterly inspection of rigid and flexible pavements for damage and proper drainage, removal of debris and vegetation as needed, repair of potholes and sealing of cracks as needed to prevent further damage.	Industry Standard

8	STORMWATER MANAGEMENT SYSTEMS	SOURCE
a	Conduct and document quarterly inspection of stormwater systems to ensure unobstructed flow and proper capacity.	Industry Standard
b	As identified during quarterly inspections, mow or cut down vegetation and conduct litter and debris removal in storm drain systems (swales, inlets, grates, etc.) to ensure unobstructed stormwater flow and allow the system to operate as designed.	Industry Standard
c	As identified during quarterly inspections, repair eroded embankments and stabilize denuded areas to prevent further erosion and help eliminate unwanted sediments in the drainage system.	Industry Standard
d	Develop and implement Stormwater Management Plan IAW federal, state, and local jurisdiction requirements.	Local Jurisdiction
9	FIRE EXTINGUISHERS	SOURCE
a	Inspect all portable fire extinguishers monthly for damage, correct pressure, condition of the hose and nozzle, and broken seals. Document inspections on inspection tag. Replace all fire extinguishers that fail the inspection.	NFPA 10
b	During monthly inspections, ensure that the proper extinguisher type is present (i.e., Type ABC for most applications, Type K within 30 feet of cooking appliances).	NFPA 10
c	During monthly inspections, ensure that fire extinguishers are readily accessible and that the carrying handle is located between 3.5 feet and 5 feet above floor level. Records for manual inspections shall be kept on a tag or label attached to the fire extinguisher.	NFPA 10
d	Conduct annual external visual examination of all fire extinguishers for obvious physical damage, corrosion, or nozzle blockage and to verify that the operating instructions are present, legible, and facing forward, and that the HMIS information is present and legible, and to determine if a 6-year interval examination or hydrostatic test is due. Replace all fire extinguishers that fail the inspection.	NFPA 10
e	Conduct annual inspection of all portable fire extinguishers verifying that the extinguisher is not blocked by furniture or equipment. Relocate all fire extinguishers that fail the inspection.	NFPA 10
f	All fire extinguishers that store an extinguishing agent under pressure must have the contents completely drained or removed once every 6 years (from	NFPA 10

	manufacturing date), inspected, and refilled. As an alternative, the fire extinguishers must be replaced every 6 years.	
g	All ABC type and dry chemical fire extinguishers shall be hydrostatically tested every 12 years by a contractor with a certification program acceptable to local Authority Having Jurisdiction (AHJ).	NFPA 10
10	EMERGENCY EYEWASH SYSTEMS	SOURCE
a	Inspect and flush each emergency eyewash system weekly to verify proper flow and clearing the plumbing of any deposits. Document weekly inspection and flushing on inspection tag.	ANSI Z358.1-2014
b	Inspect emergency eyewash systems annually for proper assembly and installation, accessibility within 10 seconds, proper lighting and signage, and to ensure flush time of a full 15 minutes.	ANSI Z358.1-2014
11	KITCHEN HOOD SYSTEMS	SOURCE
a	Inspect kitchen hood exhaust systems at least quarterly by properly trained, qualified, and certified contractor to ensure proper operation.	NFPA 96
b	Clean grease from kitchen hood exhaust systems at least semiannually or as determined by inspection by properly trained, qualified, and certified contractor.	NFPA 96
c	Inspect kitchen hood fire suppression systems monthly to ensure proper operations, manual actuators are unobstructed, tamper indicators and seals are intact, there is no physical damage, and pressure gauges, if provided, are in operable range. Inspections shall be documented on inspection tag.	NFPA 17A
d	Inspect and service kitchen hood fire suppression systems every 6 months by a properly trained and qualified contractor to include a check of all actuation components, fire alarm interconnect switches, exhaust fan(s) and makeup air unit(s) interlocks, replacement of fusible links and sprinkler heads (unless bulb type), nozzles, fuel and electric shutoffs as required.	NFPA 17A
e	Fusible links on fire damper assemblies shall be replaced at least semiannually or more frequently as necessary by a certified person acceptable to the Authority Having Jurisdiction. The year of manufacture and the date of installation of the fusible links shall be documented.	NFPA 96
f	Instructions shall be provided to new employees on hiring and to all employees semiannually on the use	NFPA 96

