



FACILITIES PREVENTIVE MAINTENANCE PROGRAM



PREVENTIVE MAINTENANCE

The focus of Energy Savers USA maintenance program shall be on preventive maintenance. Every part of the facility shall be inspected according to the following schedules. Mechanical equipment shall be serviced according to the instructions from the manufacturer. Filters shall be changed, and equipment shall be adjusted and lubricated according to the appropriate operations and maintenance instructions.

Servicing and adjustments shall be done during inspections unless parts need to be ordered. In the event parts are to be ordered, the person conducting the preventive maintenance inspection shall complete and submit a work order for parts and any necessary work that was not completed at the time of the inspection.

Every six months, the Plant Operations supervisor or manager shall review the work order log for the previous 24 months to identify trends and to identify equipment that fails or requires adjustment more frequently than the manufacturer's recommended maintenance schedule, or more frequently than other equipment of the same type. Special attention will be given to equipment under warranty.

Equipment identified as requiring an unexpected level of attention will be considered for replacement at the earliest opportunity. If appropriate, technical assistance shall be requested from the manufacturer.

Preventive Maintenance Checks and Service (PMCS) shall be conducted at the minimum frequency listed below. Generally, each item should be given a 360 degree visual inspection for any deficiency, visual inspection of overall appearance, surface condition, cleanliness, alignment and operation and performance followed by operator maintenance according to CF & manufacture's guidelines. Operator maintenance such as lubrication, belt changing, filter changing, adjustment and upkeep is performed in accordance with this PMCS schedule. When deficiencies are determined, the inspector will take immediate, appropriate corrective action, and/or complete work order to have corrective action taken. Because of the vast number of systems and various building techniques and materials, this PMCS schedule is intended to be a guide generic in nature, with the exception of frequency, which must be followed. Technicians shall utilize this schedule to initiate complete diagnostics of each system. Life safety deficiencies shall be given highest priority.

Changes and updates to this document shall be indicated by the date in the lower left corner of each page. Changes within the current date shall be in bold underlined text and deletions shall be indicated by strike through.

Energy Savers USA Preventative Maintenance Program 2022-2023

Figure 1 - Preventative Maintenance Schedule

Title	Qty	Unit	Frequency of PMCS	Frequency of											
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Automatic Doors / ADA	15	days	.5 month												
Alarm System Fire	1	months	1 month												
Alarm System Intruder	1	months	1 month												
Gas Connections	1	months	1 month												
Facilities (restrooms)	1	months	1 month												
Facilities (classrooms)	1	months	1 month												
Facilities (office space)	1	months	1 month												
Facilities (kitchen and dining area)	1	months	1 month												
Landscape / Irrigation	1	months	1 month												
Fert. / Pesticide	1	months	1 month												
Asphalt parking areas	1	months	1 month												
Chill and hot water	1	months	1 month												
Chill water treatment & cleaning	1	months	1 month												
Main Plant Cleaning and Treatment	1	months	1 month												
Hot water treatment and cleaning	1	months	1 month												
Main Plant Cleaning and Treatment	1	months	1 month												
Emergency Generators	1	months	1 month												
Exit/Emergency Light PM Inspection	45	days	1.5 months												
Exterior Lighting Inspection	45	days	1.5 months												
Windows and doors	45	days	1.5 months												
Security Systems	45	days	1.5 months												
Emergency Call Box - PM	2	months	2 months												
Application of Magnesium	3	months	3 month												
Signage	3	months	3 month												
Gates, locks, Emergency key box	3	months	3 month												
Egress Inspection	3	months	3 month												
Exterior Stairs, Decks, and Lighting	3	months	3 month												
Fountain Filters	3	months	3 month												
HVAC P/M Air Handlers x (multiple)	3	months	3 month												
Blow Down Fire Hydrants	6	months	.5 year												
Tree Safety Inspection	6	months	.5 year												
Asbestos	6	months	.5 year												
Alarm System Smoke	6	months	.5 year												
Hurricane Equipment Checklist	6	months	.5 year												
Structural members	6	months	.5 year												
Fences & perimeter indicators	6	months	.5 year												
College Wide Door Hardware PM	6	months	.5 year												
Clean Cooling Towers	1	years	1 year												
Emergency Generators	1	years	1 year												
Fire Extinguisher Inspection	1	years	1 year												
Backflow Devices															
Electrical Systems	1	years	1 year												
Hot Water Heaters (all)	1	years	1 year												
Roofing systems	1	years	1 year												
Sewer Drains	1	years	1 year												
Storm Drains	1	years	1 year												
PM HVAC Closed Loop Systems	1	years	1 year												

