



St. Tammany Parish School Board

Energy Management Policy

The official policy and goal of the STPSB is to conserve energy where possible and to take a leadership role in developing a realistic energy ethic and awareness of energy needs and costs.

The Superintendent or his or her designee is directed, but not limited to, employing the following methods to achieve this goal:

1. Reduce energy consumption in all buildings.
2. Implement low cost or no cost operation and maintenance procedures to ensure more efficient equipment operation.
3. Assign an energy manager to monitor energy consumption and energy conservation at the District Level.
4. Establish and communicate energy conservation guidelines.
5. Encourage every student and employee to use his or her best efforts to comply with the District's energy conservation policy and guidelines.
6. Require building administrators to judiciously monitor energy use and maintain an efficient energy posture on a daily basis.
7. Maintain records of energy consumption and the cost of energy and provide this information to the building leadership.
8. Monitor the goals and progress of the energy program and report as appropriate to the Board and community at large.

St. Tammany Parish School Board

ENERGY MANAGEMENT PLAN

I. Purpose

The St. Tammany Parish School Board (STPSB) is committed to energy conservation through energy efficient facilities operation and behavioral strategies. Energy efficient operation of facilities can create an improved learning environment that increases the comfort and productivity of all employees and students. In recognition of this responsibility, the district will institute an energy management plan in order to reduce the use of energy and utilities resources.

II. Goal

The School Board believes that all employees and students should learn and practice ways to reduce energy consumption on a daily basis by instilling lifelong habits for energy conservation.

III. Objectives

The district will, at the direction of the Superintendent, designate an energy management team to coordinate and direct the overall energy management program, track energy expenditures, and assure accountability and commitment from all employees.

The district shall use energy as efficiently as reasonably possible.

The district will minimize the use of energy while maintaining an environment conducive to the comfort, health, safety, and well-being of all employees and students.

The district will maintain and operate all facilities and equipment for the efficient use of energy.

The district will develop programs to update facilities and equipment for the efficient use of energy, subject to the resources available.

The district will consider energy efficiency a priority in the new construction or remodeling of district facilities and will endeavor to follow Energy Star and/or Leadership in Energy and Environmental Design (LEED) building standards, subject to the resources available.

The district will utilize preventive maintenance, and operations and facility personnel to make energy efficiency improvements, subject to the resources available.

The district will provide in-service training for all employees and students on the need to conserve energy.

The district shall issue an energy management manual to each facility. This manual will provide energy savings directives for the efficient use of cooling/heating systems, lighting, electrical equipment, water, and waste disposal. The district will review this manual annually and update as necessary.

The district will monitor each facility's energy usage practices during walk-through energy audits and the results will be communicated to the administrator of each facility.

The district will establish baseline energy usage for each facility.

The district will establish a target energy usage reduction for each facility,

The district will issue monthly energy usage reports to each facility.

The district will develop energy conservation lesson plans that will be implemented into the online guaranteed curriculum.

Each facility will adopt an energy conservation plan modeled after the district plan that will be updated every three years.

Each facility will have a performance contract stating annual energy conservation goals.

Administrators will be responsible for the total energy usage of his/her building. Administrators will be provided information reflecting the energy consumption for his/her building on a monthly basis.

All employees and students will be expected to contribute to the conservation of energy in our district.

St. Tammany Parish Energy Management Manual

Introduction

The energy costs for operating school facilities are a significant part of the budget for the entire school district. It is common to find a number of opportunities for reducing energy costs by simply implementing sound energy management practices. The opportunities for reducing energy costs must be identified and addressed in an energy management plan for the entire school system. Although the investment in time and money to implement energy-saving practices is negligible and generally requires only a renewed attention to operations, the commitment required is significant. This commitment must come from everyone—administrators, maintenance staff, faculty, custodians, food service staffs, and students. With commitment at all levels and a well-designed energy management plan comes substantial rewards. Not only do these rewards include reduced energy costs, but also improved comfort, more efficient lighting, longer equipment life, and fewer breakdowns and repairs, to name a few.

This energy plan was prepared for St. Tammany Parish School Board at the request of Mr. Leonard Monteleone, Superintendent. It is designed to assist you in your efforts to implement an energy management program which will maximize the school system's financial resources by reducing utility costs while maintaining the personal comfort of faculty, staff, and student body. The plan was tailored specifically for your parish and has been prepared in consultation with Mr. James Scharf, Supervisor of Maintenance. It has been endorsed by Mr. Monteleone and approved by the school board. Previous energy studies conducted by the Louisiana Department of Natural Resources and the Louisiana Cooperative Extension Service in conjunction with the first phase of the *Energy and Education: For a Brighter Tomorrow Program* were used as a basis for the implementation of this plan.

The energy plan was prepared in conjunction with the *Energy Education for a Brighter Tomorrow Program*. The program is sponsored by the Louisiana Department of Natural Resources (DNR), Energy Division, and is funded 86 percent (\$188,470) with oil overcharge funds from the Exxon Settlement as approved by the U.S. Department of Energy. The remaining 14% (\$30,347) of the program's budget is provided by the Louisiana Cooperative Extension Service, LSU Agricultural Center, as match.

Energy specialist with the Louisiana Cooperative Extension Service (LCES), LSU Agricultural Center worked closely with your school board personnel to prepare this plan and tailor it specifically for the schools in your district. While the plan is designed specifically for your school district, modifications may still be needed for individual schools within the district.

It is the aim of this program to involve everyone in the school system, including the superintendent, school board, faculty, staff, and student body, in the implementation of an energy management plan for the entire system. This plan recommends energy conservation practices to be implemented in all areas of the schools and identifies those who are responsible for the implementation. In order to realize maximum benefits, these concepts should be applied in all facilities owned/operated by the school board, including Central Office, media centers, maintenance shops, athletic facilities, etc.

Before proceeding further, it is important to define the term “energy conservation” as it is intended in this plan. For many, the term “energy conservation” conjures up images of students straining their eyes to work in the dark and teachers and students either sweating or shivering in the classroom. It is imperative that all persons involved with the implementation of this plan understand that it is intended to result in the wise use and planned management of energy resources. It is not intended that you turn off the air conditioning during the school day or work in the dark, but to better manage the energy you do use to operate your campuses and other facilities.

In order for this energy management plan to be most effective, several things must now happen:

- (1) The school board and school administrators must agree upon and implement an incentive plan which will entice school personnel to take an active part in the energy plan implementation.
- (2) A method of monitoring and enforcing the implementation of the policies must be devised on the parish and local school level (i.e., Someone must be made accountable).
- (3) Training and education must be conducted for school administrators and other selected school personnel on their role in the implementation of the energy plan. All persons must be committed to the success of the program or it will not produce desired results.

LCES energy specialists will be happy to help you work through each of the above-mentioned items, some of which were addressed in other sections of this proposal. Possible incentive programs were discussed when the energy specialists visited with school system administrators. Examples of incentive programs are included in the *Incentives* section of the Appendix of this proposal.

The importance of school system administrators in this process cannot be overemphasized. The implementation and enforcement of this energy plan must receive the full support and endorsement of the superintendent, school board, school principals, assistant principals, and other school system administrators. The energy plan cannot be a one-shot deal. It is not something that can be addressed once a month and expected to produce results. It will require the continuous effort and commitment of all faculty, staff, and students on all school campuses and in all facilities in the system.

Organization

This energy plan document consists of three sections: (1) Overview of Recommended Energy Guidelines for Schools; (2) Specific Energy Management Plans and Checklists; and, (3) Incentives.

The first section of this plan contains a brief discussion of energy concepts that should be addressed in every energy management plan for school systems. Topics included are heating, air conditioning, and ventilation; lighting; minimizing air leaks; eliminating interior sources of moisture; minimizing solar heat gain; and water heating and utilization. Specific areas addressed include classrooms, gymnasiums and auditoriums, kitchens, computer rooms, libraries, temporary buildings, and administrative/office areas.

Specific recommendations for your school system's energy plan are included in the second section. This section is the "heart" of this energy plan. Suggested energy management guidelines are identified by area of the school and by the person responsible. Additional suggestions are made in this section for summer and Christmas shutdown procedures and scheduled maintenance of energy-consuming equipment. In all cases, the person responsible for actually implementing the specific guidelines is identified by title.

The third section of this plan includes ideas for incentive plans designed to encourage commitment to the energy policy by faculty, students, and staff. In order for people to put forth the extra effort to implement the policy, they will want to know how they will benefit by participating. It may also help for them to know the penalties for not participating. Included in this section are examples of some incentive plans currently in use in Louisiana school systems. Also included are some other ideas that might work in your parish. Regardless of which incentive plan you choose, whether it is one of those suggested here or another that the school board identifies, implementing an incentive plan will encourage school faculty, staff, and student body to actively support and commit to the system's energy policy.

Section 1

Overview of Recommended Energy Guidelines for Schools

NOVAR ENERGY MANAGEMENT SYSTEMS

NOVAR is an energy management system that controls HVAC equipment and lighting. NOVAR can control HVAC equipment by schedule or by temperature. It can control lighting by schedule or by photo sensor.

Cooling set points for occupied times should be between 72 and 76 degrees. Cooling set back to 80 degrees during unoccupied times. Heating set points for occupied times should be between 68 and 72 degrees. Heating set back to 55 degrees during unoccupied times.

Scheduling should be limited to occupied time. On Monday you may schedule HVAC equipment 2 hours before scheduled occupied time. All other days of the week should be scheduled 1 hour before occupied time. Lighting should be limited to occupied time.

Heating, Ventilation, and Air Conditioning

Approximately 70% of energy expenditures in schools are devoted to heating and air conditioning. This makes heating, ventilation, and air conditioning (HVAC) systems a primary target for improved efficiency and regularly scheduled preventive maintenance, as the opportunity for savings is substantial.

Although substantial sums of money are being spent to condition classrooms and other areas of the school, many areas are consistently uncomfortable. Some of the discomfort is due to improper maintenance on HVAC equipment or equipment which is not performing well. Other discomfort is due to lack of knowledge about thermostats and other controls. Many situations can be corrected through the implementation of an energy management plan for our school system. The following general energy plan recommendations, when implemented, will insure that the HVAC system functions more efficiently, thus reducing energy expenditures, while maintaining comfort.

HVAC Controls

The following must be included in our district energy management plan:

- All staff members allowed to operate thermostats and other HVAC controls must be well versed in their operation. This applies to controls on window units and individual room units as well as for central units.

