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STATE OF FLORIDA  
DEPARTMENT OF  
CHILDREN AND FAMILIES  
TALLAHASSEE, April 30, 1998

Facilities Acquisition and Management

OPERATION AND MAINTENANCE HOUSEKEEPING GUIDELINES

The guidelines in this pamphlet are recommended for operation, maintenance and housekeeping of the department's facilities. These guidelines are advisory, not standards; they are offered to assist the department's facility maintenance managers in their development of their facilities' maintenance management program. This pamphlet supplements CFOP 70-14, Facility Maintenance Management Program and CFOP 70-15, Housekeeping.

BY DIRECTION OF THE SECRETARY:

*(Signed original copy on file)*

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Assistant Secretary for  
Administration

SUMMARY OF REVISED, DELETED, OR ADDED MATERIAL

This pamphlet has been updated to reflect the department current organizational structure and current industry practices.

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## Chapter 1

### OPERATION AND MAINTENANCE GUIDELINES

#### INTRODUCTION

**Purpose.** These guidelines for the operation and maintenance of the department's facilities include: (1) identifying the task to be accomplished, i.e., what is to be done; and (2) establishing the frequency with which the task is to be performed, i.e., how many times per year the task should be done.

**Responsibility.** The implementation and administration of these guidelines, including the definition and adoption of procedures for task accomplishment and the assignment of specific tasks to functions and individuals, are the responsibility of facility maintenance managers. The methods or techniques by which tasks are accomplished will depend on the knowledge and expertise of individual employees; the education of employees through in-service training; the use of technical operating and service manuals provided by equipment manufacturers; guidance from the office of design and construction (ASGDC); and resource publications. Facility maintenance managers are also encouraged to provide additional guidelines not contained in the pamphlet to better meet the requirements at their facilities. Where contracted services are required, detailed technical specifications based on the guidelines should be developed to assess the performance of the contractor.

**Organization.** Each item's task index section is introduced by one or more "MGMT" paragraph(s). The MGMT refers to management. The purpose is to assist facility managers in understanding the inter-dependence of maintenance and plant management responsibilities.

Maintenance tasks are identified by the letter "M" in the operation task number while operations tasks are identified by the letters "OP." Existing and/or desired division of task assignments between operation and maintenance in individual facilities may or may not correspond to the task categorization used in this pamphlet. Each facility maintenance manager must make the final determination of where each task is going to be assigned. It is important that each task is specified and responsibility for task performance be assigned.

**Safety.** Safety is integral to operation and maintenance functions. Managers and supervisors should be safety conscious at all times. As a general safety precaution, it is recommended that managers and supervisors stress the importance to all operation and maintenance personnel that tools, equipment and material be used only for the purpose(s) for which they were designed. For more guidance on safety issues, please refer to CFOP 215-1, Casualty Risk Loss Prevention and Control, CFP 215-1, Safe Practice Guidelines for Operating and Maintaining Department Facilities and Grounds, CFP 215-2, Safe Practice Guidelines for Operating and Maintaining Machinery and Equipment and CFP 215-3, Employee Safety Orientation. Specific questions may be addressed to the office of design and construction.

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**Section 1.                    Sites and Grounds**

**MGMT** - Management should assure the sites and grounds of each facility are in a safe and sanitary condition daily.

1.05    **Drainage.**

1-M    Drainage Systems are to be inspected annually and are adjusted or repaired as required to assure that the water flow is adequate to prevent flooding of grounds (recreation areas and open space), parking lots and walkways; that catch basins are maintained at the proper elevation; and that grates are structurally sound enough to support vehicular traffic.

1-OP    Catch basins and other water collection devices are cleaned and cleared of all debris a minimum of two (2) times each year, or more often if required, to keep the system operating properly.

1.10 Paving-Hardcourts, Driveways, Walkways and Parking.

1-M All paving, including Type I and II asphalt, is inspected annually and maintained in a condition that is safe and satisfactory for its intended use.

2-M Compacted or stabilized areas are maintained free of grass and weed growth.

3-M Concrete areas are maintained free of broken or major cracked areas. Asphalt and bituminous paved areas are maintained free of major breaks or cracks that may lead to further deterioration; these paved areas should be re-sealed to prevent further deterioration of the pavement.

4-M Striping and markings on paved areas and curbs are maintained in a condition that adequately defines the function of the area at all times.

1-OP Hardcourts and parking areas are cleared daily of all paper, debris and other waste. Hardcourts and paved areas are swept and flushed as required to maintain safe and sanitary condition. Be especially careful to clean oils from asphalt parking areas in an environmentally safe manner; oils will disintegrate asphalt.

1.15 Irrigation. Irrigation requirements will vary according to types of soil, types of grass, climatic conditions and local jurisdiction water use restriction policies of.

1-M Irrigation systems are inspected semi-annually. Pumps, motors, lines and heads are maintained in a satisfactory condition at all times. The servicing of pumps and motors, including lubrication, checking motor mounts, seals, shafts, alignment, strainers, etc., is provided as recommended by the original equipment manufacturer.

1-OP Individual irrigation schedules are established that will maintain the grass and plants in a healthy and attractive condition.

2-OP Minor maintenance of the system is provided to keep the system in good operating condition. Other maintenance requirements are reported to the proper department.

1.20 Fertilization. Fertilization requirements will vary according to the type of grass or plants, type of soil and climatic conditions. It is recommended that the manufacturer's directions be followed.

1-M Fertilization schedules for those grassed areas assigned to maintenance for treatment shall have the objective of keeping the site in a healthy, attractive condition. Fertilizer spreading equipment is kept clean and in operable condition.

1-OP Individual fertilizing responsibilities are established for those tasks assigned to operations that maintain the grass and plants in a healthy and attractive condition. Fertilizer spreading equipment is kept clean and in operable condition.

1.25 Mowing. Mowing grassed areas at heights which are most appropriate for the type of grass, climatic conditions and area use helps reduce the spread of weeds, prevents damage from "scalping" and provides a neat appearance.

1-M For those areas assigned to maintenance for mowing, schedules are in effect that maintain the grass at an appropriate height.

2-M The operator performs routine maintenance of equipment to keep it in operating condition.

1-OP For those areas assigned to the operations function for mowing, schedules are in effect that maintain the grass at an appropriate height.

2-OP The operator performs routine maintenance of assigned equipment to keep it in operating condition.

1.30 Edging

1-M For those areas assigned to maintenance for edging, lines of contact between grassed areas and other landscape features are kept in a cleanly edged condition.

1-OP For those areas assigned to operations for edging, lines of contact between grassed areas and other landscaped features are kept in a cleanly edged condition.

1.35 Specialized Athletic Areas.

1-M Baseball diamonds, tennis courts, basketball courts and all other physical education areas are maintained in a safe and acceptable condition for the intended function. Major and minor maintenance activities normally require coordinating the repair(s) with a number of in-house groups. Specific assignments shall be defined to prevent duplication of effort and assure quality performance.

1-OP Specialized athletic areas are inspected one day prior to their scheduled use. All debris is removed, and required lines, markings and any other special requirements of the activity are provided.

1.40 Landscaping.

1-M Landscaped areas assigned to maintenance are to be maintained in an attractive and safe condition.



2-M Trees and tall shrubs are trimmed as required to prevent damage to buildings and power lines, and to remove broken, dead or diseased trees and branches. If unable to perform this function in-house, contracted services shall be utilized.

1-OP Landscaped areas are maintained in an attractive and safe condition. Plant beds are free of weeds. Plants and shrubs are trimmed to provide an attractive appearance and to prevent damage to buildings and fences.

1.45 Fencing.

1-M Fences are inspected semi-annually and are to be maintained in good condition at all times. All fencing components are secure and all gates are in operable condition. Fence fabric or posts should be painted.

1-OP Fence rows are maintained free of high grass, weeds and debris.

1.50 Playground and Physical Education Equipment.

1-M All playground and exterior physical education equipment is inspected annually and maintained in a safe and structurally sound condition.

1-OP All playground, physical education and athletic equipment is inspected once a month. Items needing repair are repaired or reported to the appropriate department.

1.55 Exterior Lighting.

1-M All exterior light standards, poles, guy wires, fixtures and wiring are inspected annually. Field lighting is aimed, if necessary, to provide proper lighting to the area involved.

1-OP Schedules are established for the operation of the exterior lighting. Burned out bulb replacement and minor maintenance of fixtures, standards and fasteners are performed on an "as needed" basis or are reported to the appropriate department.

1.60 Flagpoles.

1-M All flagpoles, pulleys and ropes are inspected annually and are repaired or replaced as necessary.

1-OP Ropes, pulleys and other required hardware are to be operable at all times. Discrepancies are reported to the appropriate department.

1.65 Footbridges.

1-M Footbridges are inspected annually and repaired as necessary to assure safe condition. Painting of steel or concrete footbridges add to the attractive appearance. Painting of wooden footbridges is not recommended.

1-OP Any unsafe condition shall be reported immediately to the appropriate department.

1.70 Hazardous and Poisonous Plants and Trees.

1-M All grounds are inspected semi-annually for hazardous and poisonous plants and trees, including, but not limited to common oleander, jimsonweed, milkbush, rosary pea and tung tree. The grounds are kept clean of such plants.

1-OP Any hazardous or poisonous plants or trees found growing on site are removed or reported to the appropriate department.

1.75 Weed and Pest Control.

1-M Weed and pest control programs are established and utilized to maintain the site free from excessive weed growth and pest infestation.

1.80 Benches and Tables.

1-M Outdoor benches and tables are to be inspected annually and repaired as necessary to assure a safe condition. Painting of concrete and steel benches and tables adds to the attractive appearance. Painting of wood tables and benches is optional.

1.85 Small Engine Grounds Equipment Maintenance.

1-M Small engine grounds assigned to maintenance shall be inspected quarterly during the grass growing season and repaired as necessary. Blades on mowing equipment are to be sharpened regularly to increase efficiency.

1-OP Small engine grounds equipment assigned to operations is inspected routinely during grass growing season and repaired as necessary or reported to the appropriate department.

2-OP All blade guards for hand or foot protection of cutting equipment are to be inspected and maintained for operator's safety.

1.90 Policing Grounds.

1-OP When the physical plant is in use, the grounds are policed daily.

1.95 Storm Water Drainage Systems.

1-M Storm water drainage systems shall be inspected annually. They are maintained in an an operable condition that will prevent excess pounding of water around building structures, parking lots, walkways and other traffic areas.

## Section 2. Structural Components

**MGMT** - Annual inspection programs to review the structural condition and integrity of bleachers, indoor gymnasium seating and all other spectator seating are recommended. The use of qualified personnel is suggested. Documentation of inspection results are recommended.

2.05 Foundations and Footings.

1-M Where foundations and footings are accessible, they are to be inspected annually. Any condition involving erosion, spalling, exposed structural steel or loose fastenings is to be repaired immediately. Where columns are not accessible, but there are indications of possible column deterioration, the columns shall be exposed and inspected. If trained personnel are not available, the services of a structural engineer should be utilized.

2-M All foundations and footings are to be maintained in a structurally sound condition at all times.

1-OP Any condition involving cracking and erosion of foundations and footings shall be reported to the appropriate department immediately.

2.10 Columns.

1-M Where columns are accessible, they are to be inspected annually. Any condition involving erosion, spalling, cracking, exposed structural steel, rusted steel or loose fastenings is to be repaired immediately. Where columns are not accessible, but there are indications of possible column deterioration, the columns shall be exposed and inspected. If trained personnel are not available, the services of the structural engineer shall be utilized.

2-M All columns are maintained in a structurally sound condition at all times.

1-OP Any condition involving cracking or erosion of any column shall be reported to the appropriate department immediately.

2.15 Beams and Joists.

1-M Where beams and joists are accessible, they are to be inspected annually. Any condition involving erosion, spalling, exposed structural steel, rusted steel, wood rot or loose fastenings is to be repaired immediately. Where beams and joists are not accessible, but there are indications of possible beam or joist deterioration, the beams and joists shall be exposed and inspected. If trained personnel are not available, the services of a structural engineer shall be utilized.

2-M All beams and joists are maintained in structurally sound condition at all times.

1-OP All beams and joists which are visible are routinely inspected at least quarterly. Unusual conditions shall be reported to the proper authority.

2.20 Loadbearing Walls.

1-M Loadbearing walls are to be inspected annually. Any condition indicating possible wall deterioration is to be investigated and repaired.

2-M All loadbearing walls are to be maintained structurally sound condition at all times.

1-OP Any condition indicating possible wall deterioration shall be reported to the appropriate department immediately.

2.25 Structural Framing (Concrete, Metal, Wood, Plastics).

1-M Where structural framing is accessible, it is to be inspected annually. Any condition indicating deterioration or structural unreliability is to be investigated and corrected immediately. If there are any questions regarding the structural reliability of the framing, the services of in-house personnel or a structural engineer shall be utilized.

2-M All structural framing is to be maintained in sound condition at all times.

1-OP Any condition suggesting the deterioration of structural framing shall be reported to the appropriate department.

2.30 Roof Structure.

1-M The roof structure is to be inspected annually. Any condition indicating deterioration of the roof structure is to be investigated and corrected immediately. (Also see Section 3. Roofing and Roofing Accessories.)

2-M All roof structures are to be maintained in a structurally sound condition at all times.

1-OP Interior leakage on ceilings or walls shall be reported to the appropriate department immediately.

2.35 Insulation.

1-M Blown-in insulation in frame and concrete block exterior walls is to be inspected every five years to determine if settling has occurred. Any voids created by settling are to be refilled with insulation.

2-M Blown-in and batting insulation in ceilings is to be inspected every five years to determine if compaction has occurred. If remaining thickness does not provide the required R-value, additional insulation is to be added, as required.

### Section 3. Roofing and Roof Accessories

**MGMT-** Personnel should exercise great care to preclude damage to roof coverings during inspections and/or repairs. Where there has been damage to or deterioration of a roof under bond or warranty, the appropriate department shall be notified immediately. No corrective action should be taken until the department authorizes such action so the warranty is not voided. Additional roofing information can be found in Technical Publication No. 36 (Research and Development Guidelines for the Reduction of Life-Cycle Cost of Roofing in Florida, Building Construction, University of Florida, 1984 or latest edition thereof). Roof inspection results shall be documented and made part of the funding requests.

3.05 Membrane Roofing.

1-M All roofing membrane consisting of felts, roll slate, built-up felts with asphalt or coal tar pitch and gravel are to be inspected semi-annually. Any condition that might cause the roof to leak, such as critical water or air blisters, shall be examined for cause. Corrective action should be taken after the scope of the task has been determined. Temporary repairs may be necessary.