1. Following items require bi-monthly (every two weeks) PMCS

Repair immediately or complete the work order for future repairs.

a. Automatic Doors

These include automatic vehicular gates, doors with ADA controls, and overhead doors in delivery areas and shops. Routine maintenance is the best method to ensure operational integrity.

- Nut, bolt, and fastener conditions
- Operating devices (motors), pneumatic powering
- Cleanliness
- Lubrication
- Stability
- Structural integrity
- Shaft conditions
- Bearing conditions
- Overload and other relay conditions
- Circuit breaker conditions
- Overall appearance for damage or vandalism
- Overall operation
- Weatherproofing/caulking condition
- Lubrication of guides, hinges, and locks
- Roller alignment
- Glazing integrity
- Hinge conditions
- Lock conditions and security
- Alignment
- Plumb
- Building settlement
- Straightness of guides
- Overall condition for deficiencies such as water intrusion and corrosion

2. Following items require monthly PMCS

Repair immediately or complete the work order for future repairs.

a. Alarm Systems

The following checklist covers automated smoke and burglar alarm systems throughout the buildings. Preventive maintenance consists of validating that all equipment is present and functional monthly. Only certified professionals shall make repairs or adjustments to alarm systems. Maintenance staff will accompany professionals during statutory inspections.

1) Fire:

Operation

Procedure: Use UL-approved smoke alarm tester in aerosol can. One spray will activate both photo electric and ionization detectors.

Battery efficiency

Hard wire connections

Housing condition

Overall condition

2) Intruder alarm system:

Note: Many systems are self-tested on a daily basis. The manufacturer's instructions should be followed at all times.

b. Gas Connections

The following check shall be performed monthly for all gas connections and main valves throughout the facility. The gas company should be contacted if:

- There is an odor of gas anywhere at any time, or
- Valves cannot be turned off or appear to be rusted or damaged, or
- For minor repairs if maintenance personnel do not have adequate training or tools.

When gas is detected by odor, building occupants should immediately evacuate, and the gas company and fire department should be contacted.

Possible undetected leakage: Visually check – Do not open and close valves

Operation

Procedure: Perform a bubble test with soap and water, or use a handheld combustible gas detector (of professional quality).

c. Restrooms

The following checklist shall be applied monthly to all restrooms within the Agency

Facility.

- 1) Fire safety
 - Electrical outlet load
 - Positioning of paper/flammable materials away from heat sources
 - Accessible route
 - Visible exit
- 2) ADA accessibility
 - Accessible toilet stalls with wheelchair turning radius
 - Accessible sinks
 - Accessible mirror
 - Handrail stability and condition
 - Special features function such as “help” mechanisms and automated systems
 - Overall condition
- 3) Plumbing
 - Inspect all component conditions for deficiencies such as leakage, corrosion, and failure potential
- 4) Sinks and hardware
 - Faucet function and hardware conditions
 - Drain function
 - Water flow/pressure
 - Overall condition
- 5) Urinals
 - Water flow/pressure
 - Cap and part conditions
 - Overall condition
- 6) Toilets
 - Water flow/pressure
 - Cap and part conditions
 - Seat support conditions
 - Overall condition
- 7) Dispenser operation and conditions (soap, paper towels, etc.)
- 8) Partitions
 - Stability
 - Surface conditions for deficiencies such as sharp or worn areas or vandalism
 - Part conditions
 - Security
 - Overall condition