- Set thermostats at acceptable temperatures during occupied times, generally 68° to 72°F for heating and 72° to 76°F for cooling. Settings for unoccupied times should be at 55° F or lower for heating and at 80°F or higher for cooling. As with all recommendations, some adjustments may be necessary depending on special circumstances, such as under extreme temperature conditions.
- Individual room units should be turned off at the end of each day. Central units and individual units with thermostats should be either turned off or moved to the unoccupied setting at the end of each day. If an energy management system is in use, temperature set points should be monitored and maintained. During extended unoccupied periods, HVAC units may have to run for a few hours each day for humidity control.
- Thermostats should not be located near areas subject to extreme temperature fluctuations, such as, near windows or outside doors, in direct sunlight, or near kitchen appliances. Thermostats should not be mounted on exterior wall or in the direct path of air blown from heating or cooling outlets. Move refrigerated vending machines, copy machines, and computers away from thermostats. The heat generated by these pieces of equipment will send false temperature readings to the thermostat causing the unit either to cut off prematurely or run excessively.
- An area should not be preheated or pre-cooled too far in advance of use. Try turning the thermostat to the occupied setting 30 minutes (at most one hour) before occupants begin arriving. Gradually move this time earlier if necessary. These preheat or pre-cool periods may have to be longer after weekends or holidays, if the systems are turned off during unoccupied times instead of set to an economy setting, or if temperatures are extreme. (NOTE: Because temporary or portable buildings are often under-insulated and older buildings are often drafty, the AC or heating units in these buildings may have to be turned on earlier in order to achieve tolerable temperatures before students arrive. Use good judgment.)
- The starting times of HVAC units should be staggered to prevent high electric demand charges. Not all thermostats need to be turned on at the same time. Areas getting the first early morning sun may need cooling before other areas.
- Whenever possible, use a master switch with a timer to control on and off times for HVAC units. When the total responsibility for HVAC controls is left to the room's occupant, the occupant may forget to turn off the system, thus leaving it to run unnecessarily overnight or on the weekend. Having a master control on a timer provides consistency in the hours of operation and a built-in check to prevent systems from being operated when not needed.
- When master controls are not available, someone must have the responsibility of checking each HVAC unit at the end of each day to see that it is in the appropriate mode or set at the appropriate temperature.
- Consider setting thermostats to economy settings before closing time. Usually there is enough conditioned air in an area to keep it comfortable for a while after systems stop

- Reduce or eliminate heating and cooling for nonessential areas, such as, storage rooms, hallways, and foyers. If this cannot be accomplished by adjusting thermostats for those areas, perhaps, air registers or duct dampers can be partially or totally closed. (Note: Closing vents completely may cause air handlers to ‘freeze up’.)
- When working in an area during unoccupied times, organize people and tasks to minimize operation of heating and cooling systems. Try to complete all tasks in an area controlled by one thermostat before moving to the next area. Instruct staff to move the thermostat to the unoccupied setting as they leave the area.
- Repair or replace malfunctioning thermostats and other controls as soon as problems are identified. Have thermostats checked periodically for proper calibration. When teachers must open doors and/or windows to maintain comfort in their classrooms while the HVAC system is operational, something is wrong. Investigate and correct the problem for immediate energy savings.
- Where automated or computerized HVAC controls exist, if “manual” or “override” functions are available, have more than one individual at each school trained to operate them. When the controls are maintained by an outside contractor, insist that two or more school board personnel be thoroughly trained to operate the system. Also insist on printed operating instructions for backup documentation in case you get in a bind. Energy management systems can be very beneficial if used properly. Be sure the capabilities of the system are understood and utilized. Otherwise, they are waste of precious financial resources.

HVAC MAINTENANCE

The area in which the greatest potential for energy savings in schools exists is the maintenance of HVAC equipment. In the first phase of this program it was discovered that air conditioning filters were often not properly maintained nor was preventive maintenance conducted on HVAC units. As a result, many HVAC units were functioning at well below 100% capacity. Addressing maintenance is critical to the success of the program. Filters for air conditioners and heaters must be properly sized for the unit or return air grill, and they must be clean. There is a tremendous potential for energy savings in establishing a routine schedule for changing air filters and using the correct type and size filters. The benefits of these practices include reduced blower power consumption, increased cooling or heating efficiency, longer compressor life, cleaner air, and avoided labor and material costs to clean dirty blower wheels and coils.

It is recommended that the changing of all filters (or cleaning of filters, in the case of permanent or washable filters) be a routine procedure conducted monthly. This necessitates, of course, that a supply of filters of the correct size and type be readily available to whoever will have the responsibility to change them.

Keep in mind that some filters in some parts of the schools may need to be changed more than once each month. For example, in the kitchen where grease and dust builds up more rapidly, in outside classrooms where there may be dirt immediately outside of the windows, or in roof top units in farming and agricultural areas, filters many need to be changed every other week. The routine changing of filters is critical to obtaining maximum efficiency from HVAC systems. In most cases, janitors or custodians can be given this responsibility. In other instances, someone on the parish maintenance staff may have to change filters that are difficult to access (for example, in gyms on ceiling-mounted units). It is critical that someone be given the responsibility to see that this very important task is completed as scheduled. Perhaps a principal or maintenance crew member can spot-check monthly.

Selection of the proper size and type filter is a major concern. Whether installed in the HVAC unit or in a return air grill, the filter must be sized and installed to prevent any air from bypassing the filters. Types of filter material and designs commonly used in schools include flat panel fiberglass, pleated fiberglass, spun polyester, metal mesh, and polyester sponge (typical for window and through-the-wall units). Some media and designs are more efficient than others. Evaluate the filters currently in use and consider upgrading to improve efficiency. A pamphlet named “Air Conditioning Filters Filter in Comfort, Filter out Cost” is available from the Louisiana Cooperative Extension Service. It provides more details regarding the various types of filters and their proper installation.

Louisiana Cooperative Extension Service studies have found that preventive maintenance and tune-ups of commercial heating and air conditioning systems can result in average energy savings ranging from 11 % to 28%. HVAC systems lose capacity with use and age. The coils become plugged, belts slip, and refrigerant leaks may not be noticed. Complete tune-ups should include an inspection of indoor and outdoor coils, blower wheel, air flow, filters, the duct system, refrigerant charge, and the thermostat. It is critical that each of these components of the HVAC system be kept in top-notch condition so that maximum performance of the system can be maintained. Annual tune-ups and routine maintenance can restore capacity, cut energy use, increase energy efficiency, and add to the life of existing equipment. Qualified, knowledgeable persons should conduct these tune-ups.

Partial tune-ups may be required more frequently than the annual tune-up where equipment operates under atypical conditions. An example of such a condition is when air cooled condensing units are located near busy streets, driveways, and parking lots.

The energy management plan for our facilities includes the following guidelines for the maintenance of heating and air conditioning equipment:

- Change air conditioning filters according to an established schedule, usually at least once each month during the school year when cooling. Don't forget that some heaters also have filters that should be changed according to the same schedule, when in use. In some high-traffic areas such as kitchens, dining rooms, gyms and hallways, filters may need to be changed even more often.

- Because filter maintenance is so critical, someone should check to see that filters have been changed according to the schedule. In the classroom, teachers may be the watchdogs. In administrative areas, the secretary or principal may perform this function.
- So called “permanent” and reusable filters, such as foam or expanded metal, are usually the least efficient. They require more maintenance than disposable filters. Consider replacing them with a more efficient filter media. If you must use the permanent filters, be sure to use a spray filter adhesive on the metal ones and replace the washable foam filters as they become worn or begin to deteriorate.
- See that there are no air leaks around the filters. They should fit snugly in the frame for which they were designed.
- Thoroughly seal and secure access panels to filters.
- Periodic inspection of belts and annual cleaning of condenser and evaporator coils, and blower wheels are critical to the efficient operation of all HVAC equipment. This recommendation also includes window units and other individual room units.
- Watch for dirt build-up on coils. A small amount of dirt on the surface of the coil is a good indicator of a large amount of dirt trapped down between the fins.
- Advise teachers and others to listen for and report unusual sounds and activities:
 - ✓ squeaking or squealing sounds which may be a forewarning of belt or bearing failure;
 - ✓ banging or clanking sounds, or unusual vibration;
 - ✓ motors starting, or attempting to start, in rapid cycles;
 - ✓ motors, which should cycle on and off, running constantly;
 - ✓ unusual odors which may be symptomatic of electrical problems or high heat due to lack of lubrication or excessive loads;
 - ✓ water puddles or stains which may indicate drain problems or leaking water lines; and,
 - ✓ ice building up on air conditioning refrigerant lines.

INDIVIDUAL ROOM AIR CONDITIONERS

Using a large number of independent room units (window or through-the-wall) has advantages and disadvantages. Advantages include greater individual temperature control, and in some cases, lower purchase cost per BTU. Another advantage is that supplemental cooling can be provided to areas with high heat, such as computer rooms, with one or more individual room units. Disadvantages include increased room noise and increased maintenance (more filters to replace or clean and more coils to clean). When purchasing new units, only high efficiency room units should be considered.

Additional guidelines:

- Most independent units have washable foam filters. All of the filter recommendations above also apply to these units. Filters should fit appropriately, be secured in place, and cleaned according to an established schedule. Foam filters should be replaced when they tear or begin to deteriorate. These units should also be thoroughly cleaned annually.
- Thermostats on independent units often include only a high, medium or low fan speed and a warmer/cooler temperature setting. Some may have a thermostat which is numbered 1-10. Advise teachers to adjust temperature to a moderate setting (5-6 on a 1-10 scale). Moving the knob to extreme cool or heat settings will not allow the room to achieve the desired temperature any faster. It will only use more energy. All previous recommendations regarding controls also apply to these units.
- Instruct teachers to turn units off at the end of each day, except in special circumstances, such as extreme temperature days.
- Seal any air leaks which may result around units from improper installation. Caulking or weather stripping should be used.

VENTILATION

The following guidelines apply to ventilation of school spaces:

- Instruct teachers and students to keep doors for classrooms that open into unconditioned hallways closed as much as possible to minimize the loss of conditioned air.
- Windows should not be open when the heating or cooling is on. If the outside temperature and humidity are sufficient for indoor comfort, all conditioned areas on the same system must participate in the free conditioning or none at all. Instruct students and teachers accordingly.
- Caution teachers about blocking supply and return air grills. Arrange furniture so that optimal air circulation is allowed. Do not allow students and faculty to stack books/papers/etc. on the supply air grills on top of through-the-wall units. In the event that the classroom has central air conditioning, teachers should be cautioned against covering the return air grills (often found in hallway doors), with poster paper, cardboard or furniture.
- Return air grills may have to be cleaned periodically to prevent restricting the air flow.
- Use ceiling fans, if available. Their use will allow you to raise the thermostat temperature by 5-7°F. Repair or replace defective ceiling fans.
- Vent clothes dryers to the outside. Be sure the vents have working back draft dampers. Don't forget to check dryers in athletic rooms, gyms, kitchens, special education, home

- Watch for orange or yellow flames on gas appliances such as heaters, boilers, water heaters, stoves, and ovens. Such flames can be an indication of an improper fuel to air ratio, possibly caused by insufficient air getting to the equipment area or incorrect burner adjustment.
- Turn off exhaust fans in all restrooms at the end of each day.
- Operate exhaust fans in science labs only when necessary.
- Do not allow exhaust fans in athletic facilities (i.e. dressing rooms, field house) to operate when facilities are unoccupied.
- Inspect the vent pipes on all gas-burning appliances annually to be sure they are properly connected and free of obstructions.