3.10 Shingles and Roofing Tiles.

1-M All roof coverings and shingles or tiles are inspected semi-annually. Broken, missing or cracked shingles and tiles are replaced immediately.

3.15 Flashing, Sheet Metal and Expansion Joints.

1-M All flashing, sheet metal work and expansion joints are inspected semi-annually. All associated components are maintained in good condition and serve the functions of their intended use. Roofing cement shall be inspected. Dried or cracked cement indicates the material's flexibility has been compromised.

3.20 Gutters and Downspouts.

1-M Gutters, downspouts and splash blocks are inspected annually. They are maintained in good working condition, are cleaned out as required, are securely fastened to the building, and have all joints water tight.

1-OP Gutters and downspouts are kept clean and in good operating condition at all times. Major problems are reported to the appropriate department.

2-OP Splash blocks are kept in the proper position to prevent water damage to foundations and site. Damaged or missing splash blocks are reported to maintenance for repair or replacement.

3.25 Gravel Stops.

1-M Gravel stops are inspected semi-annually. All gravel stops are maintained in good working condition to prevent the washing of gravel off the edge of the roof.

3.30 Skylights, Ventilators and Roof-mounted Equipment.

1-M The flashing and pitch pans of roof-mounted equipment and structural features, such as skylights, ventilators, vent pipes, overflow scuppers, fans and air-conditioning equipment are inspected semi-annually and maintained in good repair that will prevent roof leaks in these areas. Care and caution shall be taken when inspecting roof-mounted equipment. Repairs that re-secure straps, boards, wires, etc., on roofs shall not impinge on the integrity of the roofing systems. Loose cables and other wires which may be found on roof tops shall be inspected for current use. In securing these items, care must be taken and the roof membrane shall not be penetrated.

1-OP Care and caution shall be taken when walking on the roofs in the performance of job responsibilities. All debris, dirt, leaves and pine needles shall be removed. Report discrepancies to appropriate maintenance staff for corrective action.

#### Section 4. Exterior Walls

**MGMT** - An annual inspection to check structural integrity and condition of all exterior walls is recommended. The use of qualified in-house personnel is recommended. The repair of hairline cracks or other minor maintenance items that do not permit water intrusion may be deferred until scheduled painting. Mortar joints shall be checked and tuckpointed or protected as needed.

##### 4.05 All Exterior Walls.

1-M All exterior walls are inspected annually. Repairs, including coatings, are scheduled as necessary.

1-OP Exterior walls are checked daily for markings of obscenities, graffiti or other disfigurements. All such markings are removed or obliterated as quickly as possible. Any condition considered to be unsafe shall be reported to the appropriate department.

##### 4.10 Concrete, Stucco and Exposed Block.

1-M Exterior concrete, stucco and exposed block walls are inspected annually. They are maintained free of deteriorated joints and any other imperfection that would allow water intrusion.

##### 4.15 Brick and Stone.

1-M Exterior brick and stone walls are inspected annually. They are maintained free of open cracks, spalling, deteriorated joints, broken or cracked brick or stone and any other imperfections that would allow water intrusion.

##### 4.20 Wood.

1-M Exterior wood walls are inspected annually. Wood walls are maintained free of breaks, rot, cracks, termite infestation or any other imperfection that would allow water intrusion.

##### 4.25 Metal, Composition and Plastic.

1-M Exterior metal, composition and plastic walls are inspected annually. They are maintained free of rust, corrosion, broken or cracked sections, loose joints or any other imperfection that would allow water intrusion.

##### 4.30 Precast Panels.

1-M Precast panels are inspected annually. They are maintained free of broken sections, loose joints or any other imperfections that would allow water intrusion.

##### 4.35 Vents.

1-M All vents in exterior foundation walls are inspected annually and are kept screened at all times to prevent storage and unauthorized access by vermin.

1-OP All vents in exterior foundation walls are routinely inspected on a weekly basis. Repair or report conditions as warrant.

#### Section 5. Interior Walls and Partitions

**MGMT** - An annual inspection program is recommended. Protective and corrective measures shall be taken immediately when structural defects are found that constitutes an imminent danger to the occupants. Unsafe conditions shall be remedied and out of service equipment, fixtures or materials shall be removed. The repair of minor defects may be deferred until scheduled painting.

##### 5.05 Interior Walls and Vertical Surfaces.

1-M Shall be inspected annually.

1-OP Markings of obscenities, graffiti or other disfigurements are removed or obliterated as quickly as possible after observation.

5.10 Plaster, Drywall, Wood Paneling and Vinyl Coated Paneling.

1-M Walls of these types are inspected annually. They are maintained free of major cracks, broken areas or any other damage or deterioration that would detract from their appearance.

1-OP Walls of these types are cleaned annually. They are spot-cleaned as necessary to remove occasional soiling.

5.15 Ceramic Tile.

1-M Ceramic tile surfaces are inspected annually. They are maintained free of major cracks, broken areas and other damage or deterioration that would detract from their appearance.

1-OP Ceramic tile surfaces located in restrooms, clinic rooms, shower rooms, locker rooms and cafeterias are cleaned and sanitized daily.

5.20 Acoustic Tile Walls.

1-M Acoustic tile walls are inspected annually. They are maintained free of broken, damaged, loose and badly discolored or defaced tile.

1-OP Acoustic tile is cleaned annually.

5.25 Cork.

1-M Cork walls are inspected annually. They are maintained free of broken, loose or defaced cork tile.

1-OP Cork surfaces are vacuumed semi-annually.

5.30 Fabric.

1-M Fabric walls are inspected annually. They are maintained free of loose or torn fabric and any other damage that would detract from their appearance or negate their class "A" flame spread rating.

1-OP Fabrics utilized as wall coverings are vacuumed each month.

2-OP No cleaning material is used on fabrics that would destroy or reduce the flame retardant quality of the fabric.

5.35 Chalkboards and Chalkrails.

1-M Chalkboards and chalkrails are inspected annually. When permanently mounted, they are kept securely fastened to the wall.

1-OP Chalkboards are cleaned in accordance to the manufacturer's recommendations.

2-OP Chalkrails are cleaned daily.

5.40 Tackboard (Such as Cork, Vinyl-covered Cork and Felt).

1-M Tackboards are inspected annually. Repair as necessary.

1-OP Tackboards are cleaned as needed. The cleaning method will depend upon the type of surface to be cleaned, which includes erasing, sanding, vacuuming, washing and painting.

5.45 Operable Walls.

1-M Operable walls are inspected annually and repaired as necessary to assure proper operation.

1-OP Tracks are serviced and cleaned as necessary to assure unrestricted operation.

5.50 Masonry Walls.

Masonry interior walls are inspected annually. They are maintained free of major cracks, broken areas and missing grout.

1-OP Masonry interiors are cleaned annually. They are spot-cleaned as necessary to remove occasional soiling.

5.55 Demountable Partitions (Metals).

1-M Demountable partitions are inspected annually. Repair or replaced according to the manufacturer's recommendations.

1-OP Survey daily and report damage to the appropriate department.

5.60 Impervious Walls or Partitions.

1-M Shall be inspected annually and be free of holes, cracks and chips.

1-OP Impervious walls and partitions are cleaned and sanitized daily.

2-OP Splash blocks are kept in the proper position to prevent water damage to the foundations and site. Damaged or missing splash blocks are reported to maintenance for repair or replacement.

### Section 6. Doors and Windows

**MGMT** - An annual inspection program is recommended. Because of the multiplicity of types of windows, maintenance procedures are recommended by the manufacturer are suggested when applicable or possible. Doors shall not be chained shut. Managers shall be familiar with exit access, exit discharge, means of egress and occupancy loads as relevancy to buildings under their maintenance and/or custodial responsibility.

6.05 Doors and Frames.

1-M Doors and frames shall be inspected annually and serviced or repaired as required.

1-OP Doors and frames are washed monthly and are spot-cleaned as necessary to remove occasional soiling.

6.10 Metal Doors and Frames.

1-M Metal doors and frames are inspected annually and adjusted, if required. They are maintained free of rust, caulked to prevent water intrusion, operate properly and provide the required security at all times.

6.15 Wood and Plastic Laminated Doors and Frames.

1-M Wood and plastic laminated doors and frames are inspected annually and lubricated and adjusted, if required. They are maintained free of rotted or deteriorated material, operated properly and provide the required security at all times.

6.20 Special Doors (Folding, Sliding, Overhead).

1-M Special doors are inspected annually and lubricated and adjusted, if required. They are maintained free of deteriorated material and are operational at all times.

1-OP Tracks are cleaned and serviced, as required.

6.25 Windows.

1-OP The exterior of windows are washed at least annually.

2-OP The interior of windows are washed at least twice each year.

6.30 Metal Windows.

1-M Metal windows should be inspected annually and lubricated and adjusted, if required. They are maintained free of rust or corrosion, are caulked to prevent water intrusion and shall be operational at all times.

6.35 Wood and Plastic Windows.

1-M Wood and plastic windows should be inspected annually and adjusted, if required. They are maintained free of deteriorated material, are caulked to prevent water intrusion and are to be operable at all times.

6.40 Glazing.

1-M The glazing of all windows and other glass installations is inspected annually. The glazing compound is maintained in a firm condition and loose or missing compound is replaced as soon as possible.

2-M Missing or hazardous broken glass or plastic in doors and windows is replaced promptly.

1-OP Inspect for broken glass daily and report damage to the appropriate department.

6.45 Window Operators.

1-M Window operators are inspected annually and lubricated and adjusted, if required. They are maintained free of rust or corrosion and are operable at all times.

1-OP Window operators are checked semi-annually and minor adjustments, including lubrication, are performed to keep the equipment operational at all times.

6.50 Thresholds, Weatherstripping.

1-M Thresholds and weatherstripping are inspected annually. They are maintained securely in place to prevent intrusion of the elements or loss of climate controlled air.

1-OP Thresholds are reported daily and possible tripping hazards are reported to the appropriate department.

6.55 Automatic Door Equipment.

1-M Automatic door equipment, including actuating devices, is inspected annually and lubricated and adjusted, if required.

6.60 Finish Door Hardware (Panic Hardware, Locksets, Door Closers, Hold-back Devices, Hinges, Etc.).

1-M All finish hardware is inspected annually and lubricated and adjusted, if required. It is to be free of corrosion and in operable condition at all times.

1-OP All panic hardware is checked daily. Panic hardware must be operable at all times; therefore, if minor malfunctions do not correct a malfunction, the appropriate department is called immediately to obtain repairs.

2-OP Door hinges, door closures, locksets and hold-back devices are checked weekly for loose or missing screws and adjusted and lubricated as needed. Major repairs are reported to the appropriate department.

6.65 Screening.

1-M Screening is inspected annually and is maintained in a condition enabling it to serve its intended purpose.

1-OP Window screens that are installed on the inside of the window are washed two (2) times a year, on the same schedule as the interior of the windows.

2-OP Those screens installed on the outside of the window are washed annually, on the same schedule as the window exterior. All screens are kept in place and in good condition.

6.70 Window Shades, Blinds and Blackout Curtains.

1-M Window shades, blinds and blackout curtains are cleaned annually and adjusted, if required. They are maintained free of torn material and broken slats, pulleys and cords, and are to be in an operable and safe condition at all times.

1-OP Window shades, blinds and blackout curtains are cleaned annually.

2-OP Venetian blinds are dusted or vacuumed every six (6) months and washed as needed.

3-OP Minor adjustments and repairs are made, as required, to keep the equipment operational. Other damage is reported to the appropriate department.

6.75 Fire Doors and Smoke-stop Doors and Hardware.

1-M Fire doors, smoke-stop doors and associated hardware are inspected annually. All doors and hardware are maintained in an operable condition that will ensure the integrity of their special function at all times.

1-OP Fire doors, smoke-stop doors and associated hardware are inspected routinely. Malfunctions and unsafe conditions are reported to the appropriate department immediately.

## Section 7. Floors

**MGMT** - Generally, operational and/or custodial personnel handle the day-to-day floor care requirements of the department's buildings.

7.05 Resilient Floor Coverings.

1-M Resilient floor coverings are inspected annually and are maintained free of holes and broken or badly worn material.

1-OP Areas having resilient floor coverings are dust mopped daily, if used, and damped mopped as required.

2-OP The frequency and method of periodic refinishing, consisting of scrubbing or stripping, sealing, waxing and buffing will depend on the type of floor covering being maintained and its condition. The manufacturer's recommendations for care, if available, are applicable.

3-OP A protective finish is present on all resilient floor coverings at all times.

4-OP The floor covering is free from discolored build-up of dirty seal and/or finish.

7.10 Non-resilient Floors.

1-M Non-resilient floors are inspected annually and are maintained free of holes and broken or badly worn material.

1-OP Areas having non-resilient floors are dust mopped or swept daily and dry cleaned or spot mopped as required.

2-OP Depending upon the desired finish, location and/or industry recommendations, these floors may not be sealed and/or treated with a surface finish. If the material is to be sealed and waxed, it is to be done annually.

3-OP All non-impervious, non-resilient floors are kept sealed at all times.

7.15 Non-slip Impervious Material.

1-M Floors of non-slip impervious materials are inspected annually and are maintained free of holes, cracks and broken or chipped materials.

1-OP Areas having non-slip impervious finishes are dusted or damp mopped daily.

2-OP Depending upon the desired finish, location and/or industry recommendations, these floors may or may not be sealed and/or treated with a surface finish. If the material is to be sealed with wax, it is done at least annually.

3-OP All non-impervious non-resilient floors are kept sealed at all times.

7.20 Carpeted Surfaces.

1-M Carpeted surfaces are inspected annually.

1-OP Carpeted surfaces are vacuumed or swept and spot cleaned daily.

2-OP Carpets are thoroughly cleaned annually, or as needed, using the appropriate surface or deep cleaning methods.

3-OP Carpets and pads are maintained in a manner which will provide for continuing compliance with applicable flammability standards.

7.25 Special Floor Coverings.

1-M Special floor coverings, such as wood, sheet or poured materials utilized in gymnasiums, are inspected annually and are maintained free of defects that would render the surface unacceptable for its intended use.

1-OP Special floor coverings such as sheet or poured materials utilized in gymnasiums are mopped daily and cleaned at least annually, as specified by the manufacturer.

7.30 Terrazzo.

1-M Terrazzo floors are inspected annually and are maintained free of hazardous cracks, breaks and holes.

1-OP Terrazzo floors are dust mopped daily with a non-oily mop and damp mopped when needed, except dining room terrazzo floors which are cleaned and sanitized daily.

2-OP Terrazzo floors are protected at all times with an effective sealer.

7.35 Wood.

Wood floors are inspected annually and maintained free of buckled, rotten or splintered wood.

1-OP Wood floors are dust mopped daily. Wood floors are stripped, sealed and treated with a floor finish as needed. (Gymnasium wood floors are not to be treated in this manner - see 18.05.)

