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Operating and Maintaining School Facilities and Grounds

School facility operations and maintenance exist to support the primary purpose of K-12 education: quality learning. The core responsibility is to ensure that through the provision of quality custodial and maintenance services- administrators, teachers, and students have an environment that is safe, healthy, and responsive to educational programming. A comprehensive facility custodial and maintenance program is a school district's foremost tool for protecting its investment in school facilities. Moreover, preventive maintenance is the cornerstone of any effective maintenance initiative.

School facility operations services include the day-to-day running of the school facilities. These services include but are not limited to: energy management, HVAC, cleaning, inspections, opening and closing school; boiler operation; responding the daily emergencies; mowing grass; and generating work requests to maintenance.

School plant maintenance provides for the repair, replacement and renewal of failed infrastructure elements. There is no one way to maintain schools – they are a gamut of size, age, structural systems, etc. A well-designed facility management system generally encompasses four categories of maintenance: emergency (or response) maintenance, routine maintenance, preventive maintenance, and predictive maintenance. The one everyone dreads is *emergency maintenance* (the air conditioner fails on the warmest day of the year or the main water line breaks and floods the lunchroom). When the pencil sharpener in Room 12 finally needs to be replaced, it is *routine maintenance*. *Preventive maintenance* is the scheduled maintenance of a piece of equipment (such as the replacement of air conditioner filters every 10 weeks or the semiannual inspection of the water fountains). Finally, the cutting edge of facility management is now *predictive maintenance*, which uses sophisticated computer software to forecast the failure of equipment based on age, user demand, and performance measures.

A good maintenance program is built on a foundation of preventive maintenance. It begins with an audit of the buildings, grounds, and equipment. When planning preventive maintenance, decision-makers should consider how to most efficiently schedule the work— i.e., concurrently with academic breaks or other planned work. For example, preventive maintenance work such as boiler pipe replacements can be conducted while the boiler is out of commission for routine maintenance (such as when cleaning the scale and mud from inside the boiler or cleaning the manhole and handhold plates). Whereas emergency events demand immediate attention whenever they occur, preventive maintenance activities can be scheduled at a convenient time. Because a rigorous preventive maintenance system results in fewer emergency events, it tends to reduce disruptions to the school schedule.

Facility Audits

A facility audit (or inventory) is a comprehensive review of a facility's assets. Facility audits are the standard method for establishing baseline information about the components, policies, and procedures of a new or existing facility. An audit is a way of determining the “status” of the facility at a given time—that is, it provides a snapshot of how the various systems and components are operating. A primary objective of a facility audit is to measure the value of an aging asset relative to the cost of replacing that asset. Thus, facility audits are a tool for projecting future maintenance costs. Facility audits are accomplished by assessing buildings, grounds, and equipment; documenting the findings; and recommending service options to increase efficiency, reduce waste, and save money. Thus, an audit provides the landscape against which all facilities maintenance efforts and planning occur.

A facility audit is a data collection process, pure and simple. It should include data on all facilities, infrastructure, grounds, maintenance staff (e.g., specialized training courses attended), and equipment (including boilers and HVAC systems), floor finishes, plumbing fixtures, electrical distribution systems, heating and air conditioning controls, roof types, flooring, furniture, lighting, ceilings, fire alarms, doors and hardware, windows, technology, parking lots, athletic fields/structures, playground equipment and landscaping, and the building envelope. Other issues to consider during an audit include accessibility (does a facility meet the requirements of the Americans with Disabilities Act, or ADA?), clean air, asbestos, fire, occupant safety, energy efficiency, susceptibility to vandalism, and instructional efficiency (e.g., alignment with state and local classroom standards).

More specifically, building components include, but are not limited to:

- rooms
- interior walls
- interior doors
- floors
- plumbing
- electrical systems
- HVAC systems
- kitchens
- hardware
- egresses
- communication equipment (audio, video, and data)
- exterior envelope (walls and windows)
- roof and roofing materials
- foundations and basements

Grounds include, but are not limited to:

- courtyards
- unimproved fields
- athletic fields
- playgrounds
- parking lots

Equipment includes, but is not limited to:

- fixed equipment (motors, compressors, telephones, computers)
- tools (lawn mowers, snow blowers, leaf blowers, drills)
- vehicle fleets (buses, vans, trucks, cars)
- supplies (motor oil, cleaning agents, pesticides, and other chemicals)

Custodians

The Custodian is responsible for keeping assigned buildings clean, safe, functional, and secure in accordance with prescribed codes and established district policies and standards. A custodial worker must maintain all assigned buildings in a state of operational excellence such that they present no interruptions, distractions, or obstacles to the education program.

Essential Duties and Responsibilities of Custodians

- Perform regular custodial duties in assigned areas of buildings.
- Accept instructions from head custodian/supervisor verbally or in writing.
- Provide services as necessary to support curricular and extracurricular events and activities.
- Maintain inventory of custodial/maintenance supplies and equipment.
- Restock disposable custodial/maintenance items and provide head custodian/supervisor with inventory usage data.
- Clean and preserve designated spaces, equipment, furniture, etc. in the buildings.
- Assist visiting members of the public who are utilizing the facilities.
- Maintain work related records and prepare work reports as directed.
- Project a positive image for the schools district with his/her team, whenever the public, guests, or visitors are in the building.
- Work closely with the head custodian/supervisor and/or building administrators to be prepared for scheduled evening activities and unscheduled events as needed.

- Maintain building and grounds security by opening/closing the building each school day and during special events as directed.
- Work on call as needed at any time for emergency repairs, equipment monitoring, overtime, or special needs falling outside of normal working hours.
- Identify and schedule work to be performed during school extended school breaks.