- 9) Trash receptacles
 - Sanitation conditions
 - Stability
 - Overall condition
- 10) Mirrors
 - Cleanliness
 - Overall condition for deficiencies such as cracks, sharp edges, or vandalism
- 11) Overall cleanliness
- 12) Overall privacy
- 13) Overall appearance for damage and vandalism such as graffiti
- 14) Fire extinguishers (See also annual inspection of Fire Extinguishers)
 - Tag currency
 - Placement in correct proximity to potential hazards per code
 - Housing condition
 - Hose condition
 - Overall condition

d. Offices and Classrooms

- 1) Fire safety
 - Electrical outlet load
 - Positioning of paper/flammable materials away from heat sources
 - Accessible route
 - Visible exit
- 2) Emergency control panels
 - Operation
 - Part conditions
 - Overall condition
- 3) Floor condition for deficiencies such as excessive wear, tears, stains, and tripping hazards
- 4) Walls/ceiling condition
- 5) Furniture: desks, chairs, tables, and shelves
 - Stability
 - Surface conditions for deficiencies such as sharp or rough edges or protruding hardware
 - Lubrication of hardware
 - Overall condition

- 6) File cabinets
 - Stability
 - Lock function
 - Overall condition
- 7) Stationary partitions
 - Stability
 - Surface conditions for deficiencies such as sharp or worn areas and vandalism
 - Overall condition
- 8) PA system
 - Operation
 - Overall condition
- 9) Fire extinguishers (See also annual inspection of Fire Extinguishers)
 - Charge
 - Tag currency
 - Placement in correct proximity to potential hazards per code
 - Housing condition
 - Hose condition
 - Overall condition

e. Kitchen and Dining Areas

Nutrition kitchens and dining areas contain many pieces of equipment that can jeopardize life safety if preventive maintenance is neglected. The following monthly checklist includes common cooking equipment and dining furniture. Preventive maintenance for general features including Lighting, Alarm Systems, Fire Extinguishers, Doors and Windows, and HVAC Systems also applies to this area. Refer to the corresponding checklists.

- 1) Fire safety
 - Electrical outlet load
 - Positioning of paper/flammable materials away from heat sources
 - Accessible route
 - Emergency exit visibility
- 2) Equipment
 - Note: When checking kitchen equipment, first consult operating or area personnel for any deficiencies. For each item, check overall condition, switches, timers, piping and valves for leaks, wiring, pilots, doors, gaskets, and belts, where applicable. Always follow manufacturers' guidelines.*
 - Cooker
 - Dishwasher
 - Drink cooler

- Food slicer or chopper
- Freezer
- Fryer
- Garbage disposal
- Grill
- Ice machine
- Mixer Oven
- Refrigerator
- Steamer
- Toaster

- 3) Gas connections (See Gas Connections checklist)
- 4) Floor condition for deficiencies such as excessive wear, stains, and tripping hazards
- 5) Exhaust system
 - Hood function and condition
 - Grease trap function and condition
 - Filter condition
 - Exhaust duct condition
 - Fan function and condition
 - Supply duct condition (if applicable)
- 6) Furniture: counters, tables, benches, and chairs
 - Stability
 - Surface condition for deficiencies such as rough areas or protruding hardware
 - Overall condition
- 7) Fire extinguishers (See also annual inspection of Fire Extinguishers)
 - Charge
 - Tag currency
 - Placement in correct proximity to potential hazards per code
 - Housing condition
 - Hose condition
 - Overall condition

f. Landscape and irrigation

Due to the comprehensive nature of preventive maintenance, select critical areas within the landscape domain should be inspected monthly. Note: Make sure the actual number of drains and their locations correspond with those shown on the “as built” drawings.

Drains

- Proper water flow
- Piping conditions

Cover conditions
Overall condition for obstructions

Vegetation conditions for deficiencies such as root systems near buildings and walkways, shrubs and trees near buildings and power lines, vines on buildings (except as designed), and overgrown shrubs

g. Fertilizer and Pesticides TBP

h. Asphalt parking areas

Asphalt surfaces at building facilities receive extensive wear and tear from contact with buses, cars, and pedestrians. Because such deficiencies as potholes, broken edges, and eroded areas can jeopardize life safety, it is essential for maintenance personnel to take monthly measures to promptly address and anticipate failing elements. The Americans with Disabilities Act also requires accessible parking spaces and pathways, slip-resistant surfaces, and curb cuts.