7.40 Floor Mats.

1-OP Floor mats are used at entrances to rooms or buildings having high traffic patterns and are cleaned daily.

7.45 Handrails on Stairs and Steps.

1-M Handrails are inspected annually and repaired as necessary to keep them in a safe condition at all times.

1-OP Handrails are cleaned daily.

7.50 Basemolding.

1-M When basemolding is installed, it is inspected annually and kept secure in place. Broken, damaged or missing basemolding is replaced.

1-OP Basemolding is cleaned as a part of each floor refinishing operation.

7.55 Warning Signs and/or Barricades.

1-M Warning signs and/or barricades are used to discourage foot traffic when floor or floor coverings are being repaired or replaced. Barricades should not compromise adequate egress.

1-OP Warning signs and/or barricades are used to discourage foot traffic on wet or damp floors when floors or floor coverings are being cleaned or refinished.

## Section 8. Ceilings

**MGMT** - An annual inspection program for all ceilings is recommended. Particular attention shall be given to any concealed space between the ceiling and floor above, or roof above, in which there are flammable materials. Special attention shall be given to older buildings with wire lathe or stucco ceilings where the integrity of the materials may have



been compromised over the years. Caution shall be taken not to disturb or impinge upon the support systems of lighting fixtures.

#### 8.05 Plaster.

1-M Plastered ceilings are inspected annually and are maintained in a sound condition at all times. They are free of major cracks, loose or missing plaster and major discoloration.

2-M The integrity of each plastered ceiling is physically tested. The repair of minor cracks or imperfections may be deferred until the preparation for scheduled painting.

1-OP Plastered ceilings are cleaned annually.

#### 8.10 Acoustical Tiles.

1-M Drop-in ceilings are inspected annually for alignment and integrity of gridwork.

2-M Acoustical tile and transplant ceilings are inspected annually and are maintained free of loose, damaged, missing or badly colored tile.

1-OP Ceilings are cleaned, dusted or vacuumed annually. Use of liquids in the cleaning process is not recommended.

#### 8.15 Acoustical Materials (Sprayed or Troweled).

1-M Ceilings of sprayed or troweled acoustical material are inspected annually and are maintained free of loose, missing or badly discolored material.

2-M Surfaces are free of material that will emit asbestos fibers into the environment.

1-OP Sprayed or troweled acoustical ceilings are dry cleaned, dusted or vacuumed annually. Caution must be used in cleaning this type of material in order that material is not damaged or dislodged from the ceiling.

#### 8.20 Exposed Bar Joists or Exposed Joist and Deck.

1-M Ceilings of exposed bar joists or exposed joist and deck are inspected annually. All steel is to be free of rust and loose connections. All wood is to be free of rot, termite infestation and loose connections. All concrete is free of major cracks, spalling and loose connections.

#### 8.25 Ceilings of Roof Overhangs and Covered Walkways.

1-M Such ceilings are inspected annually and are painted and repaired as necessary.

1-OP Such ceilings are cleaned of cobwebs and mud dauber nests at least annually.

### Section 9. Plumbing

**MGMT** - An annual inspection, service and repair program for domestic hot and cold water distribution systems, including cafeteria, shower and toilet facilities is recommended. Facilities that operate and maintain their own sewage treatment plants and/or sewage lift stations are cautioned to not only follow all appropriate federal, state and local regulations pertaining to the operation of sewage plants, but also to ensure the safety and protection of employees assigned to those sewage plants. This caution also applies to the service and repair of septic tanks and grease traps.

#### 9.05 Domestic Hot and Cold Water Distribution Systems.

1-M Domestic hot and cold water distribution systems are inspected and serviced at least annually. They are properly maintained to provide an adequate supply at the required pressure and to prevent contamination of the system and provide the required water treatment. All broken or leaking pipes and valves are repaired immediately.

#### 9.10 Domestic Water Supply from On-Site Wells.

1-M On-site domestic water supply wells, pumps, tanks and piping are inspected and serviced at least annually. They are properly maintained to provide an adequate supply at the required pressure, prevent contamination of the system and provide the required water treatment. All broken or leaking pipes and valves are repaired immediately.

2-M Water sampling and testing are to be performed.

1-OP On-site water supply systems are operated in compliance with the rules of the Department of Environmental Protection or Department of Health and appropriate Water Management Districts.

2-OP Specific instructions are posted, describing daily, weekly and monthly operational requirements.

#### 9.15 Waste Disposal Systems.

1-M Waste disposal systems are inspected annually. However, they are serviced as required. They are maintained in good working condition at all times.

9.20 On-site Waste Disposal Treatment Plants.

1-M On-site waste disposal treatment plants are inspected annually. They are to be maintained and operated in compliance with the State of Florida, Department of Health.

1-OP On-site waste disposal treatment plants are inspected by the Department of Health.

2-OP Specific instructions are posted, describing daily, weekly and monthly operational requirements.

9.25 Septic Tanks.

1-M Septic tanks are inspected annually and are cleaned as necessary. They are maintained in proper working condition at all times, in accordance with the Department of Health.

9.30 Grease Traps.

1-M Grease traps, including the baffle systems, are inspected annually and are cleaned as necessary. They are maintained in proper working condition at all times, in accordance with the State of Florida, Department of Health.

9.35 Drinking Fountains.

1-M Drinking fountains are inspected annually and are repaired as necessary.

2-M The water supply is kept in adjustment to prevent spilling of water from the fountain or an inadequate water supply.

1-OP Drinking fountains are cleaned and sanitized daily. Separate cleaning tools are used for drinking fountains.

9.40 Fixtures (Residents, Staff and General Public).

1-M All sanitary fixtures, such as water closets, urinals, lavatories and other special equipment, are inspected annually and are maintained in proper working condition at all times.

2-M Broken or badly scoured fixtures, porcelain fixtures with badly worn surfaces and broken toilet seats are replaced. Closed or open-front seats are used for replacement.

1-OP Fixtures are cleaned a minimum of once a day with an effective germicidal, bacteriostatic cleaner and maintained in a clean, sanitary condition at all times.

2-OP Valves are adjusted to provide adequate supply.

3-OP Toilet seat fasteners are secure at all times.

9.45 Fixtures (Cafeteria, Kitchen Area).

1-M All fixtures are inspected annually. They are maintained in proper working condition at all times.

2-M Broken or badly cracked fixtures are replaced.

9.50 Faucets, Valves and Other Supply and Waste Connections.

1-M All faucets, tank type water closets, flushometer valves, siphons, mixing valves, drains and supply valves are inspected annually and are maintained in an efficient operating condition at all times.

1-OP Faucets and other valves are maintained free of leaks. Problems are reported to the appropriate department.

2-OP Flush traps, floor drains and urinal traps are water flushed and sanitized daily.

9.55 Gas Supply Lines and Valves.

1-M Gas supply lines and valves are inspected and serviced annually. Cut and damaged lines are reported immediately. Cut-off valves are in good working condition at all times.

2-M Above ground supply tanks are properly protected against damage.

1-OP Gas lines should be checked daily in those areas where lines are exposed and/or there is public use of gas equipment.

9.60 Effluent Water Systems.

1-M Effluent water systems are checked annually. Water samplings frequency should comply with all applicable local and state requirements.

9.65 Liquid Soap System.

1-M Liquid soap systems are inspected annually. The supply tank, valves and lines are maintained free of leaks and in good operating condition at all times.

1-OP Liquid soap systems should be cleaned and filled daily.

9.70 Sinks and Work Counters.

1-M Work counters are inspected annually and are maintained in a condition that will provide the user with a satisfactory work station.

1-OP Sinks and adjoining work counters are sanitized daily. Valves are adjusted to provide the correct supply and to prevent spilling. Units are in good operating condition at all times.

9.75 Showers.

1-M Shower heads are to be inspected annually and repaired and replaced as necessary. Replacement shower heads are of the energy conserving type.

1-OP Shower heads and employee/resident operating controls are sanitized daily.

9.80 Mop Sinks.

1-OP Mop sinks are cleaned daily and are maintained in good operating condition at all times. Caution is used in preventing sand and liquids such as acid or petroleum products from being dumped into mop sinks.

## Section 10. Electrical

**MGMT** - Because of the inherent hazards and high risk associated with electricity and electrical work, it is incumbent upon the facility to ensure that electrical work is done by personnel with demonstrated skill or certified competency in handling electricity. The more difficult or potentially hazardous the task, the greater the competency and skill level required by the individual performing the work. All electrical work should be in accordance with the National Electric Code (NEC). Aluminum conductors require special attention. Facilities should have board-approved plans for the removal of polychlorinated biphenols (PCB) from industrial equipment such as transformers and ballasts. The production of PCB has been halted; however, the compound is still found in existing electrical equipment and systems. All federal and state regulations pertaining to PCB should be followed and accurate records kept.

10.05 Main Service Panels, Bus-ducts and Wiring.

1-M Main service panels and wiring are to be inspected at least annually. All connections are maintained in a secure condition, breakers and fuses are checked for proper sizing and the load balance is proper at all times.

2-M The area housing the service disconnect panel is locked at all times.

1-OP The area housing the service disconnect panel is to be free of flammable and combustible material and any material which blocks access to the panels.

10.10 Distribution Panels and Wiring.

1-M Distribution panels and associated wiring are to be inspected at least annually. Breakers and fuses are checked for proper sizing. Breakers are replaced, with design capacity units, as required. All distribution panels are covered to prevent contact by unauthorized personnel.

2-M All connections are maintained in a secure condition.

3-M All circuits are properly identified by typewritten directories.

1-OP Fuse and circuit breaker panels are kept locked and accessible to only authorized persons.

2-OP When fuses are replaced, design capacity fuses, or lower amperage, are used.

3-OP If fuses continue to blow or circuit breakers continue to "kick-out," the appropriate department is called to make the required repairs or system modifications.

10.15 Receptacles and Switches.

1-M Receptacles and switches are inspected annually. They are maintained in a safe, operable condition at all times. Connections are secure, boxes firmly secured, cover plates in place and all receptacles are properly grounded.

2-M Electrical receptacles shall be properly grounded throughout the entire facility.

1-OP Receptacles and switches are visually checked during the daily performance of operational tasks. Any loose or missing cover plates are secured or replaced immediately. Missing or inoperative switches or outlets are reported to the appropriate department. Light switches found turned on in unoccupied areas are turned off, unless they have been left on for a special purpose.

10.20 Fixtures.

1-M Fixtures are inspected annually and are maintained in a safe, operable condition. Fixtures are secure and any deteriorated or missing parts are replaced.

1-OP Light fixtures, including bulbs or tubes, are washed at least annually.

2-OP Light bulbs or tubes are replaced when burned out. Remember to store fluorescent light tubes in their carton in a vertical position.

10.25 Grounding of Equipment.

1-M All portable electrical equipment is to be grounded unless double insulated.

2-M All ground fault interrupters (GFI) are inspected annually for proper functioning.

10.30 Motors and Controls.

1-M Motors and controls are inspected and serviced as recommended by the original equipment manufacturer (OEM).

10.35 Circuits.

1-OP Any multiple plug-in outlet, unauthorized extension cord or any other connection that would contribute to the overloading of a circuit is reported to the proper authority.

10.40 Emergency Lighting.

1-M All emergency lights shall be tested at least monthly. Malfunctions shall be reported and repaired immediately.

2-M General and emergency lighting shall be circuited so that failure of any single lighting unit such as an electric light bulb will not leave the area in darkness.

1-OP Emergency lighting systems are tested monthly and all burned out bulbs and tubes are replaced immediately. Malfunctions are reported immediately for repair.

10.45 Temporary Wiring.

1-M Temporary wiring shall be installed in accordance with the NFPA 70, National Electric Code.

10.50 Circuit Breakers.

1-M No circuit breaker in a panel shall be used as a local "on-off" switch for lighting or electrical equipment unless the breaker is rated for the switching.

10.55 Emergency Generator Systems.

1-M Emergency generator systems are inspected at least quarterly, oil and filters are changed and batteries are serviced as required. These systems are maintained in proper operating condition at all times.

1-OP Emergency generator systems are checked weekly for adequate fuel supply and proper lubrication. The engine is operated for a short period of time each week to test the system and charge the battery.

10.60 Battery-Operated Emergency Systems.

1-M Emergency lighting systems batteries are checked at least quarterly.

1-OP Emergency lighting systems are checked weekly for corrosion around the system.

10.65 Transformers.

1-M Transformers are inspected annually. The annual inspection includes, but is not limited to, checking and adjusting the voltage, amperage, condition of bushings and the conditioning and adequacy of the oil.

2-M Each primary transformer owned by the department has a meg check annually.

10.70 Distribution Systems (Underground and Overhead).

1-M Distribution systems are inspected annually and are maintained in a safe, operable condition at all times.

10.75 Arc Welders.

1-M Arc welders are inspected, cleaned and tested annually.

## Section 11. Heating Ventilation and Air Conditioning

**MGMT** - Heating, ventilating and air conditioning systems (HVAC) vary widely not only within the sdistricts but within buildings on the same campus. Service levels for window shakers, wall units, reciprocating machines, centrifugal systems and increasingly sophisticated HVAC equipment range from basic to very complex.

It is recommended that each facility establish its policy and procedures for maintenance and repair as stated in CFOP 70-14, Facility Maintenance Management Program. Identifying what constitutes emergencies, preventive maintenance, service work, scheduled work and project work helps define task responsibilities and adds to efficiency of operation. Provision of and participation in ongoing in-house and original equipment maintenance service and maintenance training programs decrease machine downtime and ensures appropriate corrective action.

Additionally, it is recommended that the facilities explore the use of non-destructive testing devices to support ongoing preventive maintenance or dynamic equipment inspection service (DEIS) programs. The operation and maintenances technical staff should be familiar with various computer print-outs/diagrams used to read, interpret and evaluate non-destructive testing results. HVAC units which have micro-processor systems as part of the manufacturer's original design, as a result of retrofit and/or as an add-on, are serviced per the manufacturer's specifications, i.e., the HVAC equipment's OEM. Detailed schematics of the microprocessor system shall be made available to the HVAC maintenance personnel.

### 11.05 Vibration Isolation and Support Devices.

1-M Flexible pipe or tubing connectors are inspected annually. Items showing evidence of cracking, fraying, misalignment or other signs of potential failure are replaced.

2-M Equipment support and isolation bases are inspected annually. Items showing evidence of restriction of movement, fractures, cracks or corrosion are repaired or replaced as necessary.

3-M Pipe and equipment hangers are inspected annually. Items showing evidence of loose fastening to structure, restriction to movement, damage or corrosion are repaired or replaced as necessary.