Daily Duties

- Perform general cleanup—any and all incidents as they arise.
- Inspect entrances and sidewalks for damage, clutter/dirt, malfunction, or other hazards.
- Vacuum all entrance mats, outside mats, and clean sidewalk up to 10 feet from entrance.
- Wet mop inside of entrances if wet or in bad condition.
- Sweep all stairways.
- Machine vacuum all carpeted corridors, walkways, and 10 feet in from doorway of each room.
- Clip all carpet sprigs as necessary.
- Remove all spots from carpet.
- Extract soiled areas on carpets as needed.
- Remove gum from floors.
- Dust mop and sweep corners of all tiled classrooms and adjacent rooms. Wet mop if needed.
- Spot vacuum all classrooms, offices, and other carpeted areas. Pick up any paper left on floor.
- Make sure rooms appear orderly.
- Empty all trash cans (rinse or wash if needed).
- Put all trash in dumpsters.
- Remove all marks from walls and lockers nightly.
- Replace defective light bulbs as needed.
- Wash all main entrance windows.
- Thoroughly clean all surfaces in restrooms.
- Clean all drinking fountains.
- Lock all doors as directed by the director of facilities/administration or his/her designee and lock all outside doors as soon as daily activities are over.
- Close and lock windows.
- Clean all equipment after use (e.g., mop buckets and custodian's service sink).
- Hang up brooms, dust mops, and wet mops. Do not stand them against wall.
- Clean and straighten janitor's closet.
- Keep shelves and supplies in neat order and stocked with supplies.
- Turn in any items or articles found to the Lost and Found Department.
- Check entire area for vandalism and report to the director of facilities/administration or his/her designee.
- Assist other employees with cleanup after large activities (e.g., after a basketball game).

Weekly Duties

- Sweep under all entrance mats (both inside and outside).
- Dust mop and sweep out corners of all the tiled areas that are not covered under daily routines.
- Vacuum all carpets thoroughly in all classrooms and work areas according to schedule.
- Wet mop tiled areas. Wax, if needed.
- Wash all desktops, chairs, and furniture according to schedule.
- Dust everything in rooms and corridors according to schedule.
- Make sure all lockers are dusted and marks removed.
- Wash all hallway door windows.
- Clean cove molding and edges thoroughly.
- Vacuum blackboard erasers.
- Wash all blackboards, chalkboard rails, and marker boards according to schedule.
- Wash display case glass, if needed.
- Check the furniture once a week for breakage and either repair it or report it to the head custodian/supervisor.
- Check all playground equipment for damage or unsafe conditions and inform Plant Service of repair needs.

Monthly

- Vacuum or clean all intakes and exhaust ventilating louvers in ceiling of every room.
- Clean out all storage rooms.

Winter and Spring Break

- Light-scrub and re-wax all hard tile floors. Strip, if needed.
- Extract carpeted rooms as needed.
- Extract entrance mats.
- Lightly dust all rooms.
- Wash all desktops.
- Wash inside of all windows.
- Scrub floors and clean all walls and partitions in restrooms.
- Make sure all sinks, urinals, and stools are cleaned (in, under, and around).

Summer Duties

- Wash all windows inside and out.
- Wash all desks (including teachers') inside and out.
- Wash all walls as needed.
- Remove all dirt from lights and high-dust everything.
- Wash all doors and frames. Pay special attention around lock assembly.
- Scrub all floors and re-wax, strip if needed.
- Thoroughly vacuum all carpeted areas and extract.
- Completely clean all fixtures, furniture, ceiling, walls and floors.

Typical Minor Maintenance Duties for Custodians

The list below identifies some of the typical minor maintenance activities that custodians are responsible for:

- Replace defective lamps (lighting fixtures, exit lamps, etc.)
- Repair furniture including desks and chairs, bookcases, cabinets, etc. Replace chair and desk glides.
Repair/replace damaged cafeteria tables and seats.
- Replace cove base, ceiling panels, etc.
- Repair simple plumbing leaks in faucets, sinks, etc. Remove minor drain blockages in sinks, water coolers, etc.
Replace damaged commode seats.
- Clean restroom exhaust fans. Install/repair paper towel, toilet paper and soap dispensers.
- Install/repair pencil trimmers.
- Hang pictures, maps, projection screens, etc.
- Reset clocks after seasonal time changes and power outages.
- Simple lock and hardware repairs for doors and windows, door closers, etc.
- Simple touchup painting (with prior approval and assistance from the maintenance department).
- Monitor HVAC equipment, thermostats, etc. and reset controls when needed.
- Clean radiators and repair radiator cabinets.
- Clean ceiling fans in classrooms, offices, etc.
- Replace defective HVAC filters.
- Remove and dispose of trash and debris in gutters and on roofs.
- Assist mowing crew by doing the trim mowing, edging and removal of grass clippings and debris.
- Prune shrubs, trees, etc. and spread pine straw or mulch around shrubs, flower beds, etc.
- Repair playground equipment, fences, and other outdoor equipment.
- Preventive maintenance and repair of custodial equipment such as wet and dry vacuum machines, floor machines, lawn mowers, string trimmers, etc.
- Maintain each individual's set of keys and the key control system and master keys for the facility.

Custodian Schedule Form

School: _____

Custodian: _____ Start time: _____ End time: _____

Schedule: _____ Assigned: _____

Time	Area Responsibilities (Instructions)
6:00 a.m.	
7:00 a.m.	
8:00 a.m.	
9:00 a.m.	
10:00 a.m.	
11:00 a.m.	
12:00 p.m.	
1:00 p.m.	
2:00 p.m.	
3:00 p.m.	
4:00 p.m.	
5:00 p.m.	
6:00 p.m.	
7:00 p.m.	

Additional Comments:

Custodian Inspection Form

School: _____

Custodian: _____

Date: _____

Inspected by: _____

AREA INSPECTED	Excellent	Satisfactory	Below Average	Unsatisfactory	COMMENTS
Entrances & Lobby					
Offices					
Classrooms					
Restrooms					
Corridors & Stairwells					
Lounges					
Gymnasium					
Locker Rooms					
Dining Area					
Kitchen					
Custodial Closets					
Other Storage Areas					
Trash Dumpster Area					
Grounds, Shrubbbery, and Landscaping					
Parking Areas					
Driveways					
Doors, Windows, and Hardware					
Structural Components and Roof					
Plumbing System, Fixtures, and Equipment					
Mechanical Equipment and Controls					

Additional Comments:

Maintenance Request Form

Type of Work Order _____

Employee's Name _____ Date _____

Email _____ Room number _____

Identify below the need for maintenance. Include Location (room number, teacher name, hallway, specific piece of equipment, etc.) and description of work to be done.