	of portable fire extinguishers and the manual actuation of the kitchen hood fire extinguishing system.	
g	Test fire alarm interconnect switches annually to verify receipt of a signal at the fire alarm control panel.	NFPA 72
12	FIRE ALARM AND SMOKE DETECTION SYSTEMS	SOURCE
a	Conduct daily visual check of fire alarm panels for alarms, troubles, or system errors, and take appropriate action to resolve.	
b	Conduct and document annual fire alarm system testing by a qualified licensed contractor in accordance with NFPA 72. Fire alarm system inspection, testing, and maintenance shall include also magnetic door holders, elevator recall, fire suppression system and sprinkler system flow, pressure, and tamper switches. If any component is replaced or repaired, testing is required according to Table 14.4.3.2 of NFPA 72	NFPA 72
c	Conduct and document semiannual visual inspection of fire alarm system components by a qualified licensed contractor in accordance with the schedules in NFPA 72, Table 14.3.1. Clean the devices from dust. Faulty devices shall be replaced. This includes inspection of control equipment to ensure system is in normal condition, checking of fuses, LEDs, power supply, batteries for corrosion or leakage, and trouble signals.	NFPA 72
d	Conduct and document annual fire alarm system testing by a qualified and licensed contractor according to NFPA 72, Table 14.4.3.2. This includes duct smoke detection system and associated fire dampers. Sensitivity of smoke detectors shall be tested in accordance with Section 14.4.4.3 of NFPA 72 by a certified/licensed fire protection/alarm contractor.	NFPA 72
e	Inspect, test and maintain all Carbon Monoxide alarms/detectors in accordance with Tables 8.3.1, and 8.4.3 of NFPA 720, and manufacturer's published instructions. Replace all non-operable CO detectors.	NFPA 720
f	A record of all inspections, tests and maintenance shall be documented and shall be retained until the next test and for 1 year thereafter.	NFPA 72 NFPA 720
13	FIRE SUPPRESSION SYSTEMS	SOURCE

a	For all systems, conduct quarterly test to simulate alarms, flow water, and exercise all valves using a qualified and licensed contractor.	NFPA 25
b	For all fire sprinkler systems, conduct all inspection, testing and maintenance in accordance with Table 5.5.1.2 of NFPA 25. Perform annual visual inspection of all heads, piping and other components and conduct test to simulate alarms, flow water, and exercise all valves using a qualified and licensed fire protection/alarm contractor. Maintain a minimum clearance of 18 inches between the sprinkler head deflectors and top of the storage. Any sprinkler head that shows sign of leakage, corrosion, physical damage, loss of fluid in glass bulb, or loaded with dust or painted shall be replaced.	NFPA 25
c	For systems with fire pumps, perform inspections, testing, and maintenance IAW table 8.1.1.2 of NFPA 25 using a qualified and licensed contractor.	NFPA 25
d	For systems with water storage tanks, perform inspections, testing, and maintenance IAW table 9.1.1.2 of NFPA 25 using a qualified and licensed contractor.	NFPA 25
e	Backflow preventer devices on sprinkler systems must be tested annually at the designed flow rate of the fire protection system (forward flow test) by a qualified and licensed contractor. In addition, backflow preventers must be tested IAW any state or local jurisdiction requirements when applicable. Backflow prevention assemblies shall be inspected internally every 5 years to verify that all components operate correctly, move freely, and are in good condition.	NFPA 25, Local Jurisdiction
f	For dry systems, every 3 years, in addition to the annual inspection, conduct full visual inspection of all heads, piping and other components, simulate alarms, flow water, exercise all valves and perform full trip test every 3 years by a licensed fire protection contractor. Auxiliary drains in dry pipe sprinkler systems shall be drained after each operation of the system, before the onset of freezing weather conditions, and thereafter as needed.	NFPA 25
g	For all systems, every 5 years, in addition to the annual inspection, perform interior condition and obstruction investigation of pipe network, check valves, hydrostatically test fire department connections (FDCs), replace or recalibrate gauges, clean or replace strainers, filters, orifices by a licensed fire protection contractor.	NFPA 25
h	Ensure Post Indicator Valve (PIV) is protected by an electronic device connected to the building fire alarm system or protected with a padlock.	Industry Standard