4-M Bases of roof-top equipment including curbs or other exterior installations are inspected annually. Loose hurricane tie-downs are repaired or replaced.

5-M All rubber or elastomer pads are inspected annually. Items showing evidence of deterioration or extensive deformation are replaced.

### 11.10 Water Distribution Systems (Potable and Effluent).

These systems are generally maintained to prevent corrosion and leakage, minimize resistance to flow and prevent damage to facilities or injury to personnel due to sudden failure.

1-M All temperature/pressure relief valves are inspected and manually operated quarterly when systems are in operation. Any malfunctioning unit is cleaned, adjusted or replaced.

2-M All flexible piping and tubing loops are inspected quarterly. Items showing cracks, leaks, deterioration of materials or other signs of potential failure are repaired or replaced.

3-M All piping and system components are inspected annually. Items showing evidence of leaks, cracks or misalignment are repaired or replaced as necessary.

4-M All manual valves and check valves are inspected at least annually. They are to be capable of fully closing and opening without binding, packings are leak free and the body of the valve is free of cracks. They are lubricated in accordance with the manufacturer's recommendations and repaired or replaced as necessary.

5-M All automatically actuated valves are inspected at least annually. They operate automatically per manufacturer's specifications, lack of corrosion on actuating valves, wiring not frayed or exposed and all connections are tight. They are lubricated in accordance with the manufacturer's recommendations and are repaired or replaced as necessary.

6-M All strainers, traps and filters are removed, inspected and cleaned annually. If inspection indicates large amounts of solids, the system is flushed.

7-M All pressure and temperature gauges are inspected at least annually. Units which are not reasonably accurate and fully operational are replaced or calibrated as necessary.

8-M All devices which allow for system expansion and contraction are inspected at least annually. Units which do not allow full freedom of movement without binding or wrapping are repaired as necessary.

1-OP Piping and system components are checked weekly. Repair action is initiated when there is evidence of leaks, warping, misalignments, damaged supports or other deterioration.

### 11.15 Compressed Air Systems.

This section includes compressors and air distribution systems utilized for control purposes as well as shop air systems.

1-M Compressors are inspected quarterly or as recommended by the original equipment manufacturer. Units which show evidence of low oil level, worn or loose belt(s), malfunctioning control and safety devices, leaks, loose motor connections, damaged flexible piping or malfunctioning automatic condensate drains are serviced, repaired or replaced as applicable. Intercooler fins are cleaned if applicable. Manufacturer's maintenance procedures are rigidly adhered to.

2-M All pre-coolers or after-coolers are inspected quarterly. Units which show evidence of improper operation, leaks, corrosion or inadequate lubrication are serviced, adjusted, repaired or replaced, as necessary.

3-M All pressure relief valves are inspected and manually operated quarterly when system is operated. Any malfunctioning units are replaced.

4-M Compressor air intake filters are inspected quarterly and cleaned or restored in accordance with manufacturer's recommendations.

5-M All manual valves and check valves are inspected annually for full opening and closing. They are lubricated in accordance with manufacturer's recommendations.

6-M All air actuators and other air operated devices are inspected annually. Units which do not operate properly, or which show restricted movement, leaks, cracks or other signs of potential failure are repaired or replaced as necessary.

7-M All flex lines and control tubing are inspected annually. Items showing evidence of leaks, abrasions, cracking, deterioration or other signs of potential failure are repaired or replaced as necessary.

8-M All pressure indicators and pressure regulators are inspected annually. Units which are not reasonably accurate and fully operational are replaced or calibrated as necessary.

1-OP Air compressors are checked daily to verify operation of automatic condensate drains or drain all condensate from air receivers and drain legs, to check for proper oil level and belt tightness and to listen for any abnormal sound during operation. If a problem arises, follow the emergency procedure or policy in place in the district.

2-OP Piping and system components are checked weekly. Repair action is initiated when there is evidence of leaks, warping, misalignment, damaged supports or other deterioration.

#### 11.20 Condensate Drainage Systems.

1-M Drain pans and inlets to piping are inspected quarterly when the system is being operated. They are cleaned as necessary to ensure that they are clear of obstructions, sludge and algae build-up or other solids.

2-M All traps are inspected quarterly when the system is being operated. They are cleaned as necessary to remove obstructions and build-up of solids.

3-M Condensate receivers are inspected quarterly when the system is being operated. They are cleaned as necessary to remove build-up of algae or other solids.

4-M Condensate drainage systems are chemically treated semi-annually from each inlet point to the receiver and flushed thoroughly.

#### 11.25 Gas and Fuel Oil Systems.

1-M All gas (natural/propane/L.P.) systems, including storage tanks, meters and regulators, manual and automatic valves and distribution piping are inspected quarterly by a qualified inspector. Automatic flame safeguards are tested for proper operation by subjecting protected equipment to a complete shutdown and restart. Units showing evidence of leaks, corrosion damage or improper operation are repaired or replaced as necessary.

2-M All gas or oil shutoff valves are inspected quarterly to verify freedom from obstruction.

4-M Fuel oil storage tanks and piping are inspected semi-annually. Items showing evidence of leaks, foreign matter, corrosion or damage are repaired as necessary.

5-M All pressure and level gauges are inspected at least annually. Units which are not reasonably accurate and fully operational are replaced or calibrated as necessary.

6-M All fuel oil filters are removed and cleaned or replaced quarterly or as prescribed by the manufacturer.

1-OP Areas containing gas piping or components are checked daily. If gas odors are present, they are immediately investigated and corrected or reported.

2-OP All gas (natural/propane/LP) systems, including tanks, meter, regulators and piping components are checked weekly. Burners and pilots are kept clean and in proper operating condition. Repair action is initiated when there is evidence of leaks, damage or other deterioration.

### 11.30 Insulation.

This section pertains to all insulating materials on hot water piping and system components, chilled water piping and system components, condensate drainage systems, duct work with external insulation, internal insulation in air handlers, ducts and plenums and boiler stacks and engine exhaust pipes.

1-M All insulation is inspected at least annually. Any insulation that is not free of rips, tears, holes, voids, unsealed joints, or other damage or that is not securely attached to the surface is repaired and resealed as necessary and any deteriorated or moisture saturated insulating material is replaced.

2-M All deteriorated or moisture saturated insulating material shall be replaced.

3-M All insulation containing asbestos is maintained in accordance with current federal guidelines.

### 11.35 Pumps.

Pumps are maintained in accordance with manufacturer's recommended schedules. If such schedules are not available, the following are minimum standards.

1-M Pumps are inspected and lubricated (if required) quarterly. They are checked for leaks, vibration, excessive noise and corrosion and repaired as necessary.

2-M Pump motors are inspected annually. Motor connections which are corroded or loose are cleaned and/or tightened as required. Motors which show evidence of improper alignment and any binding or excessive resistance to rotation are repaired or replaced as necessary.

3-M Couplings are inspected annually. Items which show evidence of damage, looseness or excessive wear are repaired or replaced as necessary.

1-OP Pumps are checked weekly. Leaks and/or excessive noise are reported to the appropriate department.

### 11.40 Heat Exchangers and Storage and Expansion Tanks.

1-M Double wall heat exchanger leak indicators are inspected monthly. Units showing evidence of internal leakage are repaired or replaced as necessary.

2-M These devices are inspected quarterly. Units showing signs of leakage, external corrosion, loose connections or damage are repaired as necessary.

3-M All temperature/pressure relief valves are inspected and manually operated at least quarterly. Malfunctioning units are cleaned, adjusted or replaced.

4-M Internal surfaces of heat exchangers and larger storage tanks are inspected annually. When there is evidence of excessive corrosion, deterioration or damage to lining material, or scaling of heat exchange surfaces, surfaces are cleaned, units are repaired or refinished as necessary and the system is flushed thoroughly.

5-M All pressure or level indicators or controls are inspected annually. Units which are not reasonably accurate and fully operational are repaired or replaced as necessary.

6-M Smaller storage tanks are drained and flushed annually.

1-OP Repair action is initiated when there is evidence of leaks, corrosion, loose connections or damage.

### 11.45 Water Treatment Systems.

This section includes requirements for treatment of water in dual systems to control scale, corrosion, algae-slime, foaming and build-up or other conditions which are detrimental to efficient operation. In addition, maintenance requirements for automatic water treatment equipment are also included.

1-M Water analysis reports are compared monthly with set points on automatic treatment equipment. The equipment is adjusted, repaired or replaced as necessary.

2-M Automatic treatment equipment, including controllers, pumps, automatic valves and sensors, are inspected monthly. Units which are not operating properly or which show evidence of chemical or water leaks, damage or corrosion are repaired or replaced as necessary.

3-M Open systems such as boiler feed and condenser loops are checked periodically as follows: Monthly water sample analysis; quarterly examination of strainers, filters and traps; monthly examination of cooling tower basin and boiler blowdown; and annual inspection of heat exchange surfaces. Water treatment and/or bleed off are provided as indicated either manually or by adjustment or repair of automatic treatment devices; parts are replaced as necessary.

4-M Closed systems which have been treated are checked annually by water sample analysis, inspection of test coupons (if available) and examination of strainers or filters. Chemicals are added or the system is drained, flushed or recharged as necessary; parts are replaced as necessary.

5-M All water condition measuring devices are inspected at least annually. Units which are not reasonably accurate and fully operational are calibrated or replaced as necessary.

6-M Automatic treatment systems are maintained and lubricated in accordance with the manufacturer's recommendations.

1-OP Chemical containers are checked daily. Items lacking an adequate chemical supply are refilled or replaced as necessary, or reported to maintenance for action.

2-OP Automatic treatment systems are checked daily. Repair action is initiated when there is evidence of improper operation, leaks and/or damage.

#### 11.50 Boilers.

The original equipment manufacturer's (OEM) recommended maintenance specifications, procedures and schedules are to be rigidly adhered to for safe and efficient operation. The following are minimum standards which apply in the absence of a manufacturer's recommended schedule. In larger boilers, visible internal inspections by qualified personnel are good methods of assessing the condition of the unit.

1-M All boilers are checked weekly as follows:

- a. Water level gauge operates correctly.
- b. Low water cutoff operates correctly.
- c. Linkage, dampers, valves and other components operate correctly.
- d. Blower lube oil level is adequate.
- e. Blower and/or fuel drive belts show the proper tightness.
- f. Blow down is operated as necessary to remove sludge or sediment. Units are cleaned and/or repaired as

necessary.

2-M All boilers are inspected monthly as follows:

- a. Ignition assembly is clean and operating properly.
- b. Oil nozzle or gas burner is clean and undamaged.
- c. Flame detector assembly is clean and operating properly.
- d. Air dampers are operating properly and air passages are free of foreign material.
- e. Refractory is intact. Lining elements are replaced as necessary.
- f. Water level limit detector(s) is operating properly.
- g. All automatic fuel flow control valves and the oil pump are operating properly.
- h. All temperature and pressure relief valves are manually operated.
- i. Exterior water, gas or fuel oil lines are free of leaks or damage including creases in lines.
- j. Air filter is clean. Element is replaced or filled with clean oil as required.
- k. Oil strainer or gas filter is clean.
- l. Motors are lubricated as recommended by manufacturer and drive belts are tight and free from cracks or

deterioration.

- m. Flues and stacks are clean and free of foreign material. They are cleaned as necessary.
- n. Sludge accumulation is minimal. Boiler is blown down until water from lower drain is clear.
- o. Gauge cocks, drain valves, blow down valves and other waterside devices are operational. Units are

operated. Items are cleaned, adjusted, repaired or replaced as necessary.

3-M A stack gas analyzer is used semi-annually to ensure proper and efficient combustion. Burner is adjusted or repaired as necessary.

4-M All boilers are inspected at least annually and prior to the heating season as follows:

- a. Fuel tank(s) and lines are clean, water-free and free from leaks and corrosion.
- b. Fuel pre-heaters are clean and operate properly.
- c. All internal surfaces are free from all deposits. These surfaces are cleaned, brushed, scraped, flushed or otherwise treated as necessary.
- d. All pressure, temperature and level gauges are reasonably accurate and fully operational. Units are replaced or calibrated as necessary.
- e. Units are free from indications of external damage or deterioration.
- f. Electrical connections are tight and free of corrosion. Items are cleaned, repaired or replaced as

necessary.

g. Operational check of all interlocks is made by a competent person and dates of the operational checks are entered in the operating log.

- h. Safety valves are inspected and tested and are repaired as necessary.

5-M In addition to the annual inspection, heating boilers which are shut down on a seasonal basis are placed in a proper storage condition as recommended by the manufacturer.

6-M All insulated surfaces are inspected in accordance with Section 11.30.

1-OP All boilers are checked at least daily while in operation (at start-up on the appropriate a.m.). The appropriate action is initiated when there is evidence of fuel or water leaks, signs of damage or deterioration, any abnormal sound or visual indication. The following are checked and logged:

- a. Temperatures and pressures.



- b. Adequacy of water level.
- c. Operation of burner.
- d. Appearance of stack discharge. If there is abnormal smoke, repair action is initiated as appropriate.

1-OP Boiler and boiler room are checked weekly for:

- a. General cleanliness of room and absence of flammable or combustible storage. Discrepancies are corrected or reported to the appropriate department.
- b. Adequate fresh air supply in room.
- c. Adequate fuel supply.

#### 11.55 Solar Collectors.

1-M Solar collectors are inspected monthly. Items showing evidence of clouding, leakage, glass breakage or corrosion are repaired or replaced as necessary.

2-M Flexible connectors are inspected quarterly. Items showing deterioration, abrasion, ballooning or other indications of potential failure are replaced as necessary.

3-M External insulation is inspected quarterly. Insulation showing rips, tears, loose joints or voids is repaired or replaced as necessary.

4-M All pressure relief valves and drain down devices are inspected and manually operated monthly. Malfunctioning units are replaced.

5-M Collector support and tie down devices are inspected at least annually. Devices showing corrosion, damage, loose connections or improper alignment are repaired or replaced as necessary.

6-M Tracking devices, sensors and controls are inspected and maintained in accordance with manufacturer's recommendations.

#### 11.60 Water Cooled Chillers.

Because of the large variety of sizes and types of water cooled chillers, units are maintained in accordance with the manufacturer's recommended procedures and schedules. If such procedures and schedules are not available, the following are minimum standards. Proper water treatment per section 11.45 is also critical to the proper maintenance of water cooled chillers.

1-M Each chiller is inspected weekly while operating to observe purge unit operation (if applicable). If purging, follow the original equipment manufacturer's maintenance and repair specifications.

2-M Each chiller is inspected weekly while not operating to observe oil level, temperature and tightness of purge unit and/or compressor drive belts. If problems arise, follow original equipment manufacturer's maintenance and repair specifications.