Employee's Signature _____ *Date* _____

Principal's Signature (required) _____ *Date* _____



For Operations Office Use

Approved by: _____ Date _____

Order of Importance:

_____ Must do now

_____ As soon as possible

_____ As time permits

Maintenance Personnel Assigned _____

Inspected upon Completion by _____ Date _____

Outdoor and Grounds Management

The entire school grounds must be properly maintained on a routine and preventive basis. School grounds can be defined as the full extent of all school property, including school sites, the central office, and other administrative or support facilities. This includes, but is not limited, to:

- courtyards
- exterior lighting and signage
- outdoor learning equipment
- pools
- museums
- bike trails
- modular facilities
- paved surfaces (e.g., sidewalks, parking lots, and roads)
- athletic fields (including synthetic surfaces such as Astro turf)
- vacant property owned by the district

Duties consist of keeping school grounds clear of trash, glass, leaves, and other debris; sweeping sidewalks, parking lots, and paved play areas; hosing down sidewalks, steps, and outside entrance areas; maintaining the lawn in a neat and presentable condition by mowing grass, trimming around the building, sidewalks, fence lines, etc.; pulling weeds and trimming shrubbery as necessary; and spreading mulch in tot-lots as needed. During winter months remove snow and ice from sidewalks, entrances, and bus loading and unloading areas.

OUTDOOR AND GROUNDS CARE SUPERVISORS/GROUNDS KEEPERS FREQUENCY CHART					
DUTIES	Daily	Weekly	Monthly	Annually	As Required
Pick up trash & debris					
Sweep entrances & sidewalks					
Inspect play area pavement					
Remove graffiti					
Check playground equipment					
Rake grounds					
Remove leaves					
Clean storm drain grating					
Clean roof drains					
Inspect gutters & downspouts					
Mow lawn (in season)					
Trim around building & walks					
Trim along fence lines					
Pull weeds					
Trim shrubbery					
Remove ice & snow					
Salt icy areas					
Replace burnt out light bulbs					

Cleaning Procedures

Auditorium Cleaning and Care

This consists of all cleaning associated with the auditorium area such as: stage, prop room, dressing room, orchestra pit, ticket booth, and seating areas, including proper care of floor surfaces, carpeting, and auditorium equipment.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Sweep/vacuum aisles					
Sweep/vacuum floor areas					
Clean/vacuum upholstered seats					
Clean stage					
Clean orchestra pit					
Clean dressing rooms					
Clean restrooms					
Empty waste receptacles					
Replace light bulbs/tubes					
Clean prop room					
Dust walls					
Wash walls					
Wash doors and door frames					
Remove graffiti					
Clean ticket booth					
Wet mop hard surface floors					
Remove chewing gum, tar, etc.					
Spot clean upholstery & carpet					
Shampoo/extract carpet					
Hard surface floor maintenance					

Classroom Cleaning and Care

This will include emptying pencil sharpeners and wastebaskets; cleaning chalkboards and chalk trays; damp wiping or dusting of desks, tables, cabinets, and other specified surfaces; cleaning student cloak closets, sinks, and toilets in assigned work areas; sweeping/dry mopping and wet mopping of floors; vacuuming carpets; washing windows; adjusting venetian blinds and drapes uniformly.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Dust mop floor					
Empty pencil sharpeners					
Empty wastebaskets					
Secure windows					
Adjust blinds/drapes uniformly					
Wash sink & fittings					
Wash windows & window sills					
Dust window sills					
Wash wood work & trim					

Wash doors & frames					
Wash baseboards					
Wash furniture					
Wash lights & fixtures					
Clean chalkboards & trays					
Clean venetian blinds					
Dust walls & ceiling corners					
Vacuum carpet/rugs					
Dust wipe clock, TV, etc.					
Replace light tubes					
Wet mop and/or spray buff floor					
Scrub/strip & refinish floor					

Corridors and Entrance Care

This will include all cleaning in corridors and lobby entrances; removing all loose paper, trash and rubbish; removing gum and heel marks from the floors; cleaning drinking fountains and glass surfaces in the areas; mopping up wet spots due to weather, leaks or spills; keeping walk-off mats clean; and proper care and maintenance of equipment and materials used. When floors are wet or slippery, keep warning signs in place.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Dust mop floors & steps					
Secure windows & doors					
Wash fountains & fittings					
Wash windows & sills					
Wash doors, frames & glass					
Wash entrance doors & glass					
Wash lockers					
Wash woodwork & trim					
Wash lights & fixtures					
Wash steps & handrails					
Dust walls & ceiling corners					
Dust off tops of lockers, exit lights & clocks					
Damp wipe walls					
Clean exhibit cases & art work					
Clean/vacuum walk-off mats/other carpeted areas					
Clean/shampoo carpeted areas					
Spot/wet mop floors					
Spray buff floors					
Scrub or strip floors					
Refinish floors					

Gymnasium Care

Includes all cleaning associated with the gymnasium such as; dust mopping before and after athletic events; spot mopping for spills as necessary; cleaning and emptying waste receptacles; washing walls, doors, door frames, and windows; cleaning trash and debris from under and around the bleachers; and replacing light bulbs/tubes as necessary.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Dust mop floor					
Spot mop floors					
Dust walls and bleachers					
Wash walls and bleachers					
Wash doors and door frames					
Wash door glass					
Empty trash receptacles					
Clean under bleachers					
Check bleacher operation					
Perform bleacher safety checks					
Check partition operators					
Check backboard operators					
Check volleyball pole anchors					
Replace burned out light bulbs					
Remove gum/tar from floor					
Remove graffiti					
Wash windows					
Wash light fixtures					
Secure windows and doors					
Do regular floor maintenance					

Health Room Cleaning

The health room is one of the most critical areas in our buildings where regular and proper cleaning is important. Health rooms are occupied by students that have cuts, scrapes, contagious infections, and illnesses. Proper cleaning daily is best to control bacteria and odors in the health rooms. Equipment needed for proper cleaning is just as important. Only use the wet mops and bowl swabs labeled for use in the health room restrooms.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Wash sinks/basins & fittings					
Wash urinals & fittings					
Wash commodes including seats					
Wash windows					
Wash walls & ceiling					
Wash lights & fixtures					
Damp wipe partitions & walls					
Polish metal work					
Clean mirrors					

Empty waste receptacles					
Clean soap dispensers					
Fill toilet tissue dispenser					
Fill paper towel dispenser					
Fill sanitary napkin dispenser					
Fill soap dispenser					
Wet mop floor using germicidal disinfectant cleaner					
Secure windows.					
Replace light bulbs					
Do regular floor maintenance					
Strip and refinish floors					