REDUCING SOURCES OF INTERNAL MOISTURE

For maximum comfort of occupants, indoor humidity levels should be maintained at 50 to 60%. Once the humidity levels get over 70%, occupants begin to feel uncomfortable. This usually occurs in warm humid months of the year, and the first human reflex is to compensate by turning the air conditioner cooler. However, other measures may be taken to reduce indoor humidity levels and improve comfort.

Although the air conditioner does function to dehumidify the air, reducing indoor sources of moisture will also help to alleviate indoor humidity problems. For example, proper ventilation through exhaust fans in kitchens allows excess moisture from cooking and dishwashing to be expelled outdoors. Leaking roofs also add to the indoor humidity problem. Repairing roof leaks and proper ventilation are primary concerns.

Address these factors in your energy management plan:

- Moisture collecting on exterior walls or windows is often a sign of one or more of the following conditions:
 - ✓ air leaks around doors or windows
 - ✓ insufficient insulation and/or vapor barrier
 - ✓ internal sources of moisture (people, cooking, un-vented gas appliances, dishwashing) in areas with insufficient ventilation.

Try to determine the cause and correct. Some moisture on exterior windows is common, but it should not be to the extent that mold or mildew occurs.

- Instruct students, faculty, and staff to turn water faucets off tightly when they are finished with them. Report water leaks to maintenance immediately.
- Be on the lookout for roof leaks and repair them as soon as possible.
- Instruct cafeteria staff to use exhaust hoods over cooking equipment and dishwashers to remove excess moisture from the kitchen air.
- During extensive, unoccupied times, it may be necessary to operate the air conditioner for a few hours each day to dehumidify and prevent mold and mildew growth in certain areas. In areas where humidity is a problem, try running the AC two hours every other day and see if that helps. If not, gradually increase running time until humidity is controlled.

AIR LEAKS

Air leaks allow for substantial energy waste. In fact, a 1/4" crack around a pair of 6'8" doors is equivalent to a 20 square inch hole! On a winter day, if you've got cold air flowing through a hole that size, you're paying to heat the outdoors. And that's quite expensive! Air leaks greatly influence comfort levels as they make a constant temperature harder to maintain. Weatherization programs which emphasize sealing up air leaks are low cost and have a short payback.

In the typical Louisiana school which averages 20+ years in age, a tremendous potential exists for problems with air leaks. Broken window panes, doors which do not close completely, window frames which are loose, cracks in walls and floors, exhaust fan louvers that are stuck in the open position, and other situations allow unwanted air to leak into classrooms and other areas affecting comfort.

Still other air leak problems are related to operations. These include leaving doors open to outside air and having classroom doors and windows open while operating heating or air conditioning. It is apparent that teachers sometimes open doors and windows to unconditioned airways to compensate for inadequate air conditioning being supplied by the system. The most efficient way to deal with that particular situation is to correct the problem(s) with the system, then instruct faculty on its most efficient operation.

CAUTION: Gas appliances must have a source of air for combustion. While it is preferable to have this air supplied directly to the appliance from the outside, this is not always possible, especially with older space heaters, wall heaters, cooking appliances, and water heaters. When these types of appliances must share a room with human occupants, a tightly-sealed room can result in the accumulation of deadly carbon monoxide gases. Use extreme caution and good common sense when dealing with this situation. If in doubt, seek advice from a qualified professional. It's better to be safe than sorry!

You should also be aware that there are certain laws (federal, state, and sometimes local) which require a minimum amount of outdoor air to be supplied to occupied areas of buildings. There is considerable uncertainty as to how these regulations should be applied. Contact building officials for interpretation and assistance.

The following guidelines apply:

- All exterior doors should have automatic closers in good working condition. Adjust for the fastest return practical.
- Do not allow teachers, students, or staff to secure exterior doors in an open position except on days when the HVAC system is not operating.
- All exterior doors should be thoroughly weather stripped. If you can see daylight around a door, energy is being wasted.
- Caulk and/or weather strip around all window panes and frames to reduce air leaks.
- Instruct teachers and students to keep doors for classrooms that open into unconditioned hallways closed as much as possible to minimize the loss of conditioned air. Comfort will be attained much more quickly, and the run time on the classroom unit will be shortened.
- Windows should not be open when the heating or cooling is on. If the outside temperature and humidity are sufficient for indoor comfort, all conditioned areas on the same system must participate in the free conditioning or none at all. Instruct students and teachers accordingly.
- Seal air leaks around air conditioning equipment (especially window and wall units) and ducts. Leaks that cannot be properly sealed with duct tape or caulking should be reported to the maintenance department. Tape and caulking should be used only to seal small cracks and are not intended to replace mechanical fasteners such as flanges or screws. High temperature areas around heating units may require special heat resistant tape.
- Dust collecting around HVAC supply air grills is often an indication that unfiltered air is getting through or around filters, or that air leaks exist between the filters and the blowers. Locate and repair the leaks.

LIGHTING

Lighting in schools typically accounts for approximately 24% of the energy consumed. Although this is a small portion compared to the energy consumption by heating and cooling systems, there is much room for improvement in the typical school setting. Lights are often left on in unoccupied classrooms, storage closets, and other seldom used rooms on every campus. Outdoors, very inefficient incandescent lights are often burning in the middle of the day. These are situations which are easily corrected by making a conscious effort to conserve energy. One simple remedy—turning lights off--can be done by everyone. Active participation in a highly visible energy-saving activity such as this may also encourage further energy conservation awareness and action.

Inefficient or unnecessary lighting uses extra electricity and adds unnecessary heat to the room which, in turn, increases the cooling load on the air conditioner. The following guidelines apply to improving the efficiency of lighting in schools:

- Turn off lights when natural lighting is sufficient for the tasks at hand. This is especially true for foyers, lobbies, dining rooms, gyms, and all outdoor lighting. In classroom and office situations, remember that natural lighting is accompanied by solar heat gain. In many instances, it is far less expensive to operate lights than it is to operate the air conditioner to compensate for the added cooling load placed on the AC system by solar gain. Make an educated judgement.
- Instruct teachers to close blinds, curtains or other window treatments to minimize heat gain or loss. It is less expensive to provide artificial lighting for an area than it is to heat or cool it. All blinds, curtains, etc., should be closed at night and on the weekends. On cold, sunny days turn blinds downward (convex side to interior). The blinds in this position will allow light and heat into the classroom. On cold nights, turn blinds upward (concave side to interior). Cold air will be trapped next to the window and warm air will stay in the room. On warm days, angle the blinds upward (concave side to interior). This will help keep the sun's heat out of the building. On warm nights, turn blinds downward (convex side to interior). Cold night air will fall away from the window into the room.
- Incandescent and fluorescent lights should be turned off any time an area is to be unoccupied. This includes recesses, lunch time, teacher's planning period (if they will be out of the room), etc. The energy saved will be greater than the cost of shortening the lamp life.
- High intensity discharge lights such as metal halide and mercury vapor, which are sometimes used in gyms, should be turned off if the area is to be unoccupied for more than one hour.

- Don't automatically replace all lights which have failed. Consider the necessity of the light from that lamp. If adequate light is available from other fixtures, don't replace it. But, be sure that light levels are appropriate for the tasks conducted in that area.
- If a ballast-type fixture, such as fluorescent (including compact fluorescents), metal halide, and high pressure sodium, is going to be left out of service, disconnect the ballast. It uses energy even if the lamps are removed.
- As they fail, replace standard fluorescent lamps and magnetic ballasts with high efficiency lamps and electronic ballasts. Often a lower wattage lamp will be sufficient and will require significantly less energy.
- Use compact fluorescent lamps in place of incandescent bulbs where vandalism is not a problem and fixtures will allow.
- For increasing light output without increasing energy costs, replace lens shielding that has turned yellow or hazy with new acrylic lenses which do not discolor.
- Replace exterior incandescent lamps with more efficient types such as high pressure sodium or metal halide.
- Place all exterior lights on a timer or photoelectric eye. Remember to reset timers following a power outage and as daylight hours change. If this option is not chosen, be sure that someone on the campus knows the location of all switches for exterior lights, and that they are manually turned off each morning.
- When possible, use task lighting to eliminate area lighting. In other words, light only the small area where work is being performed. For example, if a teacher is in the classroom while her students are not, instruct him/her to turn on only the lights in the area in which work is being done, if switching will allow.
- The following steps should be considered when trying to increase light levels without adding to energy costs:
 - ✓ Clean the fixtures (reflector and/or lens shielding)
 - ✓ Dust bulbs
 - ✓ Paint the ceilings bright white for maximum reflection
 - ✓ Keep wall and floor colors as light as possible without greatly increasing maintenance. Lighter colors reflect light, while darker colors absorb light.
- When installing light fixtures, place them in the appropriate position. Fixtures designed for indirect operation will not perform satisfactorily if installed too close to the ceiling. Refer to the manufacturer's instructions for proper mounting.

WATER HEATING AND UTILIZATION

Most hot water in the school setting is used in the kitchen. Other areas which may use hot water are janitors' closets, teachers' lounges, home ec labs, restrooms, and science labs. Domestic tap water is used in ice machines, toilets, and water fountains. In all cases, water leaks pose the potential for a substantial amount of energy waste, especially if it is the hot water that is leaking. One toilet which leaks can waste over 22,000 gallons per year. It is recommended that water leaks be repaired immediately and staff should be educated against leaving water running unnecessarily.

Keeping water at a proper temperature can also save valuable energy dollars. While it is necessary in the kitchen to have water as high as 180°F for dishwashing and sanitation purposes if a chemical process is not used, it is not necessary to have that temperature of water throughout the school. If a chemical treatment is used in the final rinse cycle of the dishwasher and in the pot sink, the water temperature may be set considerably lower, about 140°F. Follow equipment manufacturers' recommendations for the most appropriate water temperature. Using excessively hot water makes chemical sanitizers ineffective, wasting the cost of the chemicals and special equipment, and nullifying their benefits.