3-M Each chiller is inspected monthly as follows:

- a. Daily operating log of temperature and pressure is analyzed and corrective action is taken as necessary.
- b. Oil level is checked and oil is added if necessary.
- c. Proper operation of the crankcase heater and maintenance of proper oil temperature are verified.
- d. The purge unit (if applicable) is observed for a period of time during chiller operation. If there is evidence of excessive purging, the unit is repaired as necessary.
- e. Drive belt on purge unit (if applicable) is inspected. If there is cracking, fraying slackness or other deterioration, the item is replace.
- f. External components and surfaces are visually inspected. If there is evidence of damage, deterioration, corrosion or leaks, repairs are made as necessary.
- g. The machine is started and stopped. If all controls, programmers and time delays are not functioning properly, units are repaired, adjusted or replaced as necessary.
- h. Capacity controllers and/or unloaders are observed during full and part load operation. Malfunctions are corrected as necessary.
- i. Lamps, gauges and other indicating devices are inspected. Those not operating properly are replaced, adjusted or repaired as necessary.
- j. If compressor(s) is belt-driven, belts are inspected. If slackness, cracks, fraying or other deteriorations are in evidence, the item is adjusted or replaced as necessary.

4-M Each chiller is inspected semi-annually as follows:

a. Chiller safety devices are inspected. These include cut-outs for low water temperature, low refrigerant temperature, low oil pressure, high condenser pressure and single phase and electrical safeties for motor temperature, under-voltage and over-current. Units are not operating properly are adjusted, repaired or replaced.

b. Starter and associated electrical equipment are inspected. If there is evidence of damage, loose connections, corrosion or other deterioration, items are repaired or replaced as necessary.

- 5-M Each chiller is inspected annually as follows:
- a. Oil and oil filter are changed.
  - b. Refrigerant filters are replaced.
  - c. The purge unit is disassembled, cleaned and reassembled ensuring proper operation of floats, valves and orifices. Strainers or filters are replaced if applicable.
  - d. The refrigerant flow chamber is opened, inspected and cleaned, ensuring proper operation of low control and check valves. Any scale, debris or corrosion is removed.
  - e. Cooler and condenser surfaces and tubes are opened and inspected. Any scale, corrosion or debris is removed. Proper water treatment is verified by condenser and cooler conditions.
  - f. Leak checks are conducted if indicated by purge frequency. Refrigerant level is checked and adjusted if necessary.
  - g. Operation of relief valves and condition of burst discs are checked.
  - h. Compressor bearings are inspected as recommended by manufacturer. They are replaced if damaged or worn excessively.
  - i. In non-hermetic chillers, motor drive coupling is inspected. Worn or misaligned units are adjusted, repaired or replaced.
  - j. All temperature and pressure gauges are inspected. Units which are not reasonably accurate and fully operational are adjusted, repaired or replaced, as necessary.
- 1-OP Each chiller is checked at least daily while in operation (after start-up or in a.m.). Leaks, signs of damage or deterioration, any abnormal sound and improper operation are reported to maintenance. The following are checked and logged:
- a. Temperatures and pressures, including oil pressure and suction and discharge pressures.
  - b. Oil level and temperature.
  - c. Every abnormal shut-down and subsequent failure indication and re-set action.

#### 11.65 Air Cooled Chillers.

Because of numerous types and sizes of air cooled chillers, units are maintained in accordance with the manufacturer's recommended procedures and schedules. If such procedures and schedules are not available, the following are minimum standards:

- 1-M Each chiller is inspected annually as follows:
- a. Oil and oil filter are changed.
  - b. Refrigerant filters and dryers are replaced.
  - c. Cooler and refrigerant flow chambers are opened and checked. When there is evidence of improper valve operation or the presence of scale or corrosion, surfaces and tubes are cleaned of all debris, scale and corrosion and items are repaired as necessary. Chilled water treatment is adjusted as indicated.
  - d. Refrigerant circuits are leak checked and refrigerant level is adjusted if necessary.
  - e. Operation of relief valves and condition of burst discs are checked.
  - f. Condenser fan bearing are inspected. If there is evidence of excessive wear or play, they are replaced.
  - g. Condenser motor is inspected. If there is evidence of excessive wear or play, they are replaced.
  - h. All pressure and temperature gauges are inspected. Those which are not reasonably accurate and fully operational are adjusted, repaired or replaced as necessary.
- 1-OP Each chiller is checked at least daily while in operation (after start-up or in a.m.). Leaks, signs of damage or deterioration, any abnormal sound or vibration and improper operation are promptly reported to maintenance. The following are observed and logged:
- a. Temperatures and pressures, including oil pressure, head pressure and suction pressure.
  - b. Every abnormal shut-down, failure indication and re-set action.
  - c. Oil level and temperature.
  - d. Abnormal condenser fan noise or vibration.
- 2-OP Any trash is removed from condenser area or coils.

#### 11.70 Air-to-Air A/C Systems.

This section includes all air conditioning units which are air cooled and utilize direct expansion coils for cooling, including rooftop single or multi-zone units, individual room units, window units, split systems or other small packaged A/C systems. These units are maintained in accordance with the manufacturer's recommended procedures and schedules. The following are minimum standards which apply in the absence of a manufacturer's recommended schedule:

- 1-M Filters are maintained in accordance with Section 11.90.

2-M Each chiller is checked weekly while not in operation to observe oil level and temperature, compressor and/or fan drive belt tightness and the condition of fan blades and condenser housing. Malfunctions are corrected as necessary.

3-M Each chiller is inspected monthly as follows:

a. Daily operating log of temperatures and pressures is analyzed and corrective action is taken as necessary.

b. Oil level of compressor(s) is checked and oil is added as necessary.

c. Crankcase heater is inspected. Malfunctions are corrected as necessary.

d. External components and surfaces are visually inspected. Units showing indications of damage, deterioration, corrosion or leaks are repaired as necessary.

e. The machine is started and stopped. Controls, programmers and time delays which are not functioning properly are adjusted, repaired or replaced as necessary.

f. Capacity controllers and/or unloaders are observed during full and part-load operation. Malfunctions are corrected as necessary.

g. Lamps, gauges and other indicating devices are inspected during chiller operation. Malfunctions are corrected as necessary.

h. Compressor drive belts are inspected. Those showing looseness, cracks, fraying or other deterioration are tightened or replaced.

i. Condenser fan belts are inspected. Those showing looseness, cracks, fraying or other deterioration are tightened or replaced.

j. Condenser coils are inspected. Units showing dirt build-up, trash, damaged fins, leaks, corrosion, or other deterioration are cleaned, repaired or replaced.

k. Condenser fan operation is observed. If the unit shows evidence of excessive vibration or noise, it is repaired or replaced.

l. Unit housing is inspected. If there is damage, corrosion or other deterioration, it is cleaned, refinished or repaired as necessary.

4-M Each chiller is inspected semi-annually as follows:

a. Chiller safety devices are inspected. These include cut-outs for low water temperature, low oil pressure, high head pressure and low refrigerant temperature and single phase and electrical safeties for under/over voltage and over-current. Units which are not operating properly are adjusted, repaired or replaced.

b. Starter and associated electrical equipment are inspected. Those showing damage, loose connections, corrosion or other deterioration are cleaned, tightened and repaired as necessary.

5-M Each unit is inspected quarterly as follows:

a. The case or housing is inspected. Leaks, corrosion, damage or other defects which would degrade operation and efficiency are repaired as necessary.

b. Control devices are inspected. Items which are not operating properly are repaired or replaced.

c. Condenser and evaporator coils are inspected. If coils are not clean, there is extensive fin damage or fin protectors, if needed, are not in place, items are cleaned or repaired as necessary.

d. Fans and drives are inspected. If fan blades are dirty or damaged, or if fan belts are loose, cracked or deteriorating, items are cleaned, repaired or replaced.

e. The refrigerant system is visually inspected. Items showing evidence of leakage, low compressor oil level or improper compressor operation are serviced, repaired or replaced.

f. All dampers are inspected. Items showing evidence of damage or improper operation are repaired or replaced.

6-M All motors and bearings are lubricated annually.

7-M All temperature and pressure gauges are inspected annually. Those which are not reasonably accurate and fully operational are adjusted, repaired or replaced.

8-M All electrical connections are inspected at least annually. Those which are corroded or loose are cleaned and tightened as necessary.

9-M Attached ductwork is inspected in accordance with Section 11.80.

10-M All insulated surfaces are inspected in accordance with Section 11.30.

1-OP All units are checked weekly. Repair action is initiated when there are signs of refrigerant leaks, condensate drain blockage, case or filter damage, abnormal noise or vibration, or improper operation. Filters are maintained in accordance with Section 11.90.

11.75 Cooling Towers.

- 1-M Each tower is inspected quarterly as follows:
- Each tower is checked for drive belt tightness, drive oil levels, any sign of damage to fans and abnormal amount of solids, algae growth, foaming or other abnormal water conditions.
  - Fans and drives are inspected. Items showing evidence of damage, vibration, low oil level in gear drive, overloading, loose belts, loose blades or other indications of potential failure are adjusted, repaired or replaced as necessary.
  - Float valves are inspected. Units showing evidence of improper operation and level setting are adjusted, repaired or replaced as necessary.
  - Distribution valves, pans and covers are inspected. Items showing evidence of improper water distribution, leaks, deterioration or damage are adjusted, repaired or replaced.
  - The flow-through tower is visually checked for improper water break-up.
  - Bleed-off line is inspected to ensure any obstruction is removed.
  - Basin and sump(s) are inspected. Where there is evidence of leakage or excessive solids, the condition is corrected.
  - (Winter Months) Freeze protection safeguards are in place and operational in climate zones where tower freezing can occur.
- 2-M Each tower is drained at least annually and basin, sumps, strainers and other internal surfaces are thoroughly cleaned, flushed and repaired.
- 3-M Fan motor connections are inspected annually. If they are corroded or loose, they are cleaned or tightened as necessary.
- 4-M Fan drive components are lubricated in accordance with manufacturer's recommendations.
- 5-M Controls and safety devices are inspected and maintained in accordance with manufacturer's recommendations.
- 1-OP Each tower is checked daily to verify that:
- Water flow is normal.
  - Water level in basin is normal; float valve is fully operational.
  - Bleed-off is operational.
  - Fans are operating without abnormal noise or vibration.
  - Tower structure is undamaged and free of leaks.
- 2-OP Each tower is checked weekly. Repair action is initiated where there is evidence of loose drive belt, low drive oil level, damage to fans and abnormal amounts of solids, algae growth, foaming or other abnormal water conditions, including ph levels.

11.80 Air Distribution Duct Systems.

- 1-M Systems and system components are inspected annually as follows:
- All accessible duct work is inspected. Instances of leakage, damage, insecure support, corrosion or other indications of failure are repaired as necessary.
  - Duct system components, such as dampers, variable volume boxes, access doors, flow stations and diffusers are inspected. Items showing evidence of improper operation, corrosion, damage or other signs of failure are adjusted repaired or replaced. Ceiling tiles used to diffuse conditioned air are replaced when they no longer permit movement of the designed volume of air.
  - Fire and smoke dampers are inspected. Any condition which would hamper or prevent proper actuation is corrected.
  - Where feasible, internal duct components such as baffles, sound liners and turning vanes are inspected. Any damage is repaired.
  - Flexible duct work is inspected. Leaks, tears, abrasion, collapsed areas or deterioration are repaired.
  - The kitchen hood exhaust duct is inspected. Any conditions which could hinder proper and safe operation is corrected.
  - The cleanliness of kitchen hood exhaust ducts is generally the responsibility of food service personnel.
- 1-OP Air registers are cleaned at least annually.

11.85 Air Handling Units.

- 1-M Units are inspected at least quarterly. Any air, condensate or water leaks are repaired.
- 2-M Operable duct system components are inspected, maintained and lubricated in accordance with manufacturer's recommendations. Units are inspected semi-annually as follows:
- Fans and drives are inspected. Loose or worn drive belts, worn or noisy bearings, worn shafts, inoperative or damaged inlet vanes, dirty components, inadequately lubricated components and malfunctioning speed control devices are serviced, cleaned, repaired or replaced as necessary.

b. Bypass control valves are inspected. Units showing evidence of leaks, improper operation and corrosion are adjusted, repaired or replaced.

c. Dampers and/or operable louvers are inspected. Items showing evidence of improper operation, corrosion and excessive dirt are cleaned, adjusted or repaired as necessary.

d. Condensate drain pans are inspected. Items showing evidence of leaks, corrosion, excessive slime or dirt and improper drainage are cleaned, repaired or replaced as necessary.

3-M Units are inspected annually as follows:

a. Motor connections are inspected. If they are corroded or loose, they are cleaned or tightened.

b. All temperature, pressure or flow gauges are inspected. Those which are not reasonably accurate and fully operational are adjusted, repaired or replaced as necessary.

c. Access doors or panels are inspected. Those showing evidence of improper operation, leaks or damage are repaired or replaced as necessary.

d. Cooling and heating units are inspected. Those showing evidence of leaks, corrosion, damage, and excessive dirt are cleaned, adjusted, repaired or replaced as necessary.

4-M Fan motors, shaft bearings and other moving components are lubricated in accordance with manufacturer's recommendations.

5-M All controls, smoke and fire sensors or flow sensors are inspected and maintained in accordance with manufacturer's recommendations.

6-M Vibration isolation devices are inspected in accordance with Section 11.05.

7-M Insulation is inspected in accordance with Section 11.30.

1-OP All accessible air handling units are observed daily. Repair action is initiated when there is evidence of improper operation, excessive noise or vibration, water or condensate leaks or any signs of damage.

2-OP Filters are maintained in accordance with Section 11.90.

#### 11.90 Air Filters.

Routine servicing of air filters in all climatic control units/systems is extremely important to proper and efficient operation of the system. A large variety of filter types are utilized in various systems and the required frequency of cleaning or replacement will vary with the type of system, the type and utilization of the facility or computer control system program requirements. Filter servicing schedules must be established and modified through inspection of filters during operating periods. In the absence of manufacturer's recommendations, the following are minimum standards. In cafeterias and/or kitchens special attention to servicing, including cleaning the entire hood and its ancillary equipment, is essential to reduce casualty and sanitation hazards.

1-M All filters and filter systems are inspected monthly or as needed as follows:

a. All filter material is inspected and any which has become deteriorated, torn, perforated or uncleanable is replaced.

b. Filter frames and racks are inspected. Items are cleaned, adjusted and repaired as necessary to ensure that no gaps exist with filters in place. Filters can be removed and installed easily and assemblies are clean and free of corrosion.

c. Roll filter mechanisms (where applicable) are inspected. Clean, undamaged filter material is left in place. Repairs and adjustments are made as necessary to ensure that drive and control devices are fully operational and the system operates without binding or damage to filter media.