Kitchen and Cafeteria Cleaning and Maintenance

This will include removing trash/garbage from the kitchen and dining areas; washing and sanitizing trash/garbage containers; washing overhead hoods, ducts, pipes, and filters; cleaning refrigerator/walk-in box floors; washing walls, windows, doors, and door frames; wet mopping the kitchen and dining area floors with a germicidal disinfectant cleaner; setting up tables before lunch; putting tables away after lunch; and the proper care and maintenance of the cleaning equipment.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Wash hoods, filters, ducts, etc.					
Wash trash/garbage cans					
Wash door sills					
Wash doors & door frames					
Wash windows & sills					
Wash walls, woodwork & trim					
Wash lights & fixtures					
Clean venetian blinds					
Clean ventilating fans					
Clean grease traps					
Dispose of trash/garbage					
Sweep cafeteria floor					
Wet mop cafeteria floor					
Wet mop kitchen floor					
Spot mop floors - due to spills					
Clean drinking fountains					
Replace light tubes					
Secure windows & doors					
Spray buff cafeteria floor					
Do regular floor maintenance					

Restroom Cleaning

The restroom is one of the most critical areas in our buildings where regular and proper cleaning is important. Restrooms that are dirty and have offensive odors cause germs and diseases that pose a threat to good health. Proper cleaning daily is the best way to control bacteria and odors in the restrooms.

Equipment needed for proper cleaning is just as important. The equipment used for the restroom should not be used elsewhere. If possible, mark mops, brooms, and bowl swabs to identify them just for the restrooms so no one else will use them in other areas. The items needed to clean a restroom are: rubber gloves, wet floor sign, broom, dust pan, wet mop, mop bucket and wringer, spray bottles, sponges, putty knife, bowl brush, bowl swabs, germicidal disinfectant cleaner, cream cleanser, hand soap, glass cleaner, hand towels, toilet tissue, sanitary napkins, and disposable sanitary napkin bags.

Safety precautions should always be used to prevent accidents and injuries to self and others.

First: Use wet floor signs. These let others know that the janitor is working in the restroom and that the floor is wet.

Second: Wear rubber gloves. This will prevent contact of bacteria and germs to hands.

Third: The only chemicals used are germicidal disinfectant cleaner, window cleaner, extractor chemical, and stripper. **Do not mix any cleaning chemicals together under any circumstances.**

Fourth: Report all necessary repairs of lights, plumbing, or fixtures, and put up an out-of-order sign.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Wash sinks/basins & fittings					
Wash urinals & fittings					
Wash commodes including seats					
Wash windows					
Wash walls & ceiling					
Wash lights & fixtures					
Damp wipe partitions & walls					
Polish metal work					
Clean mirrors					
Empty waste receptacles					
Clean soap dispensers					
Fill toilet tissue dispenser					
Fill paper towel dispenser					
Fill sanitary napkin dispenser					
Fill soap dispenser					
Wet mop floor					
Secure windows					
Replace light bulbs					
Do regular floor maintenance					

Shower and Locker Room Care

This will include all cleaning in shower and locker rooms such as: emptying all waste receptacles; servicing sanitary napkin dispensers, if provided; dusting ledges, grills, and locker tops; cleaning of walls, mirrors, shelves, windows and window sills, stall partitions and doors, wash basins, commodes and urinals; polishing metal work; and sweeping, mopping, and scrubbing of floors.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Empty waste receptacles					
Sweep locker/shower room					
Wet mop and disinfect locker room area					
Wet mop and disinfect shower room area					
Clean metal work					
Clean locker tops					
Fill paper towel dispensers					
Fill toilet tissue dispensers					
Fill soap dispensers					
Fill sanitary napkin dispenser					
Wash and disinfect walls and shower stalls					
Wash and disinfect stall partitions					
Wash and disinfect sinks/basins					
Wash and disinfect commodes					
Wash and disinfect urinals					
Wash mirrors					
Wash and disinfect shelves					
Wash and disinfect doors					
Replace light bulbs					
Do regular floor maintenance					

Stairs and Stairwells

This will include the wet and dry cleaning in stairwells; i.e., steps, landings, windows, sills, doors, glass, stair treads, risers, lights and fixtures, and handrails.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Dust mop steps & landings					
Secure windows & blinds					
Wash windows & sills					
Wash doors, frames, and glass					
Wash stair treads					
Wash stair risers					
Wash lights & fixtures walls					

Damp wipe handrails					
Damp wipe walls					
Damp wipe exit lights					
Dust walls & ceiling corners					
Replace light tubes/bulbs					
Remove chewing gum					
Remove graffiti					
Wet mop landings					
Scrub or strip landings					
Refinish landings					

Weight Lifting/Exercise Room

This will include all cleaning in weight lifting rooms such as: emptying all waste receptacles and cleaning windows, dust ledges, furniture, walls, disinfect telephone, equipment, and floors.

DUTIES	Daily	Weekly	Monthly	Annually	As Required
Dust or vacuum floor					
Empty wastebasket					
Secure windows					
Adjust blinds/drapes uniformly					
Clean & disinfect body contact areas of equipment					
Wash windows & window sills					
Dust window sills					
Wash woodwork & trim					
Wash baseboard					
Wash furniture					
Wash lights & fixtures					
Dust walls & ceiling corners					
Vacuum carpet/rugs					
Dust & wipe clock, TV, etc.					
Replace light tubes					
Wet mop floor					

Playground Equipment

Playground equipment should be inspected semi-annually—before school begins and in the early spring. Inspections are important to determine faulty equipment to eliminate risk of injury to students and other community users. Following preventative maintenance inspections and detailed record keeping will aid in the reduction of liability issues.

Playground Inspection Checklist

School _____ Date _____

Inspected by _____

Playground equipment should be inspected for safety before school starts in the fall. A July inspection allows time for repairs to be made before students return for the first day of school. An early spring inspection (early-March) should also be accomplished. The following checklist should be used for these semi-annual inspections and should be kept with other preventive maintenance records. Minor repairs should be made at the school level. Repairs beyond the capability of in-school personnel should be placed on a "Maintenance Requisition."