Maintaining water temperatures at 110-115°F is suitable for general purpose use. Many dishwashers have hot water boosters on them to elevate the water to the proper temperature. This allows you to keep the water heater set much lower and, consequently, to save energy. Reducing the water temperature from 145° to 115°F can result in substantial energy savings, depending on how much water you use.

Realizing that considerable energy is required to heat and cool water, checking faucets, pipes, toilets, and water fountains for leaks should become a part of routine maintenance. Repairs should be made in a timely manner to assure a minimum of energy waste in this area. Routine checking of water heater temperature settings can help keep unnecessary waste under control.

As with any refrigeration equipment, water coolers require periodic cleaning of their condenser coils to maintain peak performance. These coils should be vacuum cleaned, brushed gently and/or blown out with compressed air. And, sure, cold water tastes better, but, you can also save energy by unplugging the cooler on the water fountain and allowing students to drink un-chilled water.

Circulating pumps are often used in domestic hot water systems to provide immediate hot water at point-of-use locations. While there may be some justification for this ability in kitchens, it is a costly luxury in other areas such as restrooms and showers. If there is a legitimate need for a circulating pump, certain steps should be taken to minimize its cost. The pump should be controlled by a thermostat that senses the water temperature at the pump's inlet. The thermostat's set point should be approximately equal to the set point of the water heater. The water temperature should be measured at the outlet of the water heater and the inlet of the pump with an accurate thermocouple thermometer. In addition to the pump thermostat, a seven day clock/controller will achieve greater energy savings by preventing the pump from running during non-school hours.

You can save energy by implementing the following strategies:

- Repair leaking faucets immediately, especially if it is the hot water faucet that is leaking.
- Remind students, teachers, and staff to turn faucets off tightly.
- Do not allow water in hand wash areas of cafeteria to run between lunch shifts.
- Consider turning off hot water to student restrooms, if this has not already been done.
- Reduce hot water temperatures to the lowest allowed by health codes, usually 180°F for dishwashing and 110 to 115°F for other purposes. Many dishwashers have hot water boosters to heat 110°F water to 180°F so that the main water heater can be set to the lower and more economical setting. Chemical sanitizers permit the use of lower temperatures. Use of chemical sanitizers in the final rinse allows a temperature setting of 140°F. Follow the chemical manufacturer's recommendation.
- Install timers on electric water heaters.
- Insulate exposed hot water lines and un-insulated tanks.
- Using circulating pumps to provide instant hot water is an expensive luxury. Eliminate them where hot water delays are not excessive. Where the pumps cannot be eliminated, use timers in conjunction with water line thermostats to minimize the operation of the pumps. Turn off all circulating pumps at night and during the weekends, extended holidays, and summer vacation.
- Either lower the temperature on water heaters and boilers or turn them off during extended vacation periods. Turn off pilots and unplug electric water heaters during the summer.
- Unplug water coolers during vacation periods. Consider also unplugging them during the winter months and allowing students to drink un-chilled water.
- Annually inspect the coils of water coolers for dirt build up. Clean as needed.

SOLAR GAIN THROUGH WINDOWS

Louisiana schools typically have lots of windows. All those windows cause solar gain problems. Solar gain presents a problem by increasing the cooling load in a room. The best way to stop the effects of solar gain is to prevent the heat from getting into the room in the first place. Several things can be done to accomplish this:

- Instruct teachers to close blinds, drapes and other window treatments to minimize solar heat gain during the day.
- On cold, sunny days turn blinds downward (convex side to interior). The blinds in this position will allow light and heat into the classroom. On cold nights, turn blinds upward (concave side to interior). Cold air will be trapped next to the window and warm air will stay in the room. On warm days, angle the blinds upward (concave side to interior). This will help keep the sun's heat out of the building. On warm nights, turn blinds downward (convex side to interior). Cold night air will fall away from the window into the room.
- Install solar film or solar screens on windows on the east and west sides, if vandalism is not a problem.
- Install insulated pop-in panels in windows. These can then be used for bulletin boards to display students' work.
- Plant trees and shrubs to provide shade for windows.
- Install bookcases, shelves, or storage cubicles over windows that are not needed for ventilation or light.

SPECIFIC AREAS

CLASSROOMS

There are many opportunities for teachers and students to aid the school's energy conservation effort in the classroom. Not only are there day-to-day practices that they can participate in, but they can also watch for potential energy wasters and report any observed to either the custodian, or principal, depending upon school procedure. Students can actively participate in the effort to monitor conditions in classrooms by establishing Energy Patrols. Energy Patrols are student groups that survey the school to identify classes that are in violation of the school's energy plan. For example, if lights are left on during recess, the Energy Patrol will issue a 'ticket' to the class that is in violation. Either Mrs. Berry or Dr. Acosta can help you get Energy Patrols set up in your schools.

In addition to energy savings, learning and teaching environments can be improved through the implementation of this energy management plan. For example, indoor air quality and lighting are two factors that affect the physiological aspects of learning. Headaches and eyestrain are just two possible results of improper lighting. Proper selection and placement of bulbs, fixtures, and furniture arrangement can eliminate eyestrain from improper lighting. Poor indoor air quality (i.e. mold, mildew, harmful gases) can be unhealthy for children with allergies as well as to those without allergies. Proper ventilation and filter maintenance can improve air quality and reduce absenteeism of teachers and students due to allergies and colds.

Perhaps the most important energy guideline to implement, but the most difficult to enforce, is the proper use of thermostats in the classroom. Indoor temperatures during occupied times should be 68-72°F for heating and 72-76°F for cooling. During unoccupied times, the HVAC units should be turned off or the temperature settings lowered to 55°F for heating and raised to 80°F for cooling. Teachers must realize that the thermostat on a heater or air conditioner does not work like an accelerator in a car—"flooring it" (or moving thermostats to extremes) will not make the unit work any faster. It just uses more energy!

The following guidelines apply to conserving energy in the classroom:

- Instruct teachers on the proper use of thermostat controls and temperature settings. Insist that temperature guidelines be adhered to and have someone assigned to spot-check thermostats periodically.
- Be sure that teachers understand what is to be done with HVAC units at the end of the day. Will they be turned off or moved to the unoccupied setting? Have someone assigned to check every unit at the end of each day. The effort will be worthwhile.
- Keep classroom doors to the outside and to unconditioned hallways closed as much as possible.
- Have teachers report air leaks around doors and windows to the janitor. Damaged windows (i.e. those with holes and cracks) should also be reported.

- Maximize the use of natural lighting if solar gain is not a problem. Use staged lighting when it is available. For example, turn off the row of lights next to a wall of windows when sunlight is sufficient.
- Turn off lights in unoccupied rooms, closets, and storage areas.
- Instruct teachers to report any burned out, malfunctioning, or dirty fixtures and bulbs to the person responsible for their maintenance.
- Carefully place furniture to avoid blocking supply and return air grills. In rooms with through-the-wall units, do not block air flow by placing books or other items on top.
- Have teachers report any dirt buildup on ceiling tiles and supply grills to the principal or custodian, according to school procedure. This may be an indication that filters need changing.
- Operate window units only with clean filters and turn them off when the room is unoccupied. Teachers should report any dirty, damaged, or missing filters or malfunctioning units to the principal or custodian, according to school procedure.
- Turn off any computers or other office equipment at the end of the day.
- Set computer power options to “System Standby: 20 minutes”; “Turn off hard disks: Never”; and, “Hibernate: Never”.
- Turn off computer monitors when they are not being used. Screen savers do not save energy.
- Set computer monitor power option to: “Turn Off: 20 minutes”.
- Use ceiling fans where available and remember to turn them off when the room is unoccupied.

KITCHENS

The typical kitchen in schools has the potential for a tremendous amount of energy waste. In order to minimize this waste, all kitchen equipment must be kept in good shape, and the staff utilizing the equipment must be knowledgeable of its operation. Most of the energy waste in school kitchens results from inadequate equipment maintenance and careless operating procedures.

It is recommended that all kitchen equipment be serviced at least on an annual basis and more often, if the need arises. While there will be an annual cost in servicing equipment, it will pay for itself in savings in energy dollars in the long run. Recent studies indicate that yearly preventive maintenance by a professional refrigeration mechanic can reduce energy consumption of this equipment up to 25%.

In order to maximize energy efficiency in the kitchen, it is not enough, however, that equipment is maintained in good working order. Cafeteria staff also must learn and practice good energy management techniques as they relate to food preparation.

HOT WATER USE IN THE SCHOOL KITCHEN

The use of hot water in kitchens accounts for significant energy expense. It also contributes greatly to the heat and humidity in the kitchen. Maintaining proper water temperatures for washing dishes, pots, and other utensils can appear confusing, but will result in lower energy costs and improved comfort. To determine the proper temperatures and procedures for your kitchen, consult the manufacturers of the equipment and/or chemicals in use and parish health officials. Post these temperatures and procedures in the dishwashing areas.

It is never necessary to have water heaters set higher than 180°F. In fact, much lower temperatures are permissible and effective with the proper use of booster heaters or sanitizing chemicals. Use of chemical sanitizers in the final rinse allows the water heater setting to be 140°F. Water heater tanks and pipes should be insulated properly. If the water heater is gas, the water heater closet must have provisions for fresh air for proper combustion (i.e. louvered door, open window, etc.).

Fill dishwashers to capacity and stack dishes properly. Remember to turn off booster heater on washer after use. If using a power dryer, adjust it so that heated air is delivered just long enough to barely dry the dishes. Drying will continue after the machine is shut off. Instruct staff to use exhaust fans near the dishwasher to reduce indoor moisture. Turn the exhaust fans off when dishwashing is complete, if the AC or heat is operating.

Watch for water leaks from dishwashers, sinks (in both kitchens and restrooms), hand wash areas, ice machines, and water fountains. To avoid water being wasted, have someone designated to turn the water on/off at the hand washing area as students arrive in the dining room and immediately after the last child in each group has been served his/her meal. There is no need for the water to run continuously throughout the serving period.

If available, use ceiling fans in the dining rooms; occupants will feel 5-7°F cooler, and the temperature on the thermostat can be raised to conserve electricity. Also, if indoor moisture is a problem, turn fans on after mopping to help the floors dry faster.

KITCHEN LIGHTING

Don't use artificial lighting where it is not needed. In well-lit dining rooms, take advantage of lighting from windows if solar gain is not a problem. If heat gain is a problem, cover up the windows and turn on the lights. Light bulbs and fixtures in the kitchen get dirty quickly because the grease in the air acts as a magnet to the dust and collects on the bulbs. Clean lamps and fixtures often and replace discolored covers and diffusers to increase the amount of light available without adding energy costs. Be sure to turn off lights in unoccupied dining rooms, storage closets, restrooms, kitchens, offices, and outside during the day.