This checklist can be applied to all of the following areas.

- Walkways
 - Parking lots
 - Driveways
- 1) Parking bumper conditions and position
 - 2) Speed bump conditions
 - 3) Striping and pavement signage conditions
 - 4) ADA accessibility
 - 5) Signage (See also Signage checklist)
 - Compliance with codes and standards
 - Message currency
 - Visibility
 - Overall condition
 - 6) Edge conditions
 - 7) Surface conditions for deficiencies such as buildup from salt, ice melting materials, motor oil, or gasoline
 - 8) Overall appearance

- 9) Overall condition for deficiencies such as potholes, softening, erosion, weed and root encroachment, chalking, cracking, and tripping hazards

i. HVAC Systems

Regular preventive maintenance of HVAC (heating, ventilation, and air-conditioning) systems is crucial to the quality of air and comfort level within agency facilities. HVAC systems should always sufficiently control temperature and humidity, distribute outside air uniformly, and isolate and remove odors and pollutants. Improper function and maintenance can cause indoor air pollution by allowing stale or contaminated air to remain in the building. As there are many areas within CF property that house activities with unique ventilation requirements, it is essential that the HVAC system has fully functional and regularly inspected pressure control, filtration, and exhaust equipment.

When performing any maintenance procedures, always refer to manufacturers' recommendations.

For all types of HVAC systems, change filters twice a year.

1) General conditions

- Overall cleanliness
- Mount stability System calibration
- Condensation drains condition
- Electrical connection conditions
- Filter conditions
- Motor Lubrication
 - Housing Stability
 - Connection conditions
- Oil cup conditions
- Unit operation and noise level
- Coil conditions
- Window seal and gasket conditions

2) Central/ground or roof mounted

- Air filter conditions
- Burner assembly conditions
- Circulation
- Combustion chamber/smoke pipe conditions
- Condensate drain conditions (A/C only)
- Condenser/compressor function
- Cooling coil conditions
- Electrical disconnect function
- Electrical heating unit function
- General wiring and electrical control conditions
- Guard, casing, hanger, support, platform, and mounting bolt conditions
- Piping conditions
- Liquid receiver conditions

Lubrication

Motor, driver, and assembly conditions

Platform stability

Pump unit function

Refrigerant dryer, strainer, valve, oil trap, and accessories conditions

Refrigeration lines/coil conditions for deficiencies such as frosting or icing

Registers and ducts for proper air distribution

Temperature and humidity control function

Thermal insulation and vapor barrier conditions

Water spray, weir, and similar device conditions

Overall cleanliness

Overall condition for deficiencies such as rust, corrosion, and mineral deposits

Heat pumps

Check all items listed above under "central/ground/roof mounted," plus:

Temperature setting

Noise and vibration levels

Heating systems (See also annual checklist for Hot Water Heaters)

Amp draw per manufacturer's specs

Equipment cleanliness Flow

Switch operation Mechanical

Equipment function

Pull header conditions (on units more than 5 years in age)

Pumps

Function

Oil condition

Overall condition

Safety limit switch operation

Water temperature (in and out)

Overall condition for deficiencies such as corrosion, scale, and entrapped air

Boilers

(Note: Shall be performed by a licensed professional inspector/maintenance contractor to ensure compliance with state and federal regulations.)

Air heater function

Auxiliary equipment function

Back feed pumps function

Blow off and blowdown lines function

Boiler room log condition

Burner and control conditions

Deaerator function

Energy efficiency

Electric power function

Feed water supply conditions

Feed water treatment/control

Firing rate control conditions

- Fuel supply line conditions
- Fuel system/control conditions
- Heat recovery equipment conditions
- Limit device conditions
- Pressure gauge and relief valve function
- Overall cleanliness
- Overall condition