2-M Kitchen exhaust hood filters and racks are inspected quarterly. Those showing evidence of improper closure, grease build-up, corrosion and damage are cleaned, repaired or replaced as necessary.

3-M Wash-down filter mechanisms are inspected quarterly for compliance with manufacturer's recommendations or as follows:

a. Spray nozzles are checked. Those which are clogged or damaged are cleaned or replaced.

b. All hoses are inspected. Those showing evidence of deterioration, leaks or other damage are replaced.

c. Drain pans are inspected. Those showing evidence of improper drainage, leaks or build-up of residue are cleaned or repaired as necessary.

d. Movable spray heads are inspected. Items are repaired or replaced as necessary to ensure that drive and control assemblies operate properly and are properly lubricated.

e. All components are inspected. Those showing evidence of corrosion and dirt build-up are cleaned or repaired as necessary.

1-OP All air filters and filter systems are inspected at least weekly. Filters in need of replacement are reported to maintenance.

2-OP Systems are not operated without filters.

### 11.95 Heaters.

This section includes standards for various types of space heating devices. Maintenance of these units is in accordance with the manufacturer's recommended procedures and schedules. The following are minimum standards which apply in the absence of manufacturer's recommendations.

1-M Annually prior to the start of each heating season, each unit heater is inspected as follows:

a. Fan and drive are inspected. Items are cleaned, serviced, adjusted or repaired as necessary to ensure that the fan is clean and free of damage and corrosion; drive belts (if applicable) are not deteriorated, cracked or worn; drive motor connections are tight and free of corrosion; motor and fan bearing have been properly lubricated; and housing is clean and undamaged.

b. Control devices are inspected and operate properly.

c. Electrical elements are inspected. Items are cleaned, adjusted or repaired as necessary to ensure that they are clean, undamaged and fully operational and connections are tight and corrosion free.

d. Hot water or steam coils are inspected. Items are cleaned, repaired or replaced as necessary to ensure that they are clean, free of leaks and corrosion and fully operational.

e. Gas or oil burners are inspected. Items are cleaned adjusted, repaired or replaced as necessary to ensure that they are clean, free of damage and corrosion and fully operational. Pilots or other safety devices operate properly.

f. All valves are inspected. Items are repaired or replaced as necessary to ensure that they are operational and free of leaks or other damage.

2-M Coils are inspected at least monthly and cleaned if necessary.

3-M Duct heaters are inspected annually prior to start of heating season as follows:

a. Elements are inspected. They are cleaned, repaired or replaced as necessary to ensure that they are fully operational, clean and damage free and electrical connections are tight and free of corrosion.

b. Control devices, particularly flow switches, are inspected. They are cleaned, adjusted, repaired or replaced as necessary to ensure that they are fully operational and connections are tight and free of corrosion.

4-M Annually prior to the start of each heating season, each radiant heater is inspected as follows:

a. Electrical connections are inspected. They are cleaned and tightened as necessary to ensure that they are tight and corrosion free and the panel is clean and undamaged.

b. Reflectors are inspected. They are cleaned and adjusted to ensure that they are clean, properly positioned and undamaged.

c. The gas burner is inspected. It is cleaned, adjusted or repaired as necessary to ensure proper operation.

d. Gas, kerosene or other oil-fired units are inspected. They are cleaned, adjusted or repaired as necessary to ensure that they are clean, free of corrosion, fuel leaks or other damage. Air intakes and vents are clear, clean and fully operational.

1-OP Hot water unit heaters are checked weekly during the heating season. Repair action is initiated as necessary to correct leaks, improper operation or abnormal noise or vibration.

2-OP Gas-fired and oil-fired heaters are checked daily. Repair action is initiated as necessary to correct fuel leaks, improper burner operation, damage, foreign materials and improper air intake and stack operation.

3-OP Filters are maintained in accordance with Section 11.90.

### 11.100 Ventilating and Exhaust Fans.

1-M All fans are inspected annually as follows:

a. All roof-top fans are inspected. Units showing evidence of damage, corrosion, leakage or other deterioration are cleaned, repaired or replaced as necessary. Fan motor is lubricated if required.

b. Wall/window and ceiling fans and automatic louvers are inspected. Units showing evidence of damage, corrosion, dirt build-up or other deterioration are cleaned and repaired. Drive belt is replaced if required. Bearings are lubricated.

c. Axial-flow or other in-duct fans are inspected. Units showing evidence of damage, binding, corrosion, dirt buildup or other deterioration are cleaned or repaired as necessary. Motor and bearings are lubricated if required.

d. The proper operation of each fan and all associated control devices is verified.

1-OP Fans are checked weekly. Appropriate repair action is initiated where necessary to ensure proper operation, belt tightness, louver operation and freedom from excessive dirt or damage.

### 11.105 Controls and Safety Devices.

In general, control and safety device maintenance standards are included in the system or subsystem sections and manufacturer's recommendations for maintenance are applicable. The following general standards are applicable in the absence of other standards or manufacturer's recommendations.

1-M All smoke sensors, fire sensors, flow sensors, flame detectors, level alarms and other safety devices incorporated in equipment, piping or duct work are inspected semi-annually. They are cleaned, adjusted, repaired or

replaced as necessary to ensure proper and complete operation and freedom from signs corrosion, deterioration and other damage.

2-M Thermostats, timers, limit switches, time delays, pressure switches, relays, regulators and other electronic, electrical or pneumatic control devices are inspected annually. They are cleaned, repaired or replaced as necessary to ensure proper operation, tight, corrosion-free connections and freedom from signs of deterioration and damage.

3-M All control and/or safety devices are checked annually. They are calibrated or adjusted as necessary to ensure accuracy of operation.

1-OP Control devices are checked weekly. Repair action is initiated when there is indication of improper operation, damage or abnormal indication.

2-OP All relief valves are manually operated at least weekly. Repair action is initiated when there is indication of improper operation.

## Section 12. Communications and Alarm Systems

**MGMT** - The technology necessary to service, maintain and repair communications and alarm systems range from elementary to quite complicated. When new systems are installed in existing facilities, operation and maintenances personnel should be made aware of the installation design and process. Training for system maintenance, trouble shooting procedures and repair shall be written into the specifications. Strict adherence to warranties and guarantees is essential.

### 12.05 Fire and Smoke Detection Systems.

1-M Fire and smoke detectors are inspected at least semi-annually and are maintained in an operable condition at all times. When activated, they shall activate the alarm system.

2-M Smoke detector operation shall be tested annually in a manner approved by the State Fire Marshal.

3-M Restorable heat detectors shall be tested semi-annually, testing at least one such detector on each circuit, so that all such detectors are tested in a five-year period.

4-M Nonrestorable heat detectors, if installed longer than 15 years, shall be tested in accordance with NFPA 72.

### 12.10 Alarm and Fire Notification Systems.

1-M The entire alarm and fire notification system is inspected at least annually and maintained in a fully operational condition at all times.

1-OP Fire alarm notification systems are tested monthly and all inoperative equipment is replaced or restored to its normal operating condition as soon as possible or reported to the proper department. All alarm-signaling equipment is restored to service as promptly as possible after each test or alarm.

2-OP Fire alarm system is to be activated as a part of each required quarterly emergency evacuation drill.

### 12.15 Clock and Program Bell Systems.

1-M Clock and program bell systems are inspected, cleaned and adjusted annually and any worn or damaged components are replaced. The systems are maintained in an operable condition at all times.

### 12.20 Security Alarm Systems.

1-M Where security alarm systems are installed, they are maintained in an operable condition at all times.

1-OP Security alarm systems are activated by the last person leaving the building and de-activated by the first person arriving in the morning.

2-OP Security systems are checked monthly for proper operation. Malfunctions are reported to the proper department.

### 12.25 Intercom Systems.

1-M Intercom systems are inspected, cleaned and adjusted at least annually and any worn or damaged components are replaced. The systems are maintained in an operable condition at all times.

### 12.30 Telephone.

1-M Telephone and telephone systems owned or leased by the department are inspected, cleaned and adjusted annually and any worn or damaged components are replaced. They are maintained in an operable condition at all times.

### 12.35 Radio and Television Systems, Including Video Cassette Recorders.

1-M Radio, television and VCR systems are inspected, cleaned and adjusted annually, and any worn or damaged components are replaced. These systems are maintained in an operable condition at all times.

2-M Any two-way radio and television based station, except Citizen's Band, is to be maintained by FCC-licensed technicians.

### Section 13. Fire Protection Systems and Equipment

**MGMT** - Refer to CFOP 70-14, Chapter 8, for maintenance management programs. Maintenance of fire protection systems and equipment shall be in accordance with NFPA Codes.

1-M Automatic sprinkler systems are inspected at least annually. All damaged, corroded or malfunctioning components are replaced by properly licensed service persons. Operational integrity is maintained at all times.

2-M Valve stems are oiled or greased annually and the valves operated one full cycle.

3-M Post indicator valves and underground gate valves with roadway boxes are operated quarterly to verify that they remain in the open position.

4-M A flow test is conducted annually on any fire pump in the system, to ensure that neither pump nor suction pipe is obstructed and the pump is operating properly. Automatically controlled pumps shall be started by reducing system pressure with test connection(s) and/or system drains.

1-OP Automatic sprinkler systems are visually checked monthly to verify that sprinklers remain unobstructed, are free of corrosion, foreign material and paint and are not bent or damaged. Any noted deficiency is reported to the appropriate department for immediate correction.

2-OP Water supply flow tests are made quarterly from main drain valves. If pressure gauge readings taken with the drain valve both closed and wide-open should vary materially from those previously established or from normal readings, the condition should be investigated.

3-OP Waterflow alarms are tested quarterly on wet-pipe systems, by opening the inspector's test connection(s) until an alarm is received. If an alarm is not received within 90 seconds of opening the test connection, the condition should be investigated.

4-OP The spare sprinkler cabinet is checked quarterly to verify that it contains a sprinkler wrench and not less than six sprinklers.

5-OP All control valves of the sprinkler system should be inspected monthly to verify that they remain open and are properly supervised by a tamper switch. When the tamper switch is malfunctioning the valve may be temporarily supervised by a lock which prevents closing of the valve. A valve inspection report should show that the valves are open and are properly supervised.

6-OP Pressure gauges on wet-pipe sprinkler systems shall be checked monthly to ensure that normal water supply pressure is being maintained. Pressure gauges on dry-pipe sprinkler systems shall be checked weekly to ensure that normal air and water pressures are being maintained.

7-OP Fire department connections (and any nearby fire hydrants) are inspected monthly to verify that they remain unobstructed, properly capped and otherwise free from vandalism damage.

8-OP Any fire pump in the system is operated weekly and the condition of the pump, bearings, and stuffing boxes is noted. The pump is turned off after the test and inspection is complete. The pump room is left clean, accessible and secure after each test.

#### 13.10 Standpipe and Hose Systems.

1-M Standpipe and hose systems are inspected annually. Systems are repaired as necessary to ensure adequate water pressure and serviceable hose and gaskets. Hose including gaskets should be removed and re-racked annually. Operational integrity is maintained at all times.

1-OP Standpipe and hose systems are visually checked monthly to ensure that all equipment is in place and in good condition. Hose racks or reels and nozzles are checked for obvious signs of mechanical damage. Hose station control valves are checked for signs of leakage. Any closed main valves or leaks are reported to the appropriate department for immediate corrections.

#### 13.15 Automatic Extinguishing Systems (Dry Chemical, Foam, Etc.)

1-M Automatic extinguishing systems are fully charged and operable at all times, inspected annually and tagged by a person currently licensed by the State Fire Marshal's office.

1-OP Automatic extinguishing systems that have been utilized are reported to the appropriate department for immediate recharging of the system.

2-OP Every month, a visual inspection is made to verify that the units are fully charged and properly tagged.

#### 13.20 Fire Extinguishers.



1-M Extinguishing equipment is fully charged and operable at all times, inspected annually and tagged by a person currently licensed by the State Fire Marshal's office.

1-OP Fire extinguishers that have been utilized or damaged, or are missing from the assigned location are reported to the proper department for immediate replacement.

2-OP Every month, a visual check is made to verify that the units are fully charged, tagged and signed by inspector on the rear of the tag in appropriate monthly slot provided.

#### Section 14. Conveying Systems

**MGMT** - Elevators are the most common type of mechanical conveying system in the department facilities. Maintenance procedures should conform not only with manufacturer's suggested PM schedule, but also requirements of the Florida Department of Professional Business Regulation. Licensing is required annually. Refer to Chapter 8 of CFOP 70-14.

##### 14.05 Elevators.

1-M Maintenance is on a monthly basis and consists of systematically examining, adjusting, lubricating and if conditions warrant, repairing or replacing the following: machine brakes, motor and motor generator, governor, idler sheaves, controller and various relay panels, selectors, hoistway door interlock, guide shoes, buffers, automatic power-operated door operator, fixtures, car and corridor operating stations, protective door devices and alarm bells.

2-M On an annual basis, the equipment performance is evaluated, including car speed, door operations, riding quality, car leveling, floor to floor time and system operation, including traffic handling and response time. Following such evaluations, adjustments, repairs or replacements required to maintain manufacturer's operating performance standards are performed.

1-OP Elevator floor are cleaned daily. Interior walls and doors are spot-cleaned as necessary to remove occasional soiling.

##### 14.10 Hoists.

1-M Hoists are maintained to comply with the requirements of all applicable codes or regulations. Due to license requirements, hoist maintenance is generally provided by an outside contractor.

##### 14.15 Hydraulic Lifts.

1-M Hydraulic lifts are maintained to comply with the requirements of applicable codes or regulations. Hydraulic lift maintenance is generally provided by contracted services.

#### Section 15. Exterior and Interior Painting

**MGMT** - It is recommended that districts and institutions establish a comprehensive painting program to delineate the exterior and interior coating cycles for all buildings, structures and ancillary facilities. The frequency of coating, painting, staining or waterproofing surfaces will vary due to climatic conditions, prior preparation procedures, type and application of previous coatings, general wear and tear and abuse. Special attention should be given to the coatings preparation procedure(s) and the coatings selection process. Maintenance technical staff should have a significant input to the coating selection process. Minor maintenance problems such as repair of wall cracks, spackling, deteriorated wood, etc., shall be accomplished prior to the coating application.

##### 15.05 Concrete, Stucco, Exposed Block and Precast Panel.

1-M Exterior surfaces are inspected annually. Unless conditions of the exterior finish dictates otherwise, exterior surfaces are refinished at a six to eight year interval.

##### 15.10 Brick and Stone.

1-M Exterior surfaces are inspected annually. Unless conditions of the surfaces dictates otherwise, they receive water-proofing applications at ten-year intervals. Tuck point as required.