MISCELLANEOUS

Many school kitchens have doors between the dining area and the kitchen and some even have doors to separate storage areas. Be sure to keep doors closed between conditioned and unconditioned areas.

If there are window units in either the kitchen or dining areas, be sure that someone is assigned to turn them off at the end of the day. Report any malfunctions including dirty or missing filters to those responsible for their maintenance.

Use these energy saving techniques in the food preparation area:

- Keep doors to refrigerated boxes, including reach-in and walk-in coolers and freezers, milk boxes, and ice machines, closed as much as possible.
- Maintain the recommended refrigeration temperatures below for both energy conservation and food safety reasons:
 - freezers 0° F
 - coolers 40° F
- Mold and mildew occurring on door seals and gaskets of refrigerated boxes indicate air leaks. Inspect seals and gaskets for signs of deterioration such as cracking or hardness. Replace as necessary.
- Turn off lights in walk-in refrigerated boxes when unoccupied.
- Annually inspect the coils of refrigerated boxes for dirt. Clean as needed.
- Watch for water condensing on the outside walls of coolers and freezers and ice forming on the interior walls. This may be a sign of deficient or missing insulation or vapor barrier. Condensation around doors may indicate deteriorated seals and gaskets.

- Use door curtains to greatly reduce heat gain in walk-in coolers and freezers during times of extended openings (i.e. loading shipments). They usually cost less than \$150 installed by an outside contractor and, even less, if installed by school board personnel. Payback is often two years or less. Door curtains also reduce expensive defrost cycles.
- Excessive ice on the evaporator coil of a cooler or freezer may be the result of inadequate defrost cycles, either not occurring frequently enough or not lasting long enough. On the other hand, defrost cycles that are too frequent or too long will cause poor cooling and excessive operating cost.
- Do not put open containers of food in the cooler or freezer. The quality of the product will diminish and its useful life will be reduced due to accelerated moisture removal. This moisture is drawn to the evaporator coil where it causes frost or ice to form which reduces the unit's performance.
- Thermometers near the doors of walk-in coolers and freezers are often inaccurate and can give misleading readings when doors are opened (indicates temperature of the air near the door and not that of the product). It is recommended that a thermometer be placed near the back of the box that will not be readily influenced by door openings. Monitor temperatures daily and report inconsistencies to maintenance.
- Avoid placing refrigerated boxes too close to cooking appliances. The heat from the cooking appliances causes the condensing units on the refrigerated boxes to run unnecessarily.
- During the summer months, remove all food from the coolers and freezers at each school and consolidate into a central freezer and cooler. Perform one of the following options on the refrigeration equipment:
 - (1) Turn off empty equipment. Leave the doors open to allow any ice to melt rapidly and to minimize any odor build up. Clean the interiors thoroughly. It is not advisable to turn off very old equipment, especially freezers constructed primarily of wood. See next option.
 - (2) Equipment that is not turned off should be operated at warmer, more economical settings. Reduce the number of defrost cycles and/or their duration.
Freezers — raise from 0 to 30° F
Coolers — raise from 40 to 55° F

(NOTE: This option might be best for older equipment.)
- Cook in the largest volume possible, but match the size of the equipment with the task.
- Cook at the lowest temperature that still gives satisfactory results. Lower temperatures use less energy.

- Preheat only the equipment you will be using during the day and only for the minimum amount of time. It is not necessary to turn on all of the kitchen equipment as cooks arrive in the morning if not everything will be used.
- Keep all equipment clean. Clean equipment functions more efficiently.
- Turn off any equipment not in use.
- Stagger turn-on times for heavy-duty electrical equipment.
- Ranges--Use them sparingly. They allow a great deal of heat to be wasted to the kitchen air. Choose a pot which fits the burner, group pots close together, simmer rather than boil and turn heat off early—food will continue to cook. Check gas units for uneven or yellow flames. An even blue flame will indicate optimum efficiency.
- Ovens--Stagger preheat times of electric ovens to minimize electric demand. Load ovens to capacity, allowing at least 2” clearance in standard ovens. Load ovens quickly so as not to lose excessive amounts of heat. Use a timer to avoid opening doors to check food. Small ovens are more energy efficient than larger ones and convection ovens are more efficient than standard ovens.
- Fryers and tilt skillets--Preheat according to manufacturer’s instructions. Do not overload; crowded food takes longer to cook, wastes energy, and increases fat content. Use appropriate fat levels; food must be covered with fat to cook correctly. Cleaning is very important to efficient operation. Drain and clean at least once each week. Operate tilt skillet with lid closed whenever possible.
- Steamers--maintain temperature at proper level. Repair all steam leaks immediately.
- Dishwashing--Fill dishwasher to capacity and stack dishes properly. Use appropriate water temperature. Remember to turn off booster heater on washer after use. If using a power dryer, adjust it so that heated air is delivered just long enough to barely dry the dishes. Drying will continue after the machine is shut off.
- Kitchen managers should review energy conservation principles with staff at least once each year.

KITCHEN VENTILATION

If you ask food service technicians, few are ever comfortable in school kitchens. Many school kitchens are not adequately air conditioned. Some are not air conditioned at all! Temperatures well over 100°F have been recorded in several school kitchens at 9:00 A.M. The proper use of ventilation systems in these areas can substantially improve comfort and working conditions for kitchen staffs.

According to the 1971 Clean Air Act, cooking odors and moisture must be drawn out of the kitchen, kept out of the dining areas, and replaced with fresh air for the comfort of kitchen staff and students alike. They must be expelled rapidly and directly from the kitchen for safety and improved air quality. This is the function of ventilator hoods which should consist of an exhaust fan and makeup air fan. The exhaust fan pulls heated air away from the cooking appliances while the makeup air fan pulls fresh air from the outside to replace approximately 80% of the air removed by the exhaust fan. Without proper makeup air from the outside, conditioned air is removed from the kitchen and adjacent areas. Thus, the HVAC system has to run more to compensate.

The amount of air ventilated by the exhaust hood has a direct impact on energy consumption because that air must be moved and then heated or cooled to comfortable temperatures. Therefore, it is critical that vent hoods and exhaust fans be operated only during periods of food preparation. They should be turned off when not needed so as not to draw conditioned air from the kitchen area.

Implement the following to improve comfort and reduce energy consumption in the school kitchen:

- Exhaust hoods should have two fans, one for exhaust air and one for makeup air. Periodically check to see that both run at the same time.
- If the current hood does not have makeup air, open a nearby window or install an inlet fan to supply the makeup air.
- Instruct staff to turn off exhaust hoods and fans when cooking is not in progress, if the kitchen is air conditioned. If the kitchen is not air conditioned, operating the exhaust hood will circulate the kitchen air.
- Inspect exhaust pipes on gas cooking appliances to be sure they are not restricted by bird nests, trash, etc. and that they have not become disconnected.
- Dishwasher areas should be well-ventilated, either with built-in ventilators or exhaust fans located in nearby walls or ceilings. Vents should be directed to the outside to remove steam and hot air. If the kitchen is air conditioned, operate the fan(s) only when the dishwasher is in operation. Otherwise, cool air will be drawn out of the kitchen unnecessarily.
- Clean filters on exhaust hoods at least once each month to improve efficiency and reduce the chance of fires.
- Be sure that clothes dryers in kitchen areas are properly vented to the outside to dispel heat and moisture from the kitchen air.
- Turn off exhaust fans in restrooms when they are unoccupied. Someone should check all restrooms at the end of the day to be sure the fans are turned off.

COMPUTER ROOMS

It is important that computer rooms be kept at a reasonable temperature and humidity level. This often presents a problem because computer rooms typically are much warmer than other classrooms in a building.

The heat generated by the computer systems and other machines adds to the normal load on the air conditioning system. In order to remedy this situation, it may be necessary to add an individual unit to accommodate the increase in cooling load. In some cases, it may be possible to increase the output of existing central units to the computer rooms. This might be accomplished by simply redirecting air through the duct system. In other cases, it may be necessary to add an individual room AC unit to handle the extra cooling load. In either case, ceiling fans will also help.

Computer equipment manufacturers' operating manuals should be consulted for acceptable temperature and relative humidity conditions. If the manuals are unavailable, the conditions shown below should be used as a guide. The "Computer Off" conditions should be of greatest concern since they are most likely to occur during unoccupied times. It is usually not necessary to run the A/C 24 hours every day to accommodate the computers.

| | <u>Computer On</u> | <u>Computer Off</u> |
|-------------------|--------------------|---------------------|
| Temperature | 50° - 95°F | 32° - 110°F |
| Relative Humidity | 10% - 80% | 10% - 80% |

The following points apply to computer rooms:

- All previous recommendations concerning air conditioning, heating, and lighting apply.
- Use ceiling fans to increase air circulation.
- Set computer power options to "System Standby: 20 minutes"; "Turn off hard disks: Never"; and, "Hibernate: Never".
- Turn off computer monitors when they are not being used. Screen savers do not save energy.
- Set computer monitor power option to: "Turn Off: 20 minutes".
- Instruct teachers to turn all computers off at the end of the day.
- If computers will not be used for a couple of hours, turn the monitors off.
- If computers will only be used 1 or 2 hours during the day, turn both the computer and monitor off when not in use.

LIBRARIES

Libraries are often the first place where high indoor humidity is noticed, especially after schools have been closed for the summer. The books are highly vulnerable to absorbing moisture from the air and growing mildew. The musty smell that is immediately apparent as one enters some libraries is due to mold and mildew growing in the room.

The following recommendations apply to school libraries:

- In libraries where high humidity has caused problems (i.e. mold or mildew) with books and/or fixtures in the summer, consider installing self-contained dehumidifiers, if the library does not have a cooling unit of its own. If there is a separate cooling unit for library, run it periodically in the summer to control humidity. Two hours per day will probably do the job.
- All other recommendations regarding heating, cooling, and lighting also apply to libraries.