i	Air compressors dedicated to water-based fire protection systems shall be inspected, tested and maintained in accordance with Sections 13.10.2, 13.10.3 and 13.10.4 of NFPA 25.	NFPA 25
j	Fire department connections (FDC) shall be inspected quarterly in accordance with Section 13.8.1 of NFPA 25. The piping from the fire department connection to the fire department check valve shall be hydrostatically tested at 150 psi for 2 hours at least once every 5 years.	NFPA 25
k	For standpipe and hose systems perform inspections, testing and maintenance requirements in accordance with Section 6.1.1 of NFPA 25 by a licensed fire protection contractor to determine that components are free of corrosion, foreign material, physical damage, tampering, or other conditions that adversely affect system operation.	NFPA 25
l	Where sprinkler heads have been in service for 50 years, they shall be replaced or representative samples from one or more sample areas shall be tested. Dry sprinkler head such as the ones in the walk-in coolers/freezers that have been in service for 10 years shall be replaced or representative samples shall be tested and then retested at 10-year intervals. Replacement of any sprinkler systems will be funded outside of the Center Operator's contact.	NFPA 25
14	FIRE HYDRANT SYSTEMS	SOURCE
a	Inspect all fire hydrants annually and after each operation for inaccessibility, leaks in outlets, cracks in barrel, tightness of outlet caps, worn outlet threads, and availability of operating wrench. Monitor nozzles shall be inspected semiannually for leakage, physical damage and corrosion.	NFPA 25
b	Conduct annual maintenance of fire hydrants to include lubrication of stems, caps, plugs, and threads and conduct annual inspection to ensure proper operation.	NFPA 25
c	Conduct annual testing of fire hydrants with full flow for at least one minute per hydrant (or until all foreign material has cleared) to ensure hydrants are functioning properly and removal of sediment.	NFPA 25
d	Hydrants shall be kept free of snow, ice, or other materials and protected against mechanical damage so that free access is ensured.	NFPA 25
e	Underground and exposed piping shall be flow tested at a minimum 5-year intervals to the satisfaction of the Authority Having Jurisdiction (AHJ) to ensure that	NFPA 25

	the required flow and pressure are available for fire protection.	
15	GROUND AND ELEVATED WATER STORAGE TANKS	SOURCE
a	Inspect ground and elevated water storage tanks to include tank structure at minimum every 5 years by qualified contractor.	AWWA D101-53
b	Flush tanks at minimum every 5 years or more frequently in areas prone to sediment problems.	AWWA D101-53
16	WATER TREATMENT SYSTEMS	SOURCE
a	Schedule and document (in CMMS) quarterly environmental health inspection by qualified non-Center authority IAW local jurisdiction requirements.	Local Jurisdiction
b	Document daily amount of water treated, amount of chlorine used, and daily free chlorine residual IAW local jurisdiction requirements.	Local Jurisdiction
c	Inspect systems at least weekly and in accordance with local jurisdiction requirements to verify that primary and secondary treatment systems are working properly.	Local Jurisdiction
d	Ensure bacterial and chemical tests are performed by state or local health authorities in accordance with local jurisdiction requirements.	Local Jurisdiction
e	If applicable, inspect all water softeners system(s) at least weekly for proper operation, leakage, and level of salt and water in the tank, alarms/error codes in accordance with manufacturer's published instructions and maintenance manual.	O&M Manual
f	If applicable, inspect all sand filtration system(s) at least weekly for proper operation, leakage, filter baskets cleanliness, and condition of pumps as per manufacturer's published operation and maintenance manuals. Backwash and flush the sand tank as per manufacturer's published instructions. Replace sand in 5 -10 year intervals or as per manufacturer's published instructions.	O&M Manual
17	WASTEWATER TREATMENT SYSTEMS	SOURCE
a	Schedule and document quarterly environmental health inspection by qualified non-Center authority IAW local jurisdiction requirements (N/A for septic systems).	Local Jurisdiction

b	Ensure wastewater treatment operators are licensed and trained per state, federal, and local requirements.	Local Jurisdiction
c	Keep records of water treatment variables (pH, dissolved oxygen, total suspended solids, BOD) as needed to check the system's operation in accordance with local jurisdiction requirements.	Local Jurisdiction
d	Inspect system daily for undesirable objects and chemicals, and remove as needed and educate users as needed.	Local Jurisdiction
e	For septic systems, check tank level daily and pump the tank well before solids reach the overflow.	Industry Standard
f	For septic systems, inspect and remove debris from pretreatment devices daily and pump solids from trap periodically, as needed.	Industry Standard
g	For septic systems, inspect and clean effluent filters at least semi-annually and replace if it is becoming brittle, has cracked, is twisted or damaged, or is showing signs of wear.	Industry Standard
h	For septic systems, inspect drain field for odors and seepage or ponding monthly.	Industry Standard
i	For lagoons, conduct periodic mowing and if possible, removal of burrowing animals from lagoon banks.	Industry Standard
j	For lagoons, inspect for noxious odor, floating plant life, excessive algae or high solid content in effluent at least monthly.	Industry Standard
k	For packaged plants, inspect system daily in accordance with manufacturer's instructions to ensure pre-treatment devices, aeration tanks, sludge pumps, settling tanks, dosing tanks/pumps, chlorination/de-chlorination systems are working properly.	O&M Manual
l	For packaged plants, maintain system in accordance with manufacturer's instructions to include scraping of hopper walls, washing of plant structures, lubrication of mechanical devices, replacement of air filters and belts as needed, cleaning of diffusers.	O&M Manual
m	Collect and analyze wastewater samples as required by federal, state, and local jurisdictions in accordance with the requirements for the receiving stream.	Local Jurisdiction
18	COOLING TOWERS	SOURCE
a	Maintain cooling tower systems IAW manufacturer's instructions, but at least annually, to include seasonal flushing and blowdown, inspections, lubrication, exercising of valves, and adjustment and replacement of belts.	O&M Manual