##### 15.15 Wood.

1-M Exterior surfaces are inspected annually. Unless the condition of the finish dictates otherwise, these surfaces are refinished at three-year intervals.

##### 15.20 Steel and Sheet Metal

1-M Exterior surfaces are inspected annually and refinished as required to maintain all steel and sheet metal surfaces free of rust and corrosion.

15.25 Prefinished Panels, Composition, Plastic.

1-M Exterior surfaces are inspected annually. Unless the condition of the finish dictates otherwise, these surfaces are refinished at seven-year intervals.

15.30 Plaster, Dry Wall, Exposed Block and Concrete.

1-M Interior surfaces are inspected annually. Unless surface conditions dictate otherwise, they are refinished at five-year intervals.

15.35 Wood and Vinyl Coated Paneling.

1-M Interior surfaces are inspected annually. Unless surface conditions dictate otherwise, they are refinished at ten-year intervals.

15.40 Acoustic and Cork Tile.

1-M Interior applications of acoustic and cork tile are inspected annually. Unless surface conditions dictate otherwise, they are refinished at five-year intervals.

15.45 Wood Trim.

1-M Interior wood trim is inspected annually. Unless surface conditions dictate otherwise, they are refinished on the same schedule as the wall surface adjacent to it.

15.50 Metal Trim.

1-M Interior metal trim is inspected annually and is maintained free of rust or corrosion at all times.

15.55 Epoxy Surfaces.

1-M Epoxy surfaces should be inspected annually and are maintained free of dirt and grease.

1-OP Epoxy surfaces are washed and cleaned on a scheduled basis especially high traffic areas, i.e., in hallways and corridors.

## Section 16. Office and Program Furniture

**MGMT** - It is recommended that districts and institutions establish an inspection program for all furniture including desks, chairs and portable furniture. Operational or custodial in-house training programs shall include techniques on spot-checking for defective or inoperable furniture as part of their day-to-day work program. An annual or semi-annual maintenance inspection program can be used to support the day-to-day inspection program.

16.05 Desks.

1-M All desks are inspected annually and maintained in a condition that will provide the user with a satisfactory work station. Joint and fastenings are secure, metal parts are free of rust and tops are smooth.

16.10 Chairs.

1-M All chairs are inspected annually and maintained in a condition that will provide the users with a satisfactory work station. Joints and fastenings are secure, metal parts are free of rust and top are smooth.

16.15 Casework.

1-M Casework is inspected annually. Joints and fastenings are secure, plastic laminated surfaces are secure and free of broken or chipped areas, hinges and latches are operable and wood surfaces are free of broken, splintered or termite infested areas. Refinishing is scheduled at the time interior finishing is done.

16.20 Cabinets (Wood and Metal).

1-M Wood cabinets are inspected annually. Joints and fastenings are secure, plastic laminated surfaces are secure and free of broken, splintered or termite-infested areas. Refinishing is scheduled at the same time interior finishing is done.

2-M Metal cabinets are inspected annually. They are maintained free of rust and badly dented areas and hinges, latches and locking devices are operable at all times.

16.25 Furniture.

1-OP All furniture is cleaned annually. During the cleaning program, all loose screws and fastenings are tightened and worn or missing glides are replaced.

### Section 17. Instructional Equipment and Office Machines

**MGMT** - It is recommended that districts and institutions establish maintenance schedules for service and repair of instructional and noninstructional office equipment and machines. Emergencies can be handled on an as-needed basis. When possible, service and repair shall be scheduled during those times office equipment or machines are not in use.

17.05 Projection Screens.

1-M Projection screens are inspected annually. Screens are maintained free of tears, rollers are operable and stands are in an operable condition.

17.10 Movie, Slide and Filmstrip Projectors.

1-M Projectors are inspected annually and lubricated and adjusted if required. Worn gears or damaged parts are replaced.

17.15 Recording Equipment (Audio and Video).

1-M All recording equipment is inspected annually. Worn or damaged components are replaced and equipment is adjusted for optimal operation.

17.20 Listening Stations.

1-M Head sets and other components of the systems are checked annually. Worn or damaged components are replaced and equipment is adjusted for optimal operation.

17.25 Electronic Musical Instruments.

1-M Electronic musical instruments are inspected annually. Worn or damaged components are replaced and equipment adjusted for optimal operation.

17.30 Electronic Computerized Instructional and Office Equipment.

1-M Provisions are made for inspection and maintenance of this equipment.

17.35 Instructional Equipment.

1-OP During extended periods of time that the equipment is not being used, audio-visual equipment is stored in a room which is as dry as possible.

17.40 Office Machines.

1-M All typewriters, adding machines, calculators, cash registers and copy machines are inspected annually. All equipment is cleaned, lubricated and adjusted and worn or damaged parts are repaired or replaced.

### Section 18. Specialty Areas

**MGMT** - It is recommended that facility maintenance managers establish inspection and repair programs to service those specialty areas found in many buildings and on many sites. Managers should be familiar with practices meeting department requirements and seek to avoid high risk maintenance practices with some specialty areas.

18.05 Gymnasiums.

1-M Gymnasiums are inspected annually and maintained as follows:

- a. Floors are maintained at a level to provide a safe and acceptable condition for the intended function.
- b. Gymnasium bleacher seats and structures are maintained in a safe condition at all times.
- c. Score boards, backstops, clocks, public address systems and all other support equipment required to operate activities in the gymnasium are operational at the times they are required.

1-OP Gymnasium floors, including areas under bleachers, are cleaned daily.

2-OP Bleachers are inspected and cleaned prior to their scheduled use and they are maintained in a safe condition at all times. All equipment required for the intended function is checked and put in operational condition prior to the scheduled activity.

3-OP The complete refinishing of a gym floor is done by a team specializing in gym floor refinishing, qualified personnel, in-house personnel or contracted services.

#### 18.10 Shower and Locker Rooms.

1-M Shower and locker rooms are inspected annually and maintained as follows:

a. Floors, walls and partitions are maintained in good condition with no cracks, crevices or broken sections.

b. The hot water supply system is maintained to provide hot water not in excess of 110 degrees F.

c. Shower heads, valves, drains and ventilating system are operable at all times.

d. Lockers and benches are maintained in good condition at all times.

e. The impervious finish on the locker room benches is in good condition.

1-OP Shower and locker room fixtures, benches, walls and floors are cleaned a minimum of once each day, when in use, with an effective germicidal or bacteriostatic cleaner and are maintained in a clean and sanitary condition.

2-OP The inside surfaces of all physical education and athletic lockers are cleaned and sanitized at least monthly when in use.

#### 18.15 Shops.

1-M Shops are inspected annually. All electrical disconnect switches, including master disconnects and machine safety guard devices are in place and are maintained in a safe operating condition.

2-M All exhaust systems in areas where toxic fumes, flammable fumes or dust are produced are maintained in an operable condition at all times.

3-M Safety and fire extinguishing equipment is maintained in an operable condition at all times.

1-OP Shop areas are dusted and swept daily. The floors in areas where machines are used are kept free from waste, grease and obstructions.

2-OP Filters in shop exhaust systems are cleaned weekly or more often where heavy usage requires more frequent cleaning to keep the system operating properly.

#### 18.20 Clinics.

1-M Clinics are inspected annually. All floors, walls and ceilings are maintained in good condition with no cracks, tears or broken sections. Locking devices on medical supply storage closets or cabinets are operational at all times.

1-OP All clinic rooms are cleaned and sanitized at least daily, using a germicidal or bacteriostatic cleaner and maintained in a clean and sanitary condition at all times.

2-OP An adequate supply of disposable mattress and pillow covers is available.

#### 18.25 Storage Areas.

1-M Storage areas are inspected annually. Shelving, racks and hangers are maintained in a secure condition. Storage bins, containers and other special equipment are maintained in good condition. Locking devices on storage areas are operational at all times.

1-OP Custodial storage areas are kept clean and orderly at all times. Flammable materials are not kept in these areas at any time.

#### 18.30 Flammable Storage.

1-M Flammable storage areas are inspected at least annually. Flammable storage cabinets located in instructional areas are maintained in good condition, are properly labeled and have an operable locking device. Flammable storage rooms/buildings are maintained in good condition, are properly vented and have an operable locking device.

1-OP All flammable materials in excess of the amount permitted in an instructional area are kept in approved flammable storage cabinets or rooms/buildings in undamaged, approved containers with proper labels.

2-OP The flammable storage area is kept clean and all spillages of flammable materials are cleaned immediately.

#### 18.35 Cafeteria Kitchen Area.

1-M Cafeteria kitchen areas are inspected annually and maintained at all times as follows:

a. Fixed equipment is maintained in a condition to prevent liquids or debris from seeping or settling underneath, between, behind or in spaces not fully accessible for cleaning.

b. Range hoods, filters, ventilating equipment and all other equipment are maintained in an efficient, operable condition.

- c. All receptacles containing food waste are maintained in a condition to prevent leaking and all lids will close tightly.
- d. All insect control devices such as fly fans, air screens and window and door screens are maintained in good condition.
- e. All gas fired equipment is cleaned and adjusted.
- f. All refrigeration equipment is maintained in a condition which will ensure proper food preservation or other function of the equipment.

#### 18.40 Cafeteria Dining Area.

- 1-M Cafeteria dining areas are inspected annually and maintained free of cracks, tears, crevices or broken sections on floor, walls and ceiling.
- 2-M All insect control devices, doors, windows, sky-lights, screens and similar closures are maintained in good repair.
- 1-OP Smooth surfaced floors in dining areas and other interior areas where food is dispensed or consumed are thoroughly cleaned and sanitized a minimum of once a day, using an effective germicidal or bacteriostatic cleaner.
- 2-OP Carpeted floors where food is consumed are thoroughly cleaned at least daily. Spillages are disposed of immediately.
- 3-OP Tables, chairs and other equipment are cleaned and sanitized daily and walls are cleaned as necessary.

#### 18.45 Swimming Pools.

- 1-M Swimming pools are maintained free of cracks or breaks that would result in loss of water.
- 2-M Pumps, piping, filters, water conditioning and disinfecting equipment and other accessory equipment which will clear and disinfect the water is maintained in a safe and operable condition at all times.
- 3-M All electrical circuitry, conduits and metal equipment, such as railing and pool ladders, are checked every month and maintained in a safe condition at all times.
- 1-OP Swimming pools are operated in compliance with the Department of Health.

#### 18.50 Toilet Rooms.

NOTE: For additional maintenance standards, see Section 9 of these guidelines.

- 1-M Privacy partitions are inspected quarterly for deterioration such as corrosion, worn surface finish and insecure fastening to wall or floor. Partitions are refinished and/or repaired as necessary.
- 1-OP All water closets, urinals, lavatories, faucets, flush valves, dispensers, mirrors, shelves, waste receptacles, partitions, lower walls and floors are cleaned a minimum of once a day with an effective germicidal or bacteriostatic cleaner.
- 2-OP Ventilation fans and registers are cleaned at least semi-annually.
- 3-OP Floor drains are water flushed and sanitized at least once a day.
- 4-OP Soap, towel and toilet paper dispensers are in place and contained an adequate supply at all times. Hot air dryers may be substituted for paper towels and dispensers.

#### 18.55 Trash and Waste Removal.

- 1-M Hard-surfaced areas supporting trash and waste containers are inspected annually and maintained free of broken surfaces.
- 1-OP Trash and waste containers are kept in designated areas away from open windows. Containers are maintained in good condition with lids that fit securely. The area is kept clean at all times and all containers, except those for dry trash or waste only, are washed after emptying.

#### 18.60 Interior Waste Containers.

- 1-OP Interior waste containers are emptied daily and cleaned when unsanitary.

#### 18.65 Horizontal Surfaces.

- 1-OP Horizontal surfaces above floor level in resident occupied and administrative areas are dusted daily.

#### 18.70 Outside Corridors and Entrances.

- 1-OP Outside corridors and entrances are cleaned daily. This includes the picking up of all trash and debris and the sweeping of these areas.

#### 18.75 Lockers.

- 1-M Lockers are inspected at least annually and maintained in a functional and attractive condition.

1-OP Lockers, including athletic or gymnasium lockers, are inspected daily for vandalism or other damage. Damaged lockers should be removed from service as soon as possible to prevent injury to users. Report vandalism and other damage to the appropriate department.

18.80 Fire Escapes.

1-M Fire escapes are inspected at least annually for evidence of corrosion and loose fastenings. They are refinished and/or repaired and/or repaired as necessary.

Section 19. Energy/Utilities Conservation

**MGMT** - Facility maintenance managers should assure compliance to the energy/utilities management requirements of CFOP 70-3, Energy Conservation. Open communication and cooperation with the energy coordinator is viewed as an integral part of energy/utilities management and conservation programs. Maintenance trades persons, plant managers and custodians should receive at least annual training in the techniques and methods related to the conservation of electricity, water and other utilities in their facility or work place. The State of Florida, through several agencies, have published energy manuals. They are: and The Florida Energy Conservation Manual (FECM), Department of Management Services (DMS) modified by DOE and Coloney Productions (1981). A comprehensive program can result in substantial dollar savings. Energy conservation procedures are basic, practical and simple in their application; a general rule is "when it's not needed, turn it off."

19.05 Facilities.

- 1-M Close all doors and windows when working in an environmentally controlled facility.
- 2-M When necessary, only use lights in areas affected by the work order or work program.
- 3-M Schedule work to take advantage of natural daylight.
- 4-M Plan the job to reduce the number of times in and out of the building for tools, materials and supplies.
- 5-M Do not overload electrical outlets when using power tools and electrical equipment.
- 6-M Do not turn on equipment or tools before needed or let equipment or tools run while not in use.
- 7-M In moderate weather when the HVAC system is off, open windows and doors to help air circulation.
- 8-M Avoid running water continuously, if possible, especially in plumbing repairs.
- 9-M The use of cafeteria exhaust hood system is for cooking purposes only.
- 10-M Repair or plug any water using system malfunctions immediately, including sprinkler systems, cooling towers and all potable water systems. Immediate notification of the energy management unit is recommend.
- 11-M Do not open walk-in freezers in an effort to cool work area.
- 12-M During interior painting, the building envelope should be open and well ventilated with the cooling or heating mode off.
  - 1-OP Check building to assure all doors and windows are closed when HVAC equipment is on. When the building is not in use, ensure all environmental control systems and energy consuming equipment is off.
  - 2-OP Keep lights off in unused areas. Turn lights off at the end of each business day.
  - 3-OP Schedule routine work to reduce the number of times in and out of the building and schedule work to minimize energy consumption.
  - 4-OP All missing ceiling tiles and unauthorized ceiling openings should be replaced, repaired or reported per the procedure.
  - 5-OP Do not turn on equipment or tools before needed or let equipment or tools run while not in use.
  - 6-OP Check for proper thermostat setting and function.
  - 7-OP Check all building insulation, caulking and weatherstripping. Repair or report to the maintenance per procedure.
  - 8-OP During annual or semi-annual custodial cleanings where more than routine amounts of chemicals are used, the building envelope should be open and will ventilated to minimize respiratory problems.
  - 9-OP Assure all attic and roof hatches are closed and latched.
  - 10-OP Check visible air conditioning duct systems for leaks twice a year. Repair as needed or report to maintenance per procedure.
  - 11-OP Follow established procedure in checking or inspecting HVAC equipment. Repair or report to the maintenance per department procedures.
  - 12-OP Check all visible water pipes for leaks at least monthly.
  - 13-OP Report any unusual increase in water consumption to supervisor.
  - 14-OP Insulation on water pipes should be n good condition and continuous. Repair or report per procedures to the maintenance department.