Checked	Play Equipment	State the Repairs Needed	What Repairs Were Made
	SLIDES		
	Exposed concrete footing		
	Protruding bolts or hardware		
	Head entrapment areas (between 3" and 9")		
	Metal slide bed separating from equipment base at entrance, exit or joints		
	Loose, bent, sharp, or missing parts		
	Unstable equipment		
	Rough or broken slide bed		
	Finger entrapment areas (between 3/8" and 1")		
	Rust or dry rot on frame		
	Peeling paint or graffiti		
	Obstructions in 8' fall zone		
	Rusty/worn hardware		
	Debris littered steps		
	CLIMBERS		
	Exposed concrete footing		
	Protruding bolts or hardware		
	Head entrapment areas (between 3" and 9")		
	Loose, bent, sharp, or missing parts		
	Unstable equipment		
	Peeling paint or graffiti		
	Finger entrapment areas (between 3/8" and 1")		
	Rusty-worn hardware		
	Rust or dry rot on frame		
	Loose railings		
	Obstruction in 8' fall zone		
	TENNIS COURTS		
	Surface cracked or pitted		
	Concrete Footing of net supports loose		
	Fixtures broken		
	Fencing around courts loose, torn or broken		
	Broken glass or gravel on courts		
	FOOTBALL/SOCCER FIELDS		
	Goals bent or broken		
	Grounds in poor shape		

	BASEBALL/SOFTBALL DIAMONDS		
	Backstop fencing bent, torn or broken		
	Glass or rocks scattered on fields		
	Grounds in need of care (i.e., ground hog holes, gullied areas, etc.)		
	Glass, bottles, paper or cans need to be cleaned up		
	SWINGS		
	Loose/worn chain swivels		
	Badly worn chain links		
	Seats cracked or broken		
	Protruding nuts and bolts		
	Loose concrete footings - unstable equipment		
	Loose, bent or missing parts		
	Excessively/dangerously rusted parts		
	SEESAWS		
	Rotted or cracked boards		
	Protruding or exposed nuts or bolts		
	Badly worn pivotal joints		
	Cracked boards or handles		
	Loose concrete footing		
	BASKETBALL COURTS/ HOOPS		
	Hoops loose/broken		
	Backstop loose		
	Surface (concrete or blacktop) cracked, loose or pitted		
	Surfaces with broken glass or gravel		
	CRAWL TUNNELS		
	Peeling paint		
	Finger entrapment areas (between 3/8" and 1")		
	Cracked or broken areas		
	Obstruction in 8' fall zone		
	Rough/sharp edges		
	Glass or debris present		
	PLAY AREA SURFACING AND BORDERS		
	Surfacing border has rough or cracked concrete, rough boards, or protruding bolts or nails		
	The depth of loose surfacing material is less than 6"		
	Surfacing border is not adequately containing the material		
	Glass and/or debris present		
	Play pieces are not at least 8' apart		
	WOODEN CLMBING EQUIPMENT		
	Split uprights on wooden equipment		
	Exposed footings		
	Uprights worn/loose		
	Platforms, rungs, railings loose or worn		

	Loose bolts		
	SPRING RIDING TOYS		
	Concrete footing loose		
	Exposed bolts and nuts		
	Plastic structure broken or cracked		

Please Note: In no case should the fall height of a child to the cushioned ground surface exceed 7 feet.

Overall comments on playground:

Other Maintenance and Operations Issues

Boilers – Boilers, which can be used to generate hot water for domestic use (e.g., kitchens, showers, and bathrooms) or for heating buildings, should definitely be included in an organization’s preventive maintenance program. Most large boilers are subject to state or local inspection laws, which typically require that the boiler be maintained on a regular basis (at least annually) and that maintenance records be kept on-site. Records of hours of operation and fuel use must also be maintained on-site and made available to inspectors. Moreover, permits may be required for boilers that generate more than 10,000,000 btu/hour. Energy-saving techniques include equipping boilers with hot-water temperature resets (which adjust the temperature of the hot water being produced based on the outside temperature) and using boiler economizers to capture and recycle heat that would otherwise be lost in the stacks.

Electrical Systems – Electrical equipment must be maintained like any other piece of equipment, whether it is a distribution pole with transformers or a breaker box for controlling a classroom’s electrical power. Professional engineers and electricians should help to determine preventive maintenance tasks and schedules for electrical components. Thermo graphic scanning, which identifies overheating in connections, motors, bearings, and other electrical switchgear, can be an important tool for determining the condition of electrical gear (the principle behind the test is that a loose connection, bad bearing, or bad breaker bars will produce more heat than a proper connection). With the widespread use of computers, the proper maintenance of electrical systems is more important than ever. Reliance upon extension cords and an excessive number of power poles is an indication that permanent upgrades to the electrical system are needed. However, upgrading existing electrical systems in old buildings must be carefully managed. Building codes vary by locality, but whatever procedures, standards, and inspection requirements exist are designed for standardization and safety and must be carefully followed by school personnel.

Energy Management – The cost of energy is a major item in any school budget. Energy Management Systems are computer-controlled systems that operate HVAC units. They can automatically turn on and off air conditioning, lights, and boilers according to pre-programmed instructions entered by facilities staff. The following guidelines will help to accomplish more efficient energy management:

- Establish an energy policy with specific goals and objectives.
- Assign someone to be responsible for the district’s energy management program, and give this energy manager access to top-level administrators.
- Monitor each building’s energy use.
- Conduct energy audits in all buildings to identify energy-inefficient units.
- Institute performance contracting (i.e., contracts requiring desired results rather than simply a list of needed products) when replacing older, energy-inefficient equipment.
- Reward schools that decrease their energy use.
- Install energy-efficient equipment, including power factor correction units, electronic ballast, high-efficient lamps, night setbacks, and variable-speed drives for large motors and pumps.
- Install motion detectors that turn lights on when a room is occupied (and off when the room is unoccupied).

Floor Coverings – Often lunchrooms, main halls, and secondary halls are covered in terrazzo, vinyl composition tile (VCT), or quarry tile. These coverings have hard surfaces that are easily cleaned and do not collect dirt. In classrooms where noise control is important, carpets with an impermeable backing, which prevents the passage of water or dirt and are easily cleaned, may be used. Carpets can also be purchased with adhesives already attached to the backing, which helps to ensure complete adhesion without the emission of volatile organic compounds (VOCs). Some primary schools use area rugs rather than carpets, because they can be easily removed and cleaned at the end of the school year or as needed. Periodic cleaning of both carpets and rugs is necessary to minimize the likelihood of dirt and other contaminants causing indoor air quality problems.