Overall safety

- Anchor stability
- Deck areas for deficiencies such as moisture, grease, mold, and tripping hazards
- Doors
 - Hinge conditions
 - Lock and knob function
 - Guard stability per code
 - Overall condition
- Handrail stability
- Harness
 - Fastener conditions
 - Strap conditions
 - Tie conditions
 - Overall condition
- Ladders
 - Step conditions
 - Rail stability
 - Overall condition
- Vibration limit switch function
- Work area conditions
- Top surface/fan deck conditions
- Water distribution system
 - Distribution pipe condition
 - Eliminator conditions
 - Hot water distribution basin support member conditions
 - Internal strainer conditions (if applicable)
 - Lubrication of flow control valves
 - Spill flash bar conditions
 - Structural integrity
 - Bolted joint conditions
 - Nozzle conditions
 - Overall condition for deficiencies such as leaks between joints, leaks, corrosion, buildup, breaks, and obstructions.
- Overall condition for deficiencies such as leaks, cracks, deterioration, end panel separation, corrosion, pitting, wood casing for signs of rot, brittleness or cracking of fiberglass
- Safety limit and interlock function
- Shutdown operation
- Walkway/platform stability and condition
- Overall condition

j. Emergency Generators (see annual requirements) monthly inspections

3. Following items require Every 45 days / 1.5 months PMCS

All lighting systems will be inspected. Extreme care must be taken to identify and correct deficiencies.

a. Lighting: Emergency and Exterior and Interior

This checklist will be applied to the following lighting systems:

- Building exterior
- Pedestrian
- Parking area
- Field and sports areas
- Building interior (classrooms, common areas, offices, hallways, exits, etc.)
- Emergency

Various fixture and lamp types are used according to area needs, including fluorescent, incandescent, high intensity discharge (HID), mercury vapor, metal halide and arcs, or high pressure sodium (HPS). It is important to fully wash, rather than dry-wipe, exterior surfaces to reclaim light and prevent further deterioration. Illumination will be maintained according to the Illuminating Engineering Society's recommended levels.

Cleanliness

Voltage consistency

Glassware conditions

Diffusing louver conditions

Counter reflector conditions

Fixture support conditions

Stanchion conditions

Luminary conditions

Wire conditions

Ballast conditions

Timers/sensors function (make seasonal adjustments)

Junction box and cover conditions

Switch conditions

Outlet and cord conditions (if applicable)

Protective caging conditions (if applicable)

Overall condition for deficiencies such as arcing, wire exposure, unauthorized connections, and moisture problems

All lighting systems will be inspected. Extreme care must be taken to identify and correct deficiencies.

b. Security Systems / Emergency Call box

- Preventive maintenance of security systems is critical for occupant safety.
 - Charge
 - Battery efficiency
 - Function
 - Possession by authorized users
 - Battery Chargers
 - Overall condition
 - Spare Batteries

c. Surveillance cameras and monitors

- Function
- Fixture integrity
- Mounting condition/stability
- Location accuracy
- General console condition
- Power source continuity
- Overall condition
- Function

4. Following items require QUARTERLY PMCS

a. Signage

Signage is not only important for directing building occupants and visitors, but it is also a reflection of the facility's character. Dirty, damaged, or inaccurate signage can send the wrong message to the community by making the agency as a whole appear neglected. It can also jeopardize the safety of users. Signage must comply with codes and standards, such as the ADA, and is important for alerting area users of potential hazards, recent changes, or other important messages. A critical eye is needed in the maintenance process to address and anticipate sign inadequacy. The following monthly checklist applies to wall-mounted and pole-mounted exterior signage, as well as interior signage.

Compliance with codes and standards

- Cleanliness
- Accuracy of message
- Accuracy of lettering and numbering
- Adherence to surface or stabilizer
- Hardware conditions
- Illumination (if applicable)
- Location and visibility
- Paint condition
- Overall appearance

Overall condition for deficiencies such as excessive wear, missing or broken parts, obstruction from view, or message inaccuracy

b. Egress inspections for obstacles and function, Exterior Stairs, Decks, and Landings

The following is a PM checklist for exterior stairways, decks, and landings. Maintenance personnel should carefully check the building materials, particularly concrete, on a monthly basis. (The Exterior Lighting checklist is also applicable to these areas.)