b	Exercise cooling tower valves and associated chilled water piping valves at least annually to ensure proper operation.	Industry Standard
c	Inspect all components annually and perform component maintenance in accordance with manufacturer's instructions.	O&M Manual
d	Treat cooling tower water at least monthly or as required with corrosion inhibitor and biocide to mitigate scale buildup and bacteria. Test water at regular intervals to ensure proper dosage of water treatment additives.	O&M Manual
e	Ensure a backflow preventer is installed to prevent backflow from cooling tower water to potable water. Inspect and test the backflow preventer annually by a qualified contractor to ensure proper operation.	International Plumbing Code
19	BOILER SYSTEMS	SOURCE
a	<p>Maintenance of boilers at least annually and in accordance with manufacturer's instructions to include controls adjustments, fuel filter inspection/replacement, drain valve blowdown, combustion chamber and refractory inspection/cleaning, inspection of safety devices, and tuning to ensure optimal performance.</p> <p>Perform the following by a qualified contractor in accordance with local requirements:</p> <p>Daily- Perform the following: Blow down the bottom of the boiler, blow down the water column (open drain slowly to prevent float damage), track boiler pressure and temperature to determine if it is keeping up with the load, take the stack temperature reading to determine how efficiently the boiler is operating (a well-tuned boiler should have a stack temperature ranging between 50-100 F above the steam or hot water temperature).</p> <p>For hydronic boiler, monitor the supply and return temperatures, look through the boiler's sight port in the furnace and observe the flame for any evidence of impingement and possible soot buildup, observe the water softener, dealkalizer, chemical feed system and any other equipment that supports the boiler to ensure proper operation and required levels of salt and chemicals, and take water samples on a regular basis and compare them to the recommendations.</p> <p>Weekly- Perform the following: Conduct an evaporation test on the low water level control(s) to ensure proper operation and burner shutoff at the low water point, check the condition of the gauge glass on the low water cutoff for wear and etching, check the operation of the fuel supply valves, check the</p>	O&M Manual

	<p>single point positioning system on the burner, and if applicable, look for wear, slip and hysteresis, observe the operating and modulating controls, and while watching the pressure gauge, see if they are turning on and off at the respective setpoints, pull out the flame scanner to ensure the burner shuts off at the prescribed time, check the indicating or running lights and alarms to make sure they are functioning properly, assess the motors for noise and vibration, look for leaks of fuel, water or flue gas, check the high- and low-gas pressure switches and the combustion air proving switch.</p> <p>Monthly- Check the following: Burner’s diffusers for any deformation, burning or cracking, burner’s pilot tube, free movement of air damper device(s), and entire outside of the boiler for signs of hot spots.</p> <p>Semi-annually- Perform the following: Remove and inspect the low water cutoff bowl and its interconnecting piping, pay close attention to the condition of the head assembly’s wiring and switches, and check the pump alignment on all the base-mounted pumps in the boiler room, and reset combustion using a combustion analyzer for reading Oxygen, Carbon Monoxide and Nitrogen Oxide (NOx).</p> <p>Annually- Perform the following: Properly shutdown the boiler and open the access doors to expose the fireside of the boiler, thoroughly clean the tubes and tube sheets, inspect the insulating materials, looking for any degradation, check the refractory insulation for any cracks (cracks of 1/8-inch or less are okay), on the waterside, look for heavy scaling and bridging of the tubes with scale, look for evidence of oxygen corrosion, check the gas valves and conduct safety test recommended by the valve manufacturer, check the safety valve to make sure there is no sign of leakage, ensure that all of the electrical connections are tight on the control panel, inspect accessories such as vented feedwater receiver, deaerator and chemical feed systems (if these are part of the boiler system).</p>	
<p>b</p>	<p>Exercise boiler valves and associated hot water piping valves at least annually to ensure proper operation.</p>	<p>Industry Standard</p>
<p>c</p>	<p>Boilers will be tested and certified annually as required in accordance with federal, state, and local jurisdiction requirements by a qualified contractor.</p>	<p>Local Jurisdiction</p>
<p>d</p>	<p>Treat boiler closed loop water at least monthly or as required with corrosion inhibitor to mitigate scale buildup. Test water at regular intervals to ensure proper dosage. Consider specialized contractor if in-house capability is not available. Ensure the chemical used is compatible with the system(s)</p>	<p>O&M Manual</p>