Gym Floors – Gym floors are generally constructed with vinyl composition tile (VCT), one of several grades of maple flooring, sheet rubber, or other synthetic materials. Regardless, all floor types must be kept clean and properly maintained. VCT floors must be periodically stripped and re-waxed to ensure a safe surface. Wood floors require annual screening and resealing with a water-based sealant. They should also be sanded, re-marked, and resealed in their entirety every 10 years. Synthetic floors (including sheet rubber but excluding asbestos tile) require monthly cleaning and scrubbing with buffers.

Heating, Ventilation, and Air Conditioning (HVAC) Systems – All schools require HVAC systems to control indoor climate if they are to provide an environment that is conducive to learning. In fact, oftentimes a school’s ability to

convene classes depends on acceptable climate control. Different regions of the country may place emphasis on different elements of the HVAC system, but the bottom line is the same: HVAC components must be maintained on a timely and routine basis. This preventive maintenance will ensure reliability, reduce operating costs, and increase the life expectancy of the equipment.

Two effective ways to improve HVAC performance are through air balancing and water balancing. Air balancing ensures that the desired amount of air reaches each space in the building, as specified in the mechanical plans. Water balancing ensures that the flow of water from the chiller and boiler is in accordance with the mechanical plans. Water balancing is normally performed before air balancing. Balancing is usually conducted upon installation of new equipment and at 5- to 8-year intervals. Balancing should also be conducted when building space is substantially modified or room use is changed dramatically.

Hot Water Heaters – Hot water heaters in schools range in size from small 10-gallon heaters to the larger 100- to 300-gallon units. Preventive maintenance programs must be established for each hot water heater. At a minimum, maintenance should include inspection for failing safety devices and leaks (especially if fired by natural gas).

Kitchens – Kitchens present special problems for school districts: not only must equipment be maintained properly to ensure reliability, but 1) a high state of cleanliness must be maintained in all food preparation areas; 2) the use of certain cleaning agents may be discouraged in food preparation areas; and 3) ovens and stoves pose special fire safety concerns. Floor surfaces are also of particular concern in kitchens since they must be easy to clean yet slip-resistant. Recommended floor surfaces for kitchens include terrazzo, vinyl composition tile (VCT), quarry tile, and sealed concrete.

Painting – Painting should be done on a regular schedule that is published well in advance of work dates to minimize inconvenience to building occupants. Painting needs are determined largely by the type of surface, the type of paint applied previously, and surface use (e.g., a window pane may be expected to receive less wear than a chair rail). A wall constructed of concrete masonry units (CMU) and painted with a two-part epoxy can last 8 or 10 years whereas drywall will require painting every 5 or 6 years. Bathrooms, special education areas, and other high-traffic areas will require painting on a more frequent schedule. A durable, cleanable (i.e., able to be cleaned by the custodial staff with their standard tools), paint from a major manufacturer should be used for indoor areas. Water-based latex paints are a good choice because they are low in volatile organic compounds (VOCs) and do not produce noticeable odors. Surfaces must be properly prepared for painting, which may require the use of a primer to cover stains and discolored patches.

Plumbing – Sprinkler systems, water fountains, sump pumps, lift pumps, steam traps, expansion joints, and drains are likely targets for preventive maintenance. Standing water must be avoided at all costs, since it damages building materials and can lead to mold concerns that affect indoor air quality.

Public Address Systems and Intercoms – These communications tools are vital to the management of school buildings and, in an emergency, the safety of building occupants. Public address (PA) systems must be connected to the emergency power system to ensure uninterrupted communications in the event of a power failure. Public address systems and intercoms should be tested on a daily basis during the broadcast of a school's morning announcements. If broadcast systems fail to perform properly, they must be repaired immediately.

Roof Repairs – The key to maintaining good roofs is the timely removal of water from the surface and substructure of the roof. Thus, all leaks and damaged tiles must be repaired as soon as possible to prevent water damage and mold growth. On composition built-up roofs, hot tar is the only appropriate repair method. Single-ply and modified roofs should be repaired in accordance with the manufacturer's instructions. The facility manager must verify the annual assessment of each roof within the district, recording the date of installation, type of roof, type and thickness of insulation, type of drainage, and type and frequency of repair work. Detailed drawings or photographs that show the location of repairs should be maintained, as should contact information for the installing contractor. This information is extremely important in the event of a major roofing problem or an insurance or warranty claim.

Additional Resources

The following is a list of additional resources.

American School and University Annual Maintenance and Operations Cost Study

<http://images.asumag.com/files/134/mo%20school.pdf>

An annual survey that reports median national statistics for various maintenance and operations costs, including salary/payroll, gas, electricity, utilities, maintenance and grounds equipment and supplies, outside contract labor, and other costs.

Beyond Pesticides

<http://www.beyondpesticides.org>

A nonprofit membership organization formed to serve as a national network committed to pesticide safety and the adoption of alternative pest management strategies.

Budgeting for Facilities Maintenance and Repair Activities

<http://www.nap.edu/books/N1000085/html/index.html>

An online publication that focuses on how to estimate future facility maintenance and repair needs. Federal Facilities Council, Standing Committee on Operations and Maintenance, National Research Council (1996) National Academy Press, Washington, DC.

Building Evaluation Techniques

Step-by-step techniques for conducting an effective building assessment, including the evaluation of overall structural performance, spatial comfort, noise control, air quality, and energy consumption. Includes sample forms and checklists tailored to specific building types. George Baird, et al. (1995) McGraw Hill, 207pp.

Carpet and Rug Institute (CRI)

<http://www.carpet-rug.com/>

The web site of the national trade association representing the carpet and rug industry. It is a source of extensive information about carpets for consumers, writers, interior designers, facility managers, architects, builders, and building owners and managers, installation contractors, and retailers. CRI also publishes the web site "Carpet in Schools" (<http://www.carpet-schools.com/>) to address topics such as indoor air quality, allergies, and carpet selection, installation, and care.

Children's Environmental Health Network

<http://www.cehn.org>

A national multidisciplinary project dedicated to promoting a healthy environment and protecting children from environmental hazards. The site presents a variety of useful publications and materials.

Cleaning & Maintenance Management Online

<http://www.cmmonline.com/Home.asp>

The online home of Cleaning & Maintenance Management magazine, which features articles, buyers guides, key topics, and a calendar.

Creating Safe Learning Zones: The ABC's of Healthy Schools

<http://www.childproofing.org/ABC.pdf>

A primer prepared by the Healthy Buildings Committee of the Child Proofing Our Communities campaign to offer guidance about constructing, maintaining, and renovating healthy schools.