GYMNASIUMS AND AUDITORIUMS

Lots of physical energy is expended in gymnasiums! If gyms and auditoriums are air conditioned, lots of electrical energy can be expended (and wasted), too! Because gymnasiums and auditoriums are often used intermittently, as well as during non-school hours, and often have unique construction characteristics, they should be given special consideration in regards to utility usage. Implement the following strategies:

- Turn off fluorescent and incandescent lights in gyms and auditoriums whenever they will be unoccupied. If the lighting system is metal halide or mercury vapor, turn the lights off if the area will be unoccupied more than one hour. If artificial lights are not absolutely necessary, use natural light. All other previous recommendations regarding lighting apply to gyms, dressing rooms, and auditoriums.
- Do not operate the air conditioner or heater unnecessarily. Use fans for ventilation when they will suffice. Follow all previous recommendations regarding heating and air conditioning.
- Do not preheat or pre-cool gyms and auditoriums more than 1 hour prior to an activity.
- Check thermostats on water heaters that service the gym. If hot water is absolutely necessary, thermostats should be set at 115°F or lower. If hot water is not needed, turn the water heaters off completely. Under no circumstances are circulating pumps needed on water heaters for gyms. Consider placing timers on electric water heaters. Turn water heaters off during extended vacation periods and during the summer months.
- Be sure clothes dryers are properly vented to outdoors. Clean lint trays after each use to speed drying time and cut energy use.

- Seal air leaks that occur around doors and windows, if the area is air conditioned and/or heated.

CHECKLISTS FOR SPECIFIC AREAS*

* Checklists may be photocopied and/or modified in any way that best fits the school system's needs. Enlarged (legal size) copies of checklists are available from Mrs. Berry or Dr. Acosta at (504) 388-2229.

St. Tammany Parish School Board
Energy Management Guidelines

Classrooms/Computer Labs/Libraries

| TASK | HOW OFTEN AND WHEN? | PERSON RESPONSIBLE |
|---|--|---------------------------|
| Set thermostat at 72-76°F for cooling and 68-72°F for heating.* In the case of individual room units, set thermostats at moderate setting, 5 or 6, or where the blue and red arrows meet. | Occupied times | Teacher |
| Turn AC or heat off. When thermostat is present, setback to 80°F for cooling and 55°F for heating. (Except as directed by principal on extreme temperature days.) | End of each day | Teacher |
| Keep windows and doors closed while AC or heat is operating. | Daily | Teacher |
| Use ceiling fans, if available, and raise AC thermostat by 5-7°F to compensate. Turn fans off when room is unoccupied | Daily during cooling season | Teacher |
| Do not allow furniture or other items to block supply or return air grills. | Daily | Teacher |
| Keep doors to the outside and to unconditioned hallways closed while the AC and heat are operating. | Daily, when conditioning is being used | Teacher |
| Check filters in window and individual room air conditioners and report to principal if they need cleaning. | The first of each month | Teacher |
| Keep window coverings closed to prevent solar gain through windows. | Especially on hot days | Teacher |
| Report broken window panes and air leaks around doors or windows to principal. | As they occur | Teacher |
| Turn lights off. | Each time the room will be unoccupied for more than 5 minutes. | Teacher and/or student |
| Report malfunctioning lights to the principal. | As they occur | Teacher |
| Turn off outdoor lights during daylight hours. Minimize use of lights at night, except where safety and/or security are a concern. | Daily | Teacher |

| | | |
|--|--|-----------------------------|
| If solar gain is not a problem, use natural lighting and turn off lights. In all cases, use only the amount of light necessary for the task at hand. | Daily | Teacher |
| Turn off all computers. | At end of day and/or when not in use for 15 or more minutes. | Teacher |
| Set computer power options properties to "System Standby" in 20 minutes; "Turn Off Hard Disks": Never; and, "Hibernate": Never. | At the beginning of the school year | Teacher/Computer Technician |
| Turn off computer monitors and printers. | When not in use and at the end of the day | Teacher and/or student |
| Set computer monitor power options properties to "Turn Off" in 20 minutes. Avoid using screen savers; they do not save energy. | At beginning of the school year | Teacher/Computer Technician |
| Report malfunctioning electronic equipment to the principal. | As they occur | Teacher |

* In the case of computer-controlled energy management systems, the one person designated by the Central Office, should set and monitor all thermostats.

St. Tammany Parish School Board
Energy Management Guidelines

| Reception Area | | |
|---|--|---------------------|
| TASK | HOW OFTEN AND WHEN? | PERSON RESPONSIBLE |
| Set thermostat at 72-76°F for cooling and 68-72°F for heating.* In the case of individual room units, set thermostats at moderate setting, 5 or 6, or where the blue and red arrows meet. | Occupied times | Secretary/Principal |
| Turn AC or heat off. When thermostat is present, set back to 80°F for cooling and 55°F for heating. (Except as directed by principal on extreme temperature days.) | End of each day | Secretary/Principal |
| Keep windows and doors closed while AC or heat is operating. | Daily | Occupants |
| Use ceiling fans, if available, and raise AC thermostat by 5-7°F to compensate. Turn fans off when room is unoccupied | Daily during cooling season | Occupants |
| Do not block AC/Heater supply or return air grills. | Daily | Secretary |
| Keep doors to the outside and to unconditioned hallways closed while the AC and heat are operating. | Daily, when conditioning is being used | Secretary/Principal |
| Check filters in window and individual room air conditioners and report to principal if they need cleaning. | The first of each month | Secretary |
| Keep window coverings closed to prevent solar gain through windows. | Especially on hot days | Occupants |
| Turn lights off. | Each time the room will be unoccupied for more than 5 minutes. | Secretary |
| Report malfunctioning lights to the principal. | As they occur | Secretary |
| Report broken window panes and air leaks around doors or windows to principal. | As they occur | Secretary |
| If solar gain is not a problem, use natural lighting and turn off lights. In all cases, use only the amount of light necessary for the task at hand. | Daily | Occupants |

| | | |
|---|--|-------------------------------|
| Turn off all computers and office equipment. | At end of day and/or when not in use for 15 or more minutes. | Secretary |
| Set computer power options properties to "System Standby" in 20 minutes; "Turn Off Hard Disks": Never; and, "Hibernate": Never. | At the beginning of the school year | Secretary/Computer Technician |
| Turn off computer monitors and printers. | When not in use and at the end of the day | Secretary |
| Set computer monitor power options properties to "Turn Off" in 20 minutes. Avoid using screen savers; they do not save energy. | At beginning of the school year | Secretary/Computer Technician |
| Spot-check to make sure that copy machines are not located near thermostats. | At beginning of the school year | Secretary |
| Report malfunctioning electronic equipment to the principal. | As they occur | Secretary |

* In the case of computer-controlled energy management systems, the one person designated by the Central Office, should set and monitor all thermostats.

St. Tammany Parish School Board
Energy Management Guidelines

Individual Offices

| TASK | HOW OFTEN AND WHEN? | PERSON RESPONSIBLE |
|---|--|---------------------------|
| Set thermostat at 72-76°F for cooling and 68-72°F for heating.* In the case of individual room units, set thermostats at moderate setting, 5 or 6, or where the blue and red arrows meet. | Occupied times | Occupant |
| Turn AC or heat off. When thermostat is present, set back to 80°F for cooling and 55°F for heating. (Except as directed by principal on extreme temperature days.) | End of each day | Occupant |
| Keep windows and doors closed while AC or heat is operating. | Daily | Occupant |
| Use ceiling fans, if available, and raise AC thermostat by 5-7°F to compensate. Turn fans off when room is unoccupied. | Daily during cooling season | Occupant |
| Do not block AC/Heater supply or return air grills. | Daily | Occupant |
| Keep doors to the outside and to unconditioned hallways closed while the AC and heat are operating. | Daily, when conditioning is being used | Occupant |
| Check filters in window and individual room air conditioners and report to principal if they need cleaning. | The first of each month | Occupant |
| Keep window coverings closed to prevent solar gain through windows. | Especially on hot days | Occupant |
| Turn lights off. | Each time the room will be unoccupied for more than 5 minutes. | Occupant |
| Report malfunctioning lights to the principal. | As they occur | Occupant |
| Turn off outdoor lights during daylight hours. Minimize use of lights at night, except where safety and/or security are a concern. | Daily | Occupant |
| Report broken window panes and air leaks around doors or windows to principal. | As they occur | Occupant |

| | | |
|--|--|------------------------------|
| If solar gain is not a problem, use natural lighting and turn off lights. In all cases, use only the amount of light necessary for the task at hand. | Daily | Occupant |
| Turn off all computers. | At end of day and/or when not in use for 15 or more minutes. | Occupant |
| Set computer power options properties to "System Standby" in 20 minutes; "Turn Off Hard Disks": Never; and, "Hibernate": Never. | At the beginning of the school year | Occupant/Computer Technician |
| Turn off computer monitors and printers. | When not in use and at the end of the day | Occupant |
| Set computer monitor power options properties to "Turn Off" in 20 minutes. Avoid using screen savers; they do not save energy. | At beginning of the school year | Occupant/Computer Technician |
| Report malfunctioning electronic equipment to the principal. | As they occur | Occupant |

* In the case of computer-controlled energy management systems, the one person designated by the Central Office, should set and monitor all thermostats.

St. Tammany Parish School Board
Energy Management Guidelines

Kitchen (General)

| TASK | HOW OFTEN AND WHEN? | PERSON RESPONSIBLE |
|---|--|---------------------------|
| Set thermostat at 72-76°F for cooling and 68-72°F for heating.* In the case of individual room units, set thermostats at moderate setting, 5 or 6, or where the blue and red arrows meet. | Occupied times | Manager |
| Turn AC or heat off. When thermostat is present, set back to 80°F for cooling and 55°F for heating. (Except as directed by principal on extreme temperature days.) | End of each day | Manager |
| Keep windows and doors closed while AC or heat is operating. (Exception: When a nearby window is being used to provide makeup air to the exhaust hood.) | Daily | All Staff |
| Use ceiling fans, if available, and raise AC thermostat by 5-7°F to compensate. Turn fans off when room is unoccupied | Daily during cooling season | All Staff |
| Keep doors to the outside and to unconditioned hallways closed while the AC and heat are operating. | Daily, when conditioning is being used | All Staff |
| Check filters in window and individual room air conditioners and report to principal if they need cleaning. | The first of each month | Manager |
| Report broken window panes and air leaks around doors or windows to principal. | As they occur | Manager |
| Keep window coverings closed to prevent solar gain through windows. | Especially on hot days | All Staff |
| If solar gain is not a problem, use natural lighting, especially in the dining room, and turn off lights. In all cases, use only the amount of light necessary for the task at hand. | Daily | All Staff |
| Turn lights off in restrooms, storerooms, and in walk-in refrigeration units. | Whenever the areas are unoccupied | All Staff |
| Report malfunctioning lights to principal/custodian. | As they occur | Manager |

| | | |
|---|--|-----------------------------|
| Turn off all computers and office equipment. | At end of day and/or when not in use for 15 or more minutes. | Manager |
| Set computer power options properties to "System Standby" in 20 minutes; "Turn Off Hard Disks": Never; and, "Hibernate": Never. | At the beginning of the school year | Manager/Computer Technician |
| Set computer monitor power options properties to "Turn Off" in 20 minutes. Avoid using screen savers; they do not save energy. | At beginning of the school year | Manager/Computer Technician |