	gaskets and components. Consult with a certified water treatment contractor for proper concentration and chemical usage.	
e	Ensure a backflow preventer is installed on closed loop boiler systems to prevent backflow from boiler water to potable water and inspect and test the backflow preventer annually by a qualified contractor to ensure proper operation.	International Plumbing Code
20	HVAC SYSTEMS	SOURCE
a	Caution: While working on the fans or any rotating and moving parts/equipment, the main electrical switch/disconnect has to be locked open and tagged per NEC requirements.	NEC
b	Replace air filters as soon as they are visibly dirty but at least every 3 months.	O&M Manual
c	<p>Maintain HVAC systems at least annually in accordance with manufacturer's instructions to include inspection, lubrication, recalibration, evaporator/condenser coil cleaning, and adjustment and replacement of belts.</p> <p>Seasonal Maintenance</p> <p>Cooling Season- At the beginning of the cooling season perform the following: Check the unit's drain pans and condensate piping to ensure that there are no blockages, inspect the evaporator and condenser coils for dirt, bent fins, etc. If the coils appear dirty, clean them according to the manufacturer's coil cleaning instructions and recommended product(s), manually rotate the condenser fan(s) to ensure free movement and check motor bearings for wear, verify that all of the fan mounting hardware is tight, inspect the Fire Alarm and Return Air damper hinges and pins to ensure that all moving parts are securely mounted, keep the fan blades clean as necessary, verify that all damper linkages move freely and lubricate with white grease as necessary, check supply fan motor bearings; repair or replace the motor as necessary, check the fan shaft bearings for wear, replace the bearings as necessary, check the supply fan belt (replace and adjust tension of the belt if it is frayed or worn in accordance with manufacturer's part selection and installation), verify that all wire terminal connections are tight, remove any corrosion present on the exterior surfaces of the unit and repaint these areas, generally inspect the unit for unusual conditions (e.g., loose access panels, leaking piping connections, etc.), make sure that all retaining screws are reinstalled in the unit access panels once these checks are complete, with the unit running, check and record the: ambient temperature; compressor suction and discharge pressures (each circuit); superheat (each circuit); record this data on an "operator's maintenance log" and compare with</p>	O&M Manual

	<p>unit manufacturer’s published data; if pressures indicate a refrigerant shortage, measure the system superheat and recharge the system with manufacturer’s recommended refrigerant and amount <i>(Do not release refrigerant to the atmosphere. If adding or removing refrigerant is required, the service technician must comply with all federal, state and local laws)</i></p> <p>Heating Season - Perform the following at the beginning of heating season: Inspect the unit’s air filters, and clean or replace them if found to be dirty, check supply fan motor bearings; repair or replace the motor as necessary, inspect both the main unit control panel and heat section control box for loose electrical components and terminal connections, as well as damaged wire insulation, clean burner area, verify gas heat system operates properly (check condition of the ignitors, ignition module, purging fan, electronic gas valve, flow switches, etc.).</p>	
d	At least annually, clean HVAC units as well as fan intake grills, exhaust, and return grills.	Industry Standard
e	Check and change set points during seasonal changeover (at least semi-annually) to ensure temperature settings optimize comfort and economy.	Industry Standard
f	Inspect all clothes dryers vent(s) and ductwork system monthly for accumulation of lint, dust and debris. Clean, vacuum and brush accumulated lint, dust and debris inside the ductwork system(s) in its entire length. Consider specialized duct cleaning contractor if in-house capability is not available.	Industry Standard
21	HVAC CONTROLS	SOURCE
a	Maintain HVAC controls seasonally but at least semi-annually IAW manufacturer's instructions. Recommend controls maintenance and adjustments be completed by a qualified contractor unless in-house controls expertise is available.	O&M Manual
22	OTHER MECHANICAL SYSTEMS	SOURCE
a	<u>Chillers and Refrigeration Equipment</u> - Maintain in accordance with manufacturer's instructions to include quarterly inspections, annual lubrication and adjustments, and repairs as needed.	O&M Manual
b	<u>Steam Distribution Systems</u> - Test system condensate and feed water quarterly and treat as necessary. At least quarterly, inspect safety devices for proper operation, inspect/clear blowdown system, inspect/clean steam traps, condensate receiving tank(s), pumps, controls.	Industry Standard