Custodial Methods and Procedures Manual

<http://asbointl.org/Publications/PublicationCatalog/index.asp?s=0&cf=3&i=139>

A manual that discusses school facility cleaning and maintenance from the perspective of work management, physical assets management, and resource management. A reference section contains guidelines and forms for custodial equipment storage and care, as well as safety measures and employee management forms. Johnson, Donald R. (2000) Association of School Business Officials International, Reston, VA, 96pp.

Custodial Staffing Guidelines for Educational Facilities

http://www.appa.org/resources/publications/pubs.cfm?Category_ID=2

A guide about custodial staffing in educational facilities that addresses custodial evaluation, special considerations, staff development tools, and case studies. Appendices include information about custodial requirements, space classification, standard space category matrices, standard activity lists, and audit forms. APPA (1998) The Association of Higher Education Facilities Officers, Alexandria, VA, 266pp.

Custodial Standards

http://ehs.brevard.k12.fl.us/PDF%20files/custodial_standards_03.pdf

Guidelines that detail cleaning requirements for each area of a school, including classrooms, restrooms, cafeterias, gymnasiums, locker rooms, and corridors. Samples of assessment forms include emergency lighting, fire extinguisher inspection, air conditioner maintenance/service log sheets, and monthly custodial preventive maintenance forms. Office of Plant Operations and Maintenance (1998) Brevard Public Schools, Rockledge, FL, 44pp.

Deteriorating School Facilities and Student Learning

http://www.ed.gov/databases/ERIC_Digests/ed356564.html

A report documenting that many facilities in American public schools are in disrepair a situation with implications on the morale, health, and learning of students and teachers. Frazier, Linda M. (1993) ERIC Clearinghouse for Educational Management, Eugene, OR.

Energy Smart Schools

<http://www.eren.doe.gov/energysmartschools/>

An initiative by the U.S. Department of Energy to provide detailed information about how to increase school building energy efficiency and improve the learning environment. Includes a discussion of school facility commissioning.

Facilities Audit: A Process for Improving Facilities Conditions

A handbook presenting a step-by-step approach to all phases of facility inspection. It is designed to help a facility manager assess the functional performance of school buildings and infrastructure and provides information about how to quantify maintenance deficiencies, summarize inspection results, and present audit findings for capital renewal funding. Kaiser, Harvey (1993) APPA, The Association of Higher Education Facilities Officers, Washington, DC, 102pp.

Facilities Evaluation Handbook: Safety, Fire Protection, and Environmental Compliance, 2nd Edition

A guide to help plant and facilities managers conduct inspections and evaluations of their facilities in order to identify and address problems in the areas of maintenance, safety, energy efficiency, and environmental compliance. Petrocelli, K. L. and Thumann, Albert (1999) Fairmont Press, Lilburn, GA, 200pp.

Facilities Information Management: A Guide for State and Local School Districts

<http://nces.ed.gov/forum/publications.asp>

A publication that defines a set of data elements that are critical to answering basic policy questions related to elementary and secondary school facility management. Facilities Maintenance Task Force, National Forum on Education Statistics (2003) National Center for Education Statistics, Washington, DC.

Facilities Management: A Manual for Plant Administration

http://www.appa.org/resources/publications/pubs.cfm?Category_ID=1

A four-book publication about managing the physical plant of campuses. Its 67 chapters cover general administration and management, maintenance and operation of buildings and grounds, energy and utility systems, and facilities planning, design and construction. Middleton, William, Ed. (1997) APPA: Assn. of Higher Education Facilities Officers, Alexandria, VA.

Facility Management

<http://www.facilitymanagement.com/>

The online home of American School and Hospital Maintenance Magazine. This site is intended to help facility managers stay informed about current issues and the latest products.

Good School Maintenance: A Manual of Programs and Procedures for Buildings, Grounds and Equipment

http://www.iasb.com/shop/details.cfm?Item_Num=GSM

A manual that describes the fundamentals of good school maintenance, including managing the program and staying

informed about environmental issues. Procedures for maintaining school grounds are detailed, as are steps for maintaining mechanical equipment, including heating and air-conditioning systems, sanitary systems and fixtures, sewage treatment plants, and electrical systems. Harroun, Jack (1996) Illinois Association of School Boards, Springfield, IL, 272pp.

Green Schools

<http://www.ase.org/greenschools/>

A comprehensive program designed for K-12 schools to create energy awareness, enhance experiential learning, and save schools money on energy costs.

Healthier Cleaning & Maintenance: Practices and Products for Schools

A paper that provides guidance to schools with regard to selecting, purchasing, and using environmentally preferable cleaning products. Healthy Schools Network, Inc. (1999) New York State Association for Superintendents of School Buildings and Grounds, Albany, NY, 8pp.

Healthy School Handbook: Conquering the Sick Building Syndrome and Other Environmental Hazards In and Around Your School

A compilation of 22 articles concerning "sick building syndrome" in educational facilities, with attention given to determining whether a school is sick, assessing causes, initiating treatment, and developing interventions. Miller, Norma L., Ed. (1995) National Education Association, Alexandria, VA, 446pp.

Indoor Air Quality and Student Performance

<http://www.epa.gov/iaq/schools/performance.html>

A report examining how indoor air quality (IAQ) affects a child's ability to learn, including case studies of schools that successfully addressed their indoor air problems, lessons learned, and long-term practices and policies that have emerged. Indoor Environments Division, U.S. Environmental Protection Agency (2000) U.S. Environmental Protection Agency, Washington, DC.

Indoor Air Quality (IAQ) Tools for Schools

<http://www.epa.gov/iaq/schools/>

A U.S. Environmental Protection Agency kit showing schools how to carry out a practical plan for improving indoor air problems at little or no cost by using straightforward activities and in-house staff. The kit includes checklists for school employees, an IAQ problem-solving wheel, a fact sheet on indoor air pollution issues, and sample policies and memos.

Janitorial Products: Pollution Prevention Project

<http://www.westp2net.org/Janitorial/jp4.htm>

A site sponsored by the U.S. Environmental Protection Agency that includes fact sheets, product sample kits, purchasing specifications, and other materials to advise users on the health, safety, and environmental consequences of janitorial products.

Lead-Safe Schools

http://socrates.berkeley.edu/~lohp/Projects/Lead-Safe_Schools/lead-safe_schools.html

A site established by the Labor Occupational Health Program at the University of California at Berkeley to house publications about lead-safe schools, provide training to school maintenance staff, and offer a telephone hotline to school districts and staff.