St. Tammany Parish School Board
Energy Management Guidelines

Kitchen (Equipment)

| | | |
|---|--|-----------------------|
| Inspect evaporator and condenser coils for dirt and ice build up. | August, prior to the beginning of the school year (Note: Report to maintenance if they are not clean.) | Manager |
| Keep doors to refrigerated boxes, both reach-in and walk-in, closed as much as possible | Daily | All Staff |
| Close milk boxes after the last child in each group has been served. | Between serving times | Assigned Staff Member |
| Monitor temperatures in freezers and coolers (including milk boxes). Coolers should be kept at 40°F and freezers at 0°F. | Daily (Note: Temperature inconsistencies should be reported to maintenance after 3 days.) | Manager |
| Watch for condensation on outside walls of coolers and freezers and unusual icing on walls or evaporator coil. | Daily (Note: Report problems to maintenance.) | Manager |
| Inspect door seals and gaskets. Report to maintenance if deterioration is apparent. | Monthly | Manager |
| Cover all containers before placing food in refrigerated boxes. | Daily | All Staff |
| Check equipment arrangement. Do not allow heat-producing equipment to be placed near refrigeration equipment. Do not allow any equipment to block supply or return air grills. | August, prior to the beginning of the school year | Manager |
| Keep all equipment clean and functioning properly. | Daily (Note: Report malfunctions to maintenance.) | All Staff and Manager |
| Check flames on all gas appliances. Report yellow or orange flames to maintenance. | Daily | All Staff |
| Operate exhaust hoods only while cooking. Turn them off as soon as cooking is complete. | Daily | All Staff |
| Monitor water temperatures. In dishwasher without chemicals in the final rinse, temperatures must be maintained at 180°F. With chemicals in the final rinse, temperature should be 140°F. | Daily (Note: Report inconsistencies to maintenance.) | All Staff and Manager |

| | | |
|--|------------------|-----------|
| Change/clean filters that collect grease and dust. | Every other week | Custodian |
| Turn off faucets. | After every use | All Staff |

St. Tammany Parish School Board
Energy Management Guidelines

Home Economics Classroom

| TASK | HOW OFTEN AND WHEN? | PERSON RESPONSIBLE |
|---|---|---------------------------|
| Monitor water temperatures. If there is a dishwasher, water heater should be maintained at 140°F. Otherwise, 115°F is sufficient and safer. | August, December | Parish Maintenance |
| Keep all equipment clean and functioning properly. | Daily (Report malfunctions to maintenance) | Teacher |
| Inspect door seals and gaskets on refrigeration and cooking equipment. | Monthly (Report deterioration to maintenance) | Teacher |
| Inspect evaporator and condenser coils on refrigerators and freezers for dirt and ice buildup. | August (Report to maintenance if they are not clean) | Teacher |
| Check for water leaks. | Daily (Immediately report leaks to principal/custodian) | Teacher |
| Clean lint filter for clothes dryer. | Each time it is used | Teacher/students |
| Use cooking principles that promote energy efficiency in cooking lab. | Daily | Students/teacher |
| Check vent on clothes dryer to be sure it is properly connected. | August | Teacher |
| Clean and defrost freezers. | August, January, May | Students |
| Turn all equipment (both cooking and sewing) off after use. | Daily | Students |

St. Tammany Parish School Board
Energy Management Guidelines

Teachers' Lounge/Workrooms

| TASK | HOW OFTEN AND WHEN? | PERSON RESPONSIBLE |
|--|---|------------------------------|
| If hot water is necessary, set water heater at 110-115°F. | August, December | Parish Maintenance/Custodian |
| Set thermostats at 72-76°F for cooling and 68-72°F for heating. Turn units off at the end of the day. | Daily | Custodian |
| Inspect door seals and gaskets on refrigeration and cooking equipment. | Monthly (Report deterioration to maintenance) | All Staff |
| Inspect evaporator and condenser coils on refrigerators and freezers for dirt and/or ice buildup. | August (Report to maintenance if they are not clean.) | Custodian |
| Check for water leaks. | Daily (Immediately report leaks to principal/custodian) | All Staff |
| Check location of vending machines, ice machines, copy machines, and laminating machines in relationship to HVAC thermostats. Relocate them if there is a chance that the heat produced by these pieces of equipment may be affecting the thermostats. | Prior to the opening of school | Custodian |
| Keep doors to lounges and workrooms closed if adjacent hallways and classroom are not conditioned. | Daily | All Staff |
| Clean refrigerators and defrost freezers. | August, January, May | Staff member |
| Turn all equipment off after use. Don't forget to turn off the coffee pot at the end of the day. | Daily | All Staff |
| Turn off lights when these areas are not occupied. | Daily | All Staff |

* In the case of computer-controlled energy management systems, the one person designated by the Central Office, should set and monitor all thermostats.

St. Tammany Parish School Board
Energy Management Guidelines

Gyms

| TASK | HOW OFTEN AND WHEN? | PERSON RESPONSIBLE |
|---|----------------------------|---------------------------|
| If using incandescent or fluorescent lights, turn them off when the gym is unoccupied. If using metal halide or mercury vapor light, they should be turned off if the gym will be unoccupied for more than 1 hour. | Daily | Coach |
| Keep windows closed if the AC or heat is operating. | Daily | Coach |
| Use fans instead of AC when they provide sufficient ventilation. When using AC or heaters, set thermostats at 72-76°F for cooling and 68-72° F for heating. | Daily | Coach |
| Report air leaks around doors and windows to the principal/custodian. | As they occur | Coach |
| Use natural lighting when sufficient. | Daily | Coach |
| Evaluate the amount of hot water needed in this area. Eliminate unnecessary water heaters. Set thermostats on essential water heaters at 115°F or lower. Turn water heaters off during extended vacation periods and off-seasons. | August, December | Custodian |
| Clean lint trap on clothes dryer after each use. | Daily | Coach |
| Check dryer exhaust to be sure it is properly connected and free of obstructions. | August | Custodian |

* In the case of computer-controlled energy management systems, the one person designated by the Central Office, should set and monitor all thermostats.

St. Tammany Parish School Board
Energy Management Guidelines

Hallways

| TASK | HOW OFTEN AND WHEN? | PERSON RESPONSIBLE |
|---|----------------------------|---------------------------|
| Keep doors to outside closed while AC or heat is operating. | Daily | All Staff |
| Keep automatic door closers in good repair. | Daily | Custodian |
| If solar gain is not a problem, use natural lighting and turn off lights. In all cases, use minimal lighting in hallways. | Daily | Custodian |
| Report broken window panes and air leaks around doors and windows to principal/parish maintenance. | As they occur | Custodian |
| If hallways are not conditioned, keep doors closed to conditioned classrooms and offices. | Occupied times | All Staff |
| If it is essential to condition hallways, use extremely conservative temperature settings--76°F for cooling and 66°F for heating. | Daily | Custodian |
| Turn off lights at the end of the day. | Daily | Custodian |

ADDITIONAL ENERGY MANAGEMENT PLAN CONSIDERATION
for
ST. TAMMANY PARISH SCHOOL BOARD

1. As funds allow, automate every building to provide computer-regulated maintenance of HVAC equipment based on hours of need.
2. All senior high schools must coordinate after school activities so as to minimize extended use of HVAC systems.
3. Principals must be made aware of the utility costs for their individual schools on a monthly basis. They should be required to compare their costs with those of schools of similar size and age. They should also be questioned regarding any major inconsistencies in utility costs.

**SUGGESTED SUMMER MAINTENANCE
for
St. Tammany Parish School Board**

HEATING AND AIR CONDITIONING

| | |
|---|---|
| Clean and/or replace all filters | Check refrigerant levels in AC equipment |
| Clean all return and supply air grills | Inspect all water lines for leaks |
| Check all belts for signs of deterioration and adjust tension | Inspect cooling towers, clean and/or repair as needed |
| Clean indoor coils and blower wheels on all units | Check all thermostats to be sure they are operational and properly calibrated |
| Clean outdoor coils on all units | Clean burners on boilers and furnaces |
| Lubricate motor and blower bearings (if not permanently lubricated) | |

VENTILATION

| | |
|---|---|
| Check all fans (ceiling, exhaust, and makeup air) to be sure they are in working order. | Inspect vents on all gas appliances and heaters to be sure they are properly connected and free of obstructions |
| Lubricate fan motors | Check all dryer vents to be sure they are properly connected |
| Oil louvers on exhaust fans so they will open and close automatically | |

AIR LEAKS

| | |
|--|--|
| Caulk and weather-strip around doors, windows, and individual room air conditioning units, as needed | Replace/install thresholds on all exterior doors as needed |
| Replace broken window panes | Replace missing ceiling tiles |
| Repair broken automatic door closers | |

LIGHTING

| | |
|--|--|
| Replace all light bulbs that are not working or have dimmed with high efficiency bulbs | Paint walls and ceilings light colors for maximum light reflection |
| Replace malfunctioning ballasts with energy efficient ballasts | Check time clocks and clean photoelectric eyes for security lighting |
| Clean light bulbs and fixtures | Clean windows to increase amount of natural light |
| Clean/remove/replace diffusers which have discolored | |

KITCHENS

(INCLUDING HOME EC ROOMS AND TEACHERS LOUNGES)

| | |
|---|---|
| Check gaskets, seals, and hinges on all kitchen equipment | Check refrigerant charge on all refrigeration equipment |
| Clean evaporator and condenser coils on all refrigeration equipment | Caulk openings around all refrigerant and water lines coming into kitchen |
| Install exhaust fans above dishwashers | Oil louvers on all exhaust fans |

WATER HEATER AND WATER USE

| | |
|---|---|
| Check temperature setting on all water heaters | Every 5 years, drain accumulated sediment from bottom of water heater tank and refill |
| Check storage tank to see if it is hot. Add insulation blanket to electric water heaters, if needed | Inspect burners on gas water heaters and clean, if needed |
| Check hot water lines. Add pipe insulation to all exposed pipes | Locate and repair all water leaks. Check water lines, valves, pumps, and faucets. |
| Check pressure release valve to be sure it is functioning properly | Turn off hot water to areas where it is not needed |

OTHER

| | |
|---|-----------------------|
| Clean coils on all water coolers | Repair all roof leaks |
| Turn off pilot lights on all non-essential gas appliances | |