<p>c</p>	<p>Geothermal Systems - Maintain geothermal systems in accordance with manufacturer's instructions to include weekly inspection and adjustment of antifreeze levels and water treatment system, quarterly cleaning of indoor components and inspection of visible piping system, and quarterly inspection and adjustment of controls as needed. Ensure the chemical used is compatible with the system(s) gaskets and components. Consult with a certified water treatment contractor for proper concentration and chemical usage. use a qualified contractor if in-house capability is not available.</p> <p>Perform the following on the water source heat pump units by a qualified/licensed personnel or a qualified/licensed HVAC contractor:</p> <ul style="list-style-type: none"> - Filters should be inspected at least every three months, and replaced when it is evident they are dirty. Establish a regular maintenance schedule. - Visually inspect the unit annually. Pay special attention to hose assemblies. Repair any leaks and replace deteriorated hoses immediately. - Check the contactors and relays within the control panel at least once a year. Check the tightness of the various wiring connections within the control panel. - Check condensate drain pans for algae growth every three months. If algae growth is apparent, consult a water treatment specialist for proper chemical treatment. - Conduct an amperage checks on the compressor annually. Amperage draw should not exceed normal full load or rated load amps by more than 10 percent of the values noted on the unit nameplate. Maintain a log of amperage values to detect deterioration prior to component failure. - Clean heat exchangers annually. Inspect heat exchangers regularly and clean more frequently if the unit is located in a "dirty" environment. - Lubricate fan motors annually. Conduct amperage checks annually. Amperage draw should not exceed normal full load or rated load amps by more than 10 percent of the values noted on the unit nameplate. Maintain a log of amperage values to detect deterioration prior to component failure. - Check the strainers on the pumps and water-source heat pump units quarterly. Should it be found contaminated with dirt and scaling as a result of bad water, the heat exchanger will have to be back flushed and cleaned with a chemical that will remove the scale. This service should be performed by an experienced service person. - For units incorporating a negative trap design, ensure that the condensate system is primed with water at all times. 	<p>O&M Manual</p>
<p>d</p>	<p><u>Furnaces</u> - Maintain furnaces in accordance with manufacturer's instructions to include quarterly</p>	<p>O&M Manual</p>

	inspection of fuel and air filters and replacement as needed, and quarterly inspection of belt tension and condition and replacement as needed.	
e	<u>Other (Unit Heaters, etc.)</u> - Maintain other mechanical equipment IAW manufacturer's instructions. Check once a year for contamination, and if necessary clean with compressed air, check the connections in the control box, check the operation of the thermostat.	O&M Manual
f	Fans – The bearings of the smaller fan types cannot be lubricated, If the larger fans are of the re-lubricated type, they shall be lubricated every six months. Check the belt tension quarterly (the belt type, belt tension, number and size of belts and pulley could be located on the fan housing).	
g	Water, Glycol and steam heat exchangers- Glycol-charged heat exchangers must be checked annually for the actual percentage of glycol in the water, check the air intake once a year for contamination, and if necessary clean with compressed air against the direction of the air flow or clean the air intake with a vacuum cleaner, check for leakage. Check the operation of the frost protection thermostat and check the correct control sequence when the thermostat trips.	
23	PLUMBING SYSTEMS	SOURCE
a	<u>Backflow Preventers</u> – Test and inspect backflow preventer assemblies annually by a qualified contractor to ensure proper operation.	International Plumbing Code
b	Conduct quarterly inspection of gas, water, and drainage piping systems and fixtures for leaks, insulation damage, and proper operation. Repair or replace system components as needed.	International Plumbing Code
c	<u>Lift Stations</u> - Conduct quarterly inspection of pump lift stations for proper operation and maintenance/repairs as needed.	Industry Standard
d	<u>Water Heaters</u> - Maintain water heaters in accordance with manufacturer's instructions to include quarterly inspection for proper set point, check condition of water and drain as needed, check condition of element and replace as needed, and check for any leaks and corrosion.	O&M Manual
e	Exercise water and wastewater valves at least annually to ensure proper operation.	Industry Standard
f	When buildings are vacant, planned for reuse and the water system is not regularly used, flush water lines on an on-going basis. Open all faucets at least once per day. At least biweekly, completely flush the water system both hot and cold starting at the supply and flushing outward from the supply for a minimum of 10	Industry Standard