Maintenance Planning, Scheduling and Coordination

A book focusing on the preparatory tasks that lead to effective utilization and application of maintenance resources: planning, parts acquisition, work measurement, coordination and scheduling. Nyman, Don and Levitt, Joel (2001) Industrial Press, New York, NY, 320pp.

Mercury

<http://www.epa.gov/mercury/index.html>

A web site of the U.S. EPA intended to provide information about reducing the amount of mercury in the environment. It includes both general and technical information about mercury and mercury-reduction strategies.

National Best Practices Manual for Building High Performance Schools

<http://www.eren.doe.gov/energysmartschools/order.html>

A manual by the U.S. Department of Energy to help architects and engineers design or retrofit schools in an environmentally friendly manner. U.S. Department of Energy, Washington, DC.

National Clearinghouse for Educational Facilities (NCEF)

<http://www.edfacilities.org>

A web site that includes reviews of and links to cutting-edge education facilities news; a calendar of conferences, workshops, and other facilities management-related events; a gallery of photos showing off innovative and provocative building design and construction from real schools across the nation; categorized and abstracted resource lists with links to full length, online, publications; and pointers to other organizations that provide online and off-line resources about education facilities management. NCEF can also be reached toll free at 888-552-0624.

National Program for Playground Safety

<http://www.uni.edu/playground/about.html>

A site that describes playground safety issues, safety tips and FAQs, statistics and additional resources, and action plans for improving playground safety.

National School Safety Center

<http://www.nssc1.org/>

An internationally recognized resource for school safety information, training, and violence prevention. The web site contains valuable summaries of school safety research, including contact information for locating the studies.

Occupational Safety and Health Administration (OSHA)

<http://www.osha.gov/>

The web site of OSHA, which has as its core mission to save lives, prevent injuries, and protect the health of America's workers. To accomplish this, federal and state governments work in partnership with the more than 100 million working men and women and their 6.5 million employers who are covered by the Occupational Safety and Health Act of 1970.

Operation and Maintenance Assessments: A Best Practice for Energy-Efficient Building Operations

<http://www.peci.org/om/assess.pdf>

A publication that describes what an operations and maintenance assessment is, who should perform it, the benefits of an assessment, what it costs, and the process of performing an assessment. Includes a glossary of terms, sample site-assessment forms, a request for proposal checklist, sample procedures and plan, and a sample master log of findings. (1999) Portland Energy Conservation, Inc. Portland, OR, 54pp.

Operational Guidelines for Grounds Management

http://www.appa.org/resources/publications/pubs.cfm?Category_ID=2

A comprehensive guide to maintaining and managing grounds and landscaping operations. Chapters discuss environmental stewardship, broadcast and zone maintenance, grounds staffing guidelines, contracted services, position descriptions, benchmarking, and environmental issues and laws. Feliciani, et al. (2001) APPA: Assn. of Higher Education Facilities Officers, Alexandria, VA, 159pp.

Planning Guide for Maintaining School Facilities

<http://nces.ed.gov/pubs2003/2003347.pdf>

A publication that is designed for staff at the local school district level where most facility maintenance is planned, managed, and carried out. Facilities Maintenance Task Force, National Forum on Education Statistics (2003) National Center for Education Statistics, Washington, DC.

Practical Guide for Commissioning Existing Buildings

<http://www.ornl.gov/~webworks/cpr/y2001/rpt/101847.pdf>

A document that describes commissioning terminology, the costs and benefits of commissioning, retro-commissioning, steps to effective commissioning, and the roles of team members in the commissioning process. Haasl, T. and Sharp, T. (1999) U.S. Department of Energy, Washington, DC.

Preventive Maintenance Guidelines for School Facilities K-12

<http://www.rsmeans.com/index.asp>

A five-part manual that is intended to increase the integrity and support the longevity of school facilities by providing easy-to-use preventive maintenance system guidelines. It includes a book, wall chart, and electronic forms

designed to help maintenance professionals identify, assess, and address equipment and material deficiencies before they become costly malfunctions. Maciha, John C, et al. (2001) R.S. Means Company, Inc., Kingston, MA, 232pp.

The Rural and Community Trust

<http://www.ruraledu.org/facilities.html>

The web site of the Rural and Community Trust, which works with many small towns and counties in which the school remains the center of the community. The Rural and Community Trust provides a network for people who are working to improve school-community facilities, increase community participation in the facilities design process, and expand the stakeholders these public resources can serve.

School Design Primer: A How-To Manual for the 21st Century

<http://www.edfacilities.org/pubs/li/little.html>

A resource that describes the school planning and design process for decision-makers (e.g., superintendents, planning committee members, architects, and educators) who are new to school construction and renovation projects.

SchoolDude

<http://www.schooldude.com/>

A site that connects school facility professionals with each other to solve problems, share best practices, and improve learning environments. This includes tools for work management, information, and resources, as well as online procurement for equipment and school supplies. Some sections are accessible only to fee-paying members.

SchoolFacilities.com

<http://www.schoolfacilities.com>

A professional support network for school facility administrators and support personnel that provides school-related news, products, resources, and facility management tools.

SchoolHouse Plant Operation & Maintenance Resource Center: School House Library

<http://faststart.com/cps/Library.html>

An online library containing reports dealing with various aspects of plant operation and maintenance that relate to the operation of school buildings.

U.S. Environmental Protection Agency (EPA)

<http://www.epa.gov/>

The main web site of the EPA, whose mission is to protect human health and safeguard the natural environment – air, water, and land – upon which life depends. The EPA works with other federal agencies, state and local governments, and Indian tribes to develop and enforce regulations under existing environmental laws. The web site includes an alphabetical index of topical issues available at <http://www.epa.gov/ebtpages/alphabet.html>. EPA Regional Office and Linked State Environmental Departments can be found at <http://www.epa.gov/epapages/statelocal/envrolst.htm>.

U.S. Equal Employment Opportunity Commission (EEOC)

<http://www.eeoc.gov>

The web site of the EEOC, which is charged with enforcing numerous employment-related federal statutes.

U.S. Green Building Council

<http://www.usgbc.org>

A web site intended to facilitate interaction among leaders in every sector of business, industry, government, and academia with respect to emerging trends, policies, and products affecting “green building” practices in the United States.