Overall appearance

Concrete

- Expansion joint conditions

- Metal spacer conditions

- Overall condition for deficiencies such as alkali-aggregate expansion, cavitations (honeycombing, spalling around projections), chips, cracks, crazing, dusting, efflorescence, charred and spalled surfaces, stains, lifted areas, pock marks/pop-outs, scaling, tripping hazards, unevenness, or voids

Railings

- Stability

- Hardware conditions

- Overall condition

Wood material (if applicable)

- Stability

- Overall condition for deficiencies such as dry rot, termites, instability, worn edges, cracks, holes, and splintering

Coverings

- Surface condition

- Overall integrity

- Overall condition

Grade appearance

Footings/foundation

- Stability

- Overall condition for deficiencies such as cracks and broken or missing components

c. Gates, Power & Mechanical

The operational integrity of gates on Agency grounds is crucial to ensure that the elements of safety and controlled access are not compromised. Whereas automated gates should be inspected biweekly, non-power gates shall be examined monthly.

Chains

- Linkage conditions
- Lubrication
- Overall condition for deficiencies such as cracks and excess tension

Emergency key boxes

- Hinge conditions and operation
- Lock conditions and operation
- Key placement
- Overall condition

Hinge conditions and lubrication

Weld joint conditions

Bolt and screw conditions

Locks

- Overall operation
- Lubrication
- Security
- Overall condition

Painted surfaces

- Overall condition for deficiencies such as rust, peeling, and abrasion

Structural condition

- Stability
- Joint conditions
- Overall condition for deficiencies such as weak spots, rust, or missing parts

Tracks

- Alignment Lubrication
- Adherence to surface
- Overall condition for deficiencies such as dents and rust

d. Fountain Filters TBP

e. Sweeping parking lots TBP

5. Following items require SEMIANNUAL PMCS

a. Fences

Fences on CF property are usually made of aluminum, steel, concrete block, or wood. Metal fences, such as chain link, require regular inspection of paint condition, rust and other corrosion, and vegetation and trash buildup. Wood fences are additionally susceptible to rot and loose components, such as pickets, planks, and braces. Perimeter and boundary fences shall be checked semiannually.

Alignment

Structural stability

- Post integrity and alignment
- Foundation integrity
- Overall condition

b. Smoke Alarms

The following is a preventive maintenance checklist for individually installed smoke alarms that are not part of the larger automated alarm system. This check shall be performed semiannually. These smoke alarms may be battery-operated or hard-wired, and may be found in various areas of the facility, including out buildings.

Battery efficiency (if not hard wired)

Connection conditions for proper wiring and deficiencies such as arcing or exposed wires

Housing condition

Mounting security

Overall operation

Overall condition

Inspect all doors and windows for general condition and operability. Adjust and repair as necessary.

c. Doors and Windows

1) Windows

- Pane conditions
- Screen conditions
- Storm window conditions
- Lock operation
- Frame alignment and conditions
- Security
- Weather sealing condition
- Paint or surface conditions
- Blind function and conditions
- Hardware conditions and lubrication
- Overall condition

2) Doors and hardware

- Automatic closure operation (Must open with no more than 5 pounds of force pulling or pushing)
- Lock operation
- Hardware conditions and lubrication
- Weather sealing condition
- Paint or surface conditions
- Frame alignment and conditions
- Door stop placement and stability
- Alarm system operation
- Overall condition

d. Structural Members

Preventive maintenance entails a comprehensive visual inspection of each building material twice a year. Particular emphasis during this inspection process should be on load-bearing support areas that can be observed externally during a walking tour. The greatest cause of building demise is the penetration of water. Particular attention should be given at this time to evaluate the potential for access by water into building materials.

Beam integrity for deficiencies such as rot, termites, bowing, splitting, slippage, or fungus

Foundation condition for deficiencies such as cracking, slippage, or water encroachment

Joist conditions for deficiencies such as rot, termites, bowing, splitting, or fungus

Overall building integrity for signs of structural failure

Sill conditions for deficiencies such as rot, termites, or fungus

Stud conditions for deficiencies such as rot, termites, bowing, splitting, or fungus

Wall conditions

- Masonry for deficiencies such as cracks, scaling, mortar, crumbling, or efflorescence

- Wood for deficiencies such as termites, peeling paint, dry rot, popping, or fungus

Overall condition

Tree Safety inspection TBP

Fire Hydrant (blow down) TBP

Hurricane Equipment preparedness (prior to season and following) TBP

6. Following items require ANNUAL PMCS

a. Emergency Generators

The emergency generator in a building should be maintained annually. However, during the calendar year, the fuel level, battery charge, cleanliness, and wiring shall be checked monthly. PM shall also be performed after each use of the generators.