	minutes. Remove and clean aerators, showerheads and filters.	
g	<u>Pools</u> – Maintain pools in accordance with International Swimming Pool and Spa Code (ISPSC), CDC guidance, State requirements, and local jurisdiction requirements, to include water testing and health inspection requirements.	ISPSC, CDC Guidance, State and local jurisdiction requirements
24	GREASE INTERCEPTOR SYSTEMS	SOURCE
a	Inspect system at least monthly for obstructions and leaks.	O&M Manual
b	Schedule grease removal/disposal by qualified contractor in accordance with manufacturer's recommendations but at least quarterly.	O&M Manual
c	Do not dump cooking grease down drains. Store waste grease in approved containers outside the facility and schedule disposal through qualified contractor as needed.	Industry Practice
25	RENEWABLE ENERGY SYSTEMS	SOURCE
a	<u>Solar Water Systems</u> - Inspect quarterly for leaks, loose connections, insulation wear, proper pump operations, and proper controls operations on a quarterly basis. Consider a specialty contractor if in-house capability is not available.	O&M Manual
b	<u>Solar Electric Systems</u> - Inspect quarterly for damage, loose connections, and proper controls operations. All work shall be performed by a qualified licensed contractor. The work shall be performed in accordance with IFC, NFPA 70 (NEC) and Standards.	O&M Manual NEC, IFC
c	<u>Wind Turbine Systems</u> - Maintain and inspect wind turbines at least quarterly and in accordance with manufacturer's recommendations by qualified contractor.	O&M Manual, NEC
26	ELECTRICAL SYSTEMS	SOURCE
a	<u>Transformers</u> – For outdoor transformers, inspect quarterly for leaks, corrosion, and structural support issues and remove brush and other debris from around transformers. Ensure transformer enclosures are proper locked to ensure safety. Ensure indoor transformers have adequate natural ventilation and are unobstructed. Inspect the fuses and cables in all transformers. Inspection must be performed by qualified technician or contractor, ensuring systems	National Electric Code

	are de-energized first. If de-energization is not possible, appropriate PPE and mitigation for arc-flash and electrical shock hazard must be employed.	
b	<u>Electrical Panels</u> – Inspect quarterly for breaker failure, proper securing of panel doors, and loose connections and correct any deficiencies. Inspection must be performed by qualified technician or contractor, ensuring systems are de-energized first. If de-energization is not possible, appropriate PPE and mitigation for arc-flash and electrical shock hazard must be employed. Check to ensure panel board circuit directory is accurate and correct any deficiencies. Ensure all blank panel spaces are covered by circuit breaker filler plates. Keep panels clean from lint and dirt. Ensure all panels have 3 foot unobstructed clearance.	National Electric Code
c	<u>Electrical Panel Directories</u> – Ensure that all switchboards, panelboards and disconnects to have a complete directory to ensure the safe operation of the electrical system, especially in an emergency. Every circuit, including spare and circuit modification shall be accurately and legibly identified as to its clear, evident and specific purpose or use. The identification must be included in a circuit directory that is located on the face or inside of the panel door. Directories shall be updated anytime there is a change in circuit or use.	National Electric Code
d	<u>Electrical Receptacles (Interior and Exterior)</u> - Inspect quarterly and replace damaged receptacles and receptacle covers as needed. Inspect GFCI receptacles quarterly for proper operation and replace as needed. Inspect exterior receptacle weatherproof covers and replace as needed. Inspect all receptacles for the proper polarity.	National Electric Code
e	<u>Wood Power Poles</u> – Inspect at least every 5 years by a qualified contractor for structural integrity and suitability for use in accordance with OSHA 1910.269 Appendix D requirements.	OSHA 1910.269 Appendix D
f	<u>Electrical Equipment</u> - Ensure electrical equipment such as switchgear, switchboards, panel boards, industrial control panels, meter socket enclosures and motor control centers are assessed and labeled for Arc Flash per National Electric Code 70E Standards for Electrical Safety Requirements for Employee Workplaces. Review the Arc Flash assessment every 5 years and update.	National Electric Code
27	EMERGENCY GENERATORS	SOURCE
a	Maintain engine and generator at least quarterly and in accordance frequencies and tasks recommended	O&M Manual, NFPA 110

	by manufacturer and IAW NFPA 110 by a properly trained technician or contractor.	
b	Conduct and document monthly load test of generator system in accordance with NFPA 110 by a properly trained technician or contractor.	NFPA 110
c	Inspect transfer switches at least quarterly to include checking of connections, inspection or testing for evidence of overheating and excessive contact erosion, removal of dust and dirt, and replacement of contacts when required.	NFPA 110
d	Inspect generator storage batteries weekly, including electrolyte levels and battery voltage, in compliance with manufacturer's specifications.	NFPA 110 O&M Manual
e	Records shall be created and maintained for all emergency power generators inspections, operational tests, exercising, repairs, and modifications. The record shall include the date of the maintenance report, identification of the servicing personnel, and notation of any unsatisfactory condition and the corrective action taken, including parts replaced and testing of any repair in the time recommended by the manufacturer.	NFPA 110 ASTM D 975
28	EMERGENCY EGRESS LIGHTING AND MEANS OF EGRESS MARKING SYSTEMS	SOURCE
a	Test all emergency egress backup lighting systems (including exit signs) monthly for at least 30 seconds by depressing the test button on unit.	NFPA 101
b	Test all central emergency egress backup lighting systems (including exit signs) annually for at least 1.5 hours via simulated power outage. Expiration label of tritium exit sign shall be protected from damage and shall be registered in the maintenance book.	NFPA 101
c	Inspect emergency lights and exit sign batteries for corrosion or leakage monthly and replace if required.	NFPA 101
d	Floor evacuation diagrams reflecting the actual floor arrangement and exit locations shall be posted and oriented in a location and manner acceptable to the Authority Having Jurisdiction.	NFPA 101
e	Means of egress shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency.	NFPA 101
29	LIGHTING SYSTEMS	SOURCE
a	Conduct quarterly night-time inspections of exterior lighting systems and re-lamping as required to ensure	Industry Standard