- 15-OP Turn off power to ventilators and exhaust systems when not needed.
- 16-OP Keep door closures in good working condition and assure uniformity and safety of operation.
- 17-OP Inspect window and doors for proper closing.
- 18-OP Repair or report damaged windows and doors immediately.
- 19-OP Report low levels of light per procedures. Measure lighting levels throughout the facility annually.

Remove unnecessary lamp and ballasts.

- 20-OP Adjust security light timers to coincide with changes in sunrise and sunset at least monthly or per procedures.
- 21-OP Keep refrigerator compressor, condensers and coils free of dust and debris.
- 22-OP Coils on all HVAC equipment are cleaned per procedures.
- 23-OP Inspect drinking fountains for proper operation and leaks weekly. Adjust water volume if necessary.
- 24-OP Hours of operation of HVAC equipment should coincide with recommendations contained in the Florida Energy Conservation Manual.
- 25-OP Disconnect all unused electrical equipment.

#### 19.10 Tools and Equipment "Safety First."

- 1-M Follow OEM guidelines for lubrication and maintenance of power equipment and tools for efficient operation.
- 2-M Use energy efficient equipment and power tools.
- 3-M Remove inefficient equipment and power tools from service immediately.
- 4-M Report operating electrical and HVAC equipment that is more than 15 years old.
- 1-OP Follow OEM guidelines for service and maintenance of equipment and power tools.
- 2-OP Remove inefficient equipment and power tools from service immediately.
- 3-OP Report all operating electrical and HVAC equipment which is more than 15 years old to supervisor.

## Chapter 2

## INTRODUCTION

**MGMT** - Program evaluation is the systematic examination of specific operation and maintenances programs designed to obtain decision-making information on all aspects of program services and their effects both intended and unforeseen. It is an attempt to determine the extent to which a program is achieving its goals and meeting established standards. It assesses objectively the program's impact or effect, and identifies how the physical conditions were changed and the "clientele groups" are better served as a result of the program. It compares program progress to expectations. It looks for trends and extrapolates findings to predict future program needs.

An evaluation system provides the mechanism by which information may be gathered, analyzed and disseminated. The operation and maintenance evaluation process provides decision makers at various levels with information by which to determine whether a program, a project or a job should be continued as is, modified or disconnected. In essence, program evaluation includes analysis of all system components and their interaction, including human and equipment parameters.

As part of a total evaluation program, it is recommended that districts and/or facilities within each district provide, at least annually, a means for identifying those areas not meeting task guidelines and the corrective action required, and the estimated cost of the corrective action. This data would also provide an accurate assessment of the dollars required in budget preparation.

Each fiscal year an annual evaluation should be conducted by maintenance personnel in an identical manner. Comparison of the current and previous years' evaluations would indicate the degree of progress being made in meeting task guidelines.

In those situations where services are contracted, the task guidelines should be used to the extent possible as part of the specifications or be spelled out in the service purchase agreement. The evaluation of the performance of the contractor's work should be with respect to the guidelines, existing performance standards and in compliance with the job specifications.



FORM I

OPERATION AND MAINTENANCES GUIDELINES ANNUAL EVALUATION  
CHECKLIST INSTRUCTIONS

It is recommended that the checklist pages \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, be copied for use in the field. Beside each deficient item, place an "X" in the Item Evaluation column which is located to the left of the Task Code column. Place an "X" in the M or O (maintenance or operations) column as appropriate. The "X" indicates whether the task should be completed by maintenance or operations' personnel. The comment section is used for additional information including multiple deficiencies at the same facility. Comments may be general and address the entire component.

Task Code example 1.45, Fencing, should be completed M. The comments indicate that fencing is in disrepair in several areas.

Task Code example 3.10, Shingles and Roofing Tiles, should be completed by M. The comments reveal deterioration on several roofs and recommend maintenance inspect immediately.

Example 10.4, Emergency Lighting, should be completed by O. The comments indicate that the burned-out bulbs are not being replaced.

A copy should be forwarded to the district general services manager and project director of ASGDC with copies to the appropriate operation and maintenances staff.

EXAMPLES:

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
X	1.45	Fencing	X		Fencing in disrepair in several areas.
X	3.10	Shingles and Roofing Tiles	X		Recommend maintenance inspect immediately. There seems to be deterioration of several roofs.
X	10.4	Emergency Lighting		X	Burned-out bulbs not being replaced.

FORM I  
OPERATION AND MAINTENANCES ANNUAL EVALUATION

DEPARTMENT FACILITY: \_\_\_\_\_

DATE(S) OF  
EVALUATION: \_\_\_\_\_

FACILITY MAINTENANCE MANAGER:  
\_\_\_\_\_

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	1	SITES AND GROUNDS			
	1.05	Drainage			
	1.10	Paving - Hard Courts			
	1.15	Irrigation			
	1.20	Fertilization			
	1.25	Mowing			
	1.30	Edging			
	1.35	Specialized Athletic Areas			
	1.40	Landscaping			
	1.45	Fencing			
	1.50	Playground			
	1.55	Exterior Lighting			
	1.60	Flagpoles			
	1.65	Footbridges			
	1.70	Hazardous and Poisonous Plants			
	1.75	Weed and Pest Control			
	1.80	Park Benches, Tables			
	1.85	Small Engines			
	1.90	Policing Grounds			
	1.95	Storm Water Drainage Systems			
	2	STRUCTURAL COMPONENTS			

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	2.05	Foundation and Footings			
	2.10	Columns			
	2.15	Beams and Joists			
	2.20	Load Bearing Walls			
	2.25	Structural Framing			
	2.30	Roof Structure			
	2.35	Insulation			
	3	ROOFING & ROOF ACCESSORIES			
	3.05	Membrane Roofing			
	3.10	Shingles and Roofing Tiles			
	3.15	Flashing, Sheet Metal			
	3.20	Gutters and Down Spouts			
	3.25	Gravel Stops			
	3.30	Skylights			
	4	EXTERIOR STRUCTURAL WALLS			
	4.05	All Exterior Walls			
	4.10	Concrete, Stucco			
	4.15	Brick and Stone			
	4.20	Wood			
	4.25	Metal, Composition, Plastic			
	4.30	Precast Panels			
	4.35	Vents			
	5	INTERIOR WALLS & PARTITIONS			
	5.05	Interior Vertical Surfaces			

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	5.10	Plaster, Dry Walls, Etc.			
	5.15	Ceramic Tile			
	5.20	Acoustic Tile			
	5.25	Cork			
	5.30	Fabric			
	5.35	Chalkboards, Chalkrails			
	5.40	Tackboards			
	5.45	Operable Walls, Etc.			
	5.50	Masonry Walls			
	5.55	Demountable Partitions			
	5.60	Impervious Walls or Partitions			
	6	DOORS AND WINDOWS			
	6.05	Doors and Frames			
	6.10	Metal Doors and Frames			
	6.15	Wood and Plastic Doors			
	6.20	Special Doors			
	6.25	Windows			
	6.30	Metal Windows			
	6.35	Wood and Plastic Windows			
	6.40	Glazing			
	6.45	Window Operators			
	6.50	Thresholds, Weatherstrip			
	6.55	Automatic Door Equipment			
	6.60	Finish Hardware			

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	6.65	Screening			
	6.70	Window Shades			
	6.75	Fire Doors			
	7	FLOORS			
	7.05	Resilient Floor Coverings			
	7.10	Non-resilient Floors			
	7.15	Non-slip Impervious Material			
	7.20	Carpeted Surfaces			
	7.25	Special Floor Coverings			
	7.30	Terrazzo			
	7.35	Wood			
	7.40	Floor Mats			
	7.45	Handrail and Steps			
	7.50	Basemolding			
	7.55	Warning Signs/Bar			
	8	CEILINGS			
	8.05	Plaster			
	8.10	Acoustical Tiles			
	8.15	Acoustical Material			
	8.20	Exposed Bar Joist and Neck			
	8.25	Roof Overhang and Walkways			
	9	PLUMBING			
	9.05	Domestic Water System			
	9.10	Domestic Water Supply			

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	9.15	Waste Disposal System			
	9.20	On-Site Waste Disposal			
	9.25	Septic Tanks			
	9.30	Grease Traps			
	9.35	Drinking Fountains			
	9.40	Fixtures			
	9.45	Fixtures (Cafeteria)			
	9.50	Faucets, Valves			
	9.55	Gas Supply, Lines, Etc.			
	9.60	Effluent Water Systems			
	9.65	Liquid Soap Systems			
	9.70	Sinks and Work Counters			
	9.75	Showers			
	9.80	Mop Sinks			
	10	ELECTRICAL			
	10.05	Main Service Panels			
	10.10	Distribution Panels			
	10.15	Receptacles and Switches			
	10.20	Fixtures			
	10.25	Grounding of Equipment			
	10.30	Motors and Controls			
	10.35	Circuits			
	10.40	Emergency Lighting			
	10.45	Temporary Wiring			

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	10.50	Circuit Breakers			
	10.55	Emergency Generator System			
	10.60	Battery Operated			
	10.65	Transformers			
	10.70	Distribution Systems			
	10.75	Arc Welders			
	11	HVAC			
	11.05	Vibration Isolation & Support Devices			
	11.10	Water Distribution Systems			
	11.15	Compressed Air Systems			
	11.20	Condensate Drainage Systems			
	11.25	Gas and Fuel Systems			
	11.30	Insulation			
	11.35	Pumps			
	11.40	Heat Exchangers			
	11.45	Water Treatment Systems			
	11.50	Boilers			
	11.55	Solar Collectors			
	11.60	Water Cooled Chillers			
	11.65	Air Cooled Chillers			
	11.70	Air-to-Air Conditioning			
	11.75	Cooling Towers			
	11.80	Air Distribution Duct			
	11.85	Air Handling Units			

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	11.90	Air Filters			
	11.95	Heaters			
	11.100	Ventilating, Exhaust Fans			
	11.105	Controls, Safety Devices			
	12	COMMUNICATION & ALARM SYSTEMS			
	12.10	Fire and Smoke Systems			
	12.15	Alarm and Fire Systems			
	12.20	Clock and Bell Systems			
	12.25	Security Alarm Systems			
	12.30	Intercom Systems			
	12.35	Telephone			
	12.40	Radio and TV Systems			
	13	FIRE PROTECTION SYSTEMS & EQUIPMENT			
	13.05	Automatic Sprinkler Systems			
	13.10	Standpipe and Hose Systems			
	13.15	Auto Extinguish Systems			
	13.20	Fire Extinguishers			
	14	CONVEYING SYSTEMS			
	14.05	Elevators			
	14.10	Escalators			
	14.15	Hoists			
	14.20	Hydraulic Lifts			
	15	EXTERIOR & INTERIOR PAINTING			
	15.05	Concrete, Stucco, Etc.			



ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	15.10	Brick and Stone			
	15.15	Wood			
	15.20	Steel and Sheet Metal			
	15.25	Prefinished Panelstems			
	15.30	Plaster, Dry Wall			
	15.35	Wood, Vinyl Paneling			
	15.40	Acoustic and Cork Tile			
	15.45	Wood Trim			
	15.50	Metal Trim			
	15.55	Epoxy Surfaces			
	16	OFFICE & CLASSROOM FURNITURE			
	16.05	Desks			
	16.10	Chairs			
	16.15	Casework			
	16.20	Cabinets			
	16.25	Furniture			
	17	INSTRUCTIONAL EQUIPMENT & OFFICE MACHINES			
	17.05	Projection Screens			
	17.10	Movie, Slide			
	17.15	Recording Equipment			
	17.20	Listening Stations			
	17.25	Electronic Musical Instruments			
	17.30	Electronic Computerized Instructional & Office Equipment			
	17.35	Instructional Equipment			

ITEM EVAL	TASK CODE	DESCRIPTION	DEFICIENT		COMMENTS
			M	O	
	17.40	Office Machines			
	18	SPECIALTY AREAS			
	18.10	Gymnasiums			
	18.15	Shower and Locker Rooms			
	18.20	Shops			
	18.25	Clinics			
	18.30	Storage Areas			
	18.35	Flammable Storage			
	18.40	Cafeteria Kitchen Area			
	18.45	Cafeteria Dining Area			
	18.55	Swimming Pools			
	18.60	Toilet Rooms			
	18.65	Trash and Waste Removal			
	18.70	Interior Waste Containers			
	18.75	Horizontal Surfaces			
	18.80	Outside Corridors and Entrances			
	18.85	Lockers			
	18.90	Fire Escapes			
	19	ENERGY/UTILITIES CONSERVATION			
	19.05	Facilities			
	19.10	Tools and Equipment			



FORM III  
 COMPILATION  
 INDIVIDUAL FACILITY FUNDING REQUIREMENT  
 TO MEET MAINTENANCE STANDARDS

FACILITY NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 DATE: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

**PURPOSE:**

1. To identify those areas that are deficient in meeting the maintenance guidelines and should be considered for priority funding.
2. To assist in establishing a budget for each facility.

**DISTRIBUTION:**

One copy to the district administrator (DA)  
 One copy to the district manager for administrative services (DMAS)  
 One copy to design and construction (ASGDC)

Task Standards	Description	Total Estimated Maintenance Cost
1	Grounds	\$
2.	Structural Components	
3.	Roof and Roof Accessories	
4.	Exterior Structural Walls	
5.	Interior Walls and Partitions	
6.	Doors and Windows	
7.	Floors	
8.	Ceilings	
9.	Plumbing	
10.	Electrical	
11.	Heating, Ventilation and Air Conditioning	
12.	Communication and Alarm Systems	
13.	Fire Protection Systems and Equipment	
14.	Conveying System	
15.	Exterior Finish (Painting or Stain)	
16.	Interior Finish (Painting or Stain)	
17.	Office and Classroom Furniture	
18.	Instructional Equipment	
19.	Specialty Areas	
	Total	