Operation

Fuel level

Oil and engine air filter conditions

Battery charger condition

Battery conditions for proper charge and connection

Gauge conditions

Circuit breaker conditions

Activation device conditions (starter, pull cord, switches, etc.)

Spark plug conditions

Terminal conditions

Belt conditions for deficiencies such as wear and stress

Wiring conditions

Cleanliness

Overall condition

b. Backflow Devices

Backflow devices prevent the flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any source other than intended. All backflow devices shall be tested annually by a certified contractor. Maintenance personnel shall monitor the contractor's performance and obtain written certification upon completion of work.

Backflow devices (shall be tested only by a certified contractor)

c. Electrical Systems

Electrical systems and closets shall be inspected annually. Maintenance personnel will be familiar with the locations of all electrical equipment, including circuit breakers, fuses, main feeders, subleaders, panel boards, and substations. All wiring shall be in compliance with the National Electric Code. The safety of workers is paramount; staff shall ensure that power is shut off and/or lines are de-energized where work is performed and that the LOCK-OUT TAG-OUT system is used. Electrical equipment will be serviced by outside contractors unless there is a licensed journeyman electrician among the in-house staff. .

Equipment cleanliness

Distribution system

Wire and cable conditions for deficiencies such as corrosion, dirt, moisture, and fire hazards

Connection conditions

Overall condition

Circuit breakers

Oil level and potential leakage

Hardware conditions

Porcelain condition

Cotter pin conditions

Air supplier operation

Overall condition for deficiencies such as corrosion, noise, and excessive temperatures

Fuses

Insulator conditions for deficiencies such as burns or cracks

Misalignment

Fuse holder conditions

Hardware condition

Overall condition

Lock security and lubrication

Utility room cleanliness and safety

Overall integrity

Overall condition for deficiencies such as loose wires, debris, corrosion, potential power failure, and water encroachment

d. Fire Extinguishers

The following annual PM checklist is for fire extinguishers throughout the building facility. This inspection and certification must be conducted by a licensed specialty contractor and should be scheduled in advance to ensure that the date on extinguishers will not expire. Monthly inspections of fire extinguishers' general condition, housing, and location per code shall be conducted as part of preventive maintenance procedures in areas of the Agency including Business Offices, Kitchen and Dining Areas, Boardrooms, and Restrooms. (See corresponding checklists.)

Certification

Charge

Housing condition

Hose condition

Proper location per code

Overall condition

e. Hot Water Heaters

Preventive maintenance of hot water heaters shall be performed annually. (See also HVAC Systems for other heating components.)

Circulation pump connections

Gas flame color (gas pilot should be blue with yellow at tip)

Burner conditions for deficiencies such as corrosion, inordinate flame pattern, and cinders
Pilot function

Tank plate and jacket conditions for deficiencies such as corrosion or rust

Door and lock function

Drain valve lubrication and function

Earthquake strap and bolt conditions

Gas shut-off valve lubrication and function

Piping supply lines for leaks

(Note: Use soap and water and/or hand-held gas detector)

Pressure relief valve function

Temperature setting

(Note: Use commercial grade thermometer)

Draft diverter conditions

Flue and chimney conditions

Vent condition

Utility room for deficiencies such as dirt, debris, and storage of materials

Overall condition for deficiencies such as rust in water, water and fuel leaks, and unusual sounds or odors

f. Roofing

The roof is the most costly and abused area of the facility, subject to a variety of weather conditions and temperature fluctuations. The early discovery and preventive maintenance of minor deficiencies extends its life and reduces the chance of premature failure and costly repairs.