	safe illumination levels during hours of darkness. Check ballasts and photocells for operation and replace as needed. Replace any damaged or missing lenses.	
b	Conduct quarterly interior lighting system inspections and re-lamping as required to ensure adequate illumination levels. Ensure all fixtures have proper lenses or guards for lamp protection. Replace and damaged or missing lenses.	Industry Standard
30	LIGHTNING PROTECTION SYSTEMS	SOURCE
a	Inspect, test, and maintain at least annually via UL-certified lightning protection system contractor IAW NFPA 780.	NFPA 780
31	BUILDING ENVELOPE SYSTEMS	SOURCE
a	Inspect and maintain roofs at least twice per year to include removal of debris from drainage devices, inspection of flashing systems and penetrations for leaks, inspection of interior finishes for water damage, and repairs as needed.	Industry Standard and Warranty Requirements
b	Inspect downspouts and gutters at least quarterly. Remove dirt, debris, leaves, and other undesirable material. Install splash blocks as needed to prevent erosion. Redirect surface drainage if grading is towards a building's exterior by installing swales or grading towards storm water facilities. Regrade soil to slope surface drainage away from buildings, adding soil as needed.	Industry Standard
c	Inspect windows annually for proper operation and sealing and replace weather-stripping as needed.	Industry Standard
d	Inspect building envelope system annually for leaks and/or damage and repair as needed.	Industry Standard
e	Inspect exposed building envelope surfaces annually and protect as needed (e.g. repaint).	Industry Standard
32	BUILDING INTERIOR FINISHES	SOURCE
a	Inspect building interior finishes annually to include ceiling tiles, flooring, wall finishes and repair, replace, repaint as required to maintain a safe, clean and presentable environment for students and staff.	Industry Standard

33	DOOR SYSTEMS	SOURCE
a	Inspect all exterior and interior doors annually to ensure proper operation; replace or repair hardware and components as required for proper operation.	NFPA 101
34	ELEVATORS	SOURCE
a	Perform monthly maintenance of elevators by a qualified contractor in accordance with manufacturer's published instructions.	O&M Manual
b	Conduct and document annual testing of elevators in accordance with ASME A17.1 (and state/local requirements if applicable) by a qualified contractor.	ASME A17.1
c	Conduct and document elevator load test every 5 years IAW ASME A17.1 (and state/local requirements if applicable) by a qualified contractor.	ASME A17.1
35	KITCHEN EQUIPMENT PREVENTIVE MAINTENANCE	SOURCE
a	Inspect and maintain kitchen equipment including refrigeration systems, steamers, ovens, garbage disposals, and dishwashers at least annually and in accordance with manufacturer's instructions.	O&M Manual
b	Inspect and service the cooking equipment at least annually by properly trained and qualified persons. Cooking equipment that collects grease below the surface, behind the equipment, or in cooking equipment flue gas exhaust, such as griddles or char broilers, shall be inspected and, if found with grease accumulation, cleaned by a properly trained, qualified, and certified person(s) acceptable to the Authority Having Jurisdiction.	NFPA 96
36	HAZARDOUS MATERIALS MANAGEMENT	SOURCE
a	Conduct a quarterly inspection to ensure that flammable liquids are stored in an approved flammable storage locker with appropriate signage and ventilation. Inspect all flammable storage cabinets door locking system to ensure their proper functionality.	CFR 1926.152
37	FURNITURE AND FURNISHINGS	SOURCE
a	Inspect furniture and furnishings at least annually for excessive wear, serviceability and safety.	Industry Standard

38	DAILY VISUAL CHECKS	SOURCE
a	Conduct a daily visual check of the following systems (as applicable) to identify, document, and ultimately resolve, any major anomalies to include water and wastewater leaks, inoperable equipment, alarm conditions, noisy bearings; squealing belts; and tripped or unsafe electrical systems: major HVAC systems including chillers, boilers, package HVAC systems with a cooling capacity of 5-Ton or larger, and cooling towers; main electrical rooms; fire alarm panels; irrigation systems; pump and lift stations; and main water and wastewater plants and/or piping systems, and security systems.	Industry Standard