SUMMER MAINTENANCE SCHEDULE
St. Tammany Parish School Board

| School: | | Heating/Ventilation/Air Conditioning | | |
|--|---------------------------|--------------------------------------|-----------------------|-----------------|
| Task | Person Responsible | Month Scheduled | Date Completed | Initials |
| Clean and/or replace all filters. | Custodian | | | |
| Clean all return and supply air grills. | Custodian | | | |
| Check all belts for signs of deterioration and adjust tension. | STPSB HVAC technician | | | |
| Clean indoor coils on all units. | STPSB HVAC technician | | | |
| Clean outdoor coils on all units. | STPSB HVAC technician | | | |
| Lubricate motors and blower bearings. | STPSB HVAC technician | | | |
| Check refrigerant levels in AC equipment. | STPSB HVAC technician | | | |
| Check all thermostats to be sure they are operational and properly calibrated. | STPSB HVAC technician | | | |
| Inspect cooling towers. Clean and/or repair as needed | STPSB Maintenance Dept. | | | |
| Inspect all steam and water lines for leaks. | STPSB Maintenance Dept. | | | |
| Clean burners on boilers and furnaces. | STPSB Maintenance Dept. | | | |
| Check all fans (ceiling, exhaust, and makeup air) to be sure that they are in working order. | STPSB Maintenance Dept. | | | |
| Lubricate fan motors. | STPSB Maintenance Dept. | | | |
| Oil louvers on fans so they will open and close automatically. | Custodian | | | |
| Inspect vents on all gas appliances and heaters to be sure they are properly connected and free of obstructions. | Custodian | | | |
| Check all dryer vents to be sure they are properly connected. | Custodian | | | |
| OTHER | | | | |

 Signature of person verifying completion of work

RETURN THIS FORM TO : _____ BY: _____
 Name, Title

Summer Maintenance Schedule
St. Tammany Parish School Board

| School: | | | | Air Leaks |
|--|---------------------------|-----------------|----------------|-----------|
| Task | Person Responsible | Month Scheduled | Date Completed | Initials |
| Caulk and weather strip around doors, windows, and individual room air conditioners as needed. | Custodian | | | |
| Replace broken window panes. | Custodian | | | |
| Replace/install thresholds on all exterior doors as needed. | Maint. Dept./Custodian | | | |
| Repair broken automatic door closers. | Maint. Dept. | | | |
| Replace missing ceiling tiles. | Maint. Dept. | | | |
| OTHER | | | | |

Signature of person verifying completion of work

RETURN THIS FORM TO: _____ BY: _____
Name, Title

Summer Maintenance Schedule
St. Tammany School Board

| School: | | | | Lighting |
|---|------------------------|-----------------|----------------|----------|
| Task | Person Responsible | Month Scheduled | Date Completed | Initials |
| Replace all light bulbs that are not working or have dimmed with high efficiency bulbs. | Custodian | | | |
| Replace malfunctioning ballasts with energy efficient ballasts. | Maint. Dept. | | | |
| Clean light bulbs and fixtures. | Custodian | | | |
| Clean/remove/replace diffusers that have discolored. | Custodian | | | |
| Paint walls and ceilings light colors for maximum light reflection. | Maint. Dept./Custodian | | | |
| Check time clocks and clean photoelectric eyes for security lighting. | Maint. Dept | | | |
| Clean windows to increase amount of natural light. | Custodian | | | |
| OTHER | | | | |

Signature of person verifying completion of work

RETURN THIS FORM TO: _____ BY: _____
Name, Title

**Summer Maintenance Schedule
St. Tammany Parish School Board**

| School: | | Water Heating and Use | | |
|--|---------------------------|------------------------|-----------------------|-----------------|
| Task | Person Responsible | Month Scheduled | Date Completed | Initials |
| Check temperature setting on all water heaters. Refer to school board energy management manual for acceptable temperatures. | Head Custodian | | | |
| Check storage tanks to see if they are hot. Add insulation blankets to electric water heaters, if necessary. | Custodian/Maint. Dept. | | | |
| Check hot water lines. Add pipe insulation to all exposed pipes. | Custodian/Maint. Dept. | | | |
| Check pressure release valves to be sure they are functioning properly. | Custodian/Maint. Dept. | | | |
| Every 5 years, drain accumulated sediment from the bottom of water heaters. Flush tanks and refill. | Custodian/Maint. Dept. | | | |
| Inspect burners on gas water heaters and clean if needed. | Maint. Dept. | | | |
| Locate and repair all water leaks. Check water lines, valves, pumps, and faucets. | Custodian/Maint. Dept. | | | |
| Permanently turn off hot water to areas where it is not necessary. Temporarily turn off water heaters that are not essential during the summer months. | Custodian | | | |
| OTHER | | | | |

Signature of person verifying completion of work

RETURN THIS FORM TO: _____ BY: _____
Name, Title

| Summer Maintenance Schedule St. Tammany Parish School Board | | | | |
|--|-------------------------|--|----------------|----------|
| School: | | Kitchens/Home Ec Rooms/Teachers' Lounges | | |
| Task | Person Responsible | Month Scheduled | Date Completed | Initials |
| Check gaskets, seals, and hinges on all kitchen equipment. | Maint. Dept. | | | |
| Clean evaporator and condenser coils on all refrigeration equipment. | Maint. Dept./Contractor | | | |
| Check refrigerant charge on all refrigeration equipment. | Maint. Dept/Contractor | | | |
| Caulk openings around all refrigerant and water lines coming into the kitchen. | Custodian | | | |
| Install exhaust fan above dishwasher, if applicable. | Maint. Dept. | | | |
| Oil louvers on all exhaust fans. | Maint. Dept. | | | |
| OTHER | | | | |

| Summer Maintenance Schedule St. Tammany Parish School Board | | | | |
|--|--------------------|-----------------|----------------|----------|
| School: | | OTHER | | |
| Task | Person Responsible | Month Scheduled | Date Completed | Initials |
| Clean coils on all water coolers. | Custodian | | | |
| Repair all roof leaks. | Maint. Dept. | | | |
| Turn off all nonessential pilot lights. Check stoves, dryers, water heaters, gas heaters, etc. | Custodian | | | |

Signature of person verifying completion of work: _____

RETURN THIS FORM TO: _____ BY: _____
Name, Title

**SUMMER SHUTDOWN PROCEDURES
FOR ST. TAMMANY PARISH PUBLIC SCHOOLS**

General Instructions:

1. Each principal is to have a meeting with the head custodian/janitor and kitchen manager to review the attached *Summer Shutdown Checklist*. It must be stressed that every item on this list must be completed within 1 week following the last day of school.

2. The head custodian/janitor is responsible for completing all procedures on the list for the general school area within the assigned time period. He/she is also responsible for assisting the kitchen manager and staff in completing the shutdown procedures for the kitchen. If the custodian/janitor requires any assistance, he/she must report to the principal.

3. Kitchen managers are in charge of scheduling the shutdown of the kitchen area with the head custodian/janitor for the last full working day of the cafeteria staff.

4. Person responsible should check off items on the form as they are completed.

5. All procedures should be completed by _____ . Forms must be signed by
Date
head custodian/janitor and cafeteria manager and turned in to _____
Name, Title
by _____ .
Date

6. If an item on the checklist is not applicable to your particular school, place N/A in the blank.

7. If there is a problem in completing any of these shutdown procedures, please contact

Name, Title

ST. TAMMANY PARISH SCHOOL BOARD
Summer Shutdown Checklist
(Page 1 of2)

• **CLASSROOMS**

- ___ 1. All heater pilot lights OFF
- ___ 2. Lights OFF
- ___ 3. All miscellaneous equipment OFF
- ___ 4. All plants, living animals/fish to be REMOVED from classrooms
- ___ 5. All windows SHUT and SECURED
- ___ 6. Blinds, curtains, or shades CLOSED

• **RESTROOMS**

- ___ 1. Lights OFF
- ___ 2. Exhaust fans OFF
- ___ 3. SHUT OFF water to any leaking or continuously running plumbing fixtures, especially urinals
- ___ 4. LIST any leaking plumbing fixtures, including faucets, toilets, water coolers, etc.

• **HALLWAYS AND CORRIDORS**

- ___ 1. All lights OFF
- ___ 2. All water coolers UNPLUGGED

• **KITCHENS (WITHOUT SUMMER FEEDING PROGRAMS)**

- ___ 1. All gas pilot lights OFF
- ___ 2. All possible coolers and freezers emptied, cleaned and turned OFF. ***If turning the unit OFF is not possible due to the age of the unit, empty the unit and turn the thermostat to 30°F in freezers and 55°F in coolers.
- ___ 3. All water heaters OFF

• **ADMINISTRATIVE AREA**

- ___ 1. Doors to conditioned areas should be kept CLOSED
- ___ 2. Lounge lights OFF when unoccupied
- ___ 3. Lounge refrigerators, soft drink machines and vending machines OFF, if practical
- ___ 4. Office equipment not in use should be UNPLUGGED

• **GYM**

- ___ 1. For summer activities, natural lighting is to be utilized in lieu of lights whenever possible
- ___ 2. All water heaters and circulating pumps to be turned OFF
- ___ 3. AC OFF, if ventilating fans are available

ST. TAMMANY PARISH SCHOOL BOARD
CHRISTMAS VACATION SHUTDOWN PROCEDURES
(Page 1 of 2)

- **CLASSROOMS**

- 1. Lower thermostats on all gas heaters to 55°F. If a gas heater pilot light can be turned OFF and relit without any problems by the custodial staff, consider doing so.
- 2. Lights OFF
- 3. All miscellaneous equipment OFF
- 4. All windows SHUT and SECURED
- 5. Blinds, curtains or shades CLOSED

- **RESTROOMS**

- 1. Lights OFF
- 2. Exhaust fans OFF
- 3. SHUT OFF water to any leaking or continuously running plumbing fixtures, especially urinals

- **HALLWAYS AND CORRIDORS**

- 1. All lights OFF

- **KITCHENS**

- 1. All gas pilot lights on cooking appliances and dishwashers OFF
- 2. UNPLUG empty milk coolers
- 3. All water heaters OFF

- **ADMINISTRATIVE AREA**

- 1. Lounge refrigerators, soft drink machines and vending machines OFF, if practical
- 2. Office equipment, including copiers and computers, OFF, unless recommended otherwise by the manufacturer

- **GYM**

- 1. All lights OFF
- 2. All water heaters and circulating pumps to be turned OFF
- 3. Shut OFF water to any leaking or continuously running plumbing fixtures, in particular, the urinals

- **HOME ECONOMICS ROOMS**

- 1. All gas pilot lights on ovens, stoves and clothes dryers OFF
- 2. All water heaters OFF

**ST. TAMMANY PARISH SCHOOL BOARD
CHRISTMAS VACATION SHUTDOWN PROCEDURES
(Page 2 