Each building roof will be inspected annually by a college maintenance employee to look for any apparent roofing defects. Every 5 years, the department will secure the services of a roofing professional to conduct a thorough condition assessment of each roof. These assessments of both membrane and building components shall be conducted for all roofs, including newly installed ones. Adequate time will be allotted to properly perform the many tasks involved in inspection. A roof will be surveyed completely, either by carefully walking it in its entirety where accessible (wearing soft shoes), or by visual inspection with binoculars where inaccessible. Visual inspection from the attic side is also important.

Attention should be paid to southern and northern exposures, weather-generated problems, horizontal lines, peak areas, and areas of sagging. Ventilation areas should also be examined for obstructions. (For preventive maintenance of Gutters/Roof Drains, see corresponding annual checklist.)

Supporting structural integrity for deficiencies such as cracks, moisture stains, and potential failure

Flashing conditions for deficiencies such as water penetration, displacement, oxidation, excessive stretching, delamination, and tearing

Surface conditions for deficiencies such as contaminants such as exhaust or vegetation buildup

Subsurface conditions (including insulation) for signs of moisture penetration

Membrane conditions

Chimney conditions

Parapet integrity

Plumbing stack vent and roof connection conditions

Roof ventilation conditions

Skylight conditions for deficiencies such as broken glass or frames and flashing corrosion or rust

Structural conditions for deficiencies such as settling of the deck, membrane splits, or cracks in walls

Roof edging conditions for deficiencies such as deterioration and loose fasteners

Expansion joint conditions for punctures, splits, and insecure fasteners

Shingle conditions

Asphalt roof conditions for deficiencies such as brittle or missing shingles, cracking, curled edges, erosion, or exposed wood

Flat roof conditions for evenness across the horizontal plane and deficiencies such as bare areas, blisters, cove areas abutting parapets, cracks, curling, exposed nail heads, or ponding

Overall condition

g. Gutters/Roof Drains

Drainage devices are important in protecting buildings from water intrusion and damage. The following is an annual preventive maintenance checklist for gutters, downspouts, scuppers, and roof drains. Maintenance personnel shall ensure that these areas are free of debris such as leaves and branches, and that large debris has also been removed from the roof.

Mounting stability

Bolt, screw, and strap conditions

Discharge area function for proper drainage away from building

Joint conditions and stability

Roof atrium drains

- Cleanliness

- Caulking condition

- Mounting stability

- Overall condition for deficiencies such as blockages and cracks

Splash block location

Seam and elbow conditions

Caulking condition

Gutter positioning toward downspouts

Overall condition for deficiencies such as corrosion, rust, blockage, obstructions, and disconnection

h. Sewer

All drain lines in the physical building facility connect to the main drain, which is referred to as the “sewer” beyond the foundation. All sewer lines outside of the foundation have clean-out points at various locations. Reaming from these points requires the use of a high-power hose, hydro-jet, or power equipment. Sewer laterals should be annually reamed from clean-out points by in-house personnel.

Caulking condition adjacent to building exit point

Plug conditions

Pipe integrity

Plaster condition adjacent to building exit point

Overall condition for deficiencies such as soil erosion (if line exits ground)

i. Storm Drains

Storm drains or sewers are underground systems used to collect and dispose of surface water. They shall be cleaned and flushed annually to ensure blockages are removed and piping is functional.

Grate conditions

Cover conditions

Adjacent concrete or asphalt conditions

Drainage

General safety conditions

Overall condition for deficiencies such as dirt buildup around drain that might preclude proper directional flow

j. Cooling tower cleaning and closed loop system (TBP)

7. Following items require Five Years PMCS.

Fire System Certification

Comprehensive servicing and certification of the entire fire suppression system should be done every five years in accordance with current local, state, and federal requirements, including NFPA-defined guidelines. A licensed state contractor must be used, and this work shall be validated by local fire authorities.

The following items should be inspected by the contractor during this process.

- Signal initiation
- Manual alarm operation

- Water flow system components including valves, piping, pressure regulators, gauges, sprinkler heads, and shut-off operation
- Smoke detection systems
- Voice systems
- Automatic extinguishing systems
- Signage, visual notifications
- Supervisory signals
- Maintenance testing and protocol
- Central station monitoring
- Code compliance

Fire system certification (should be tested only by a certified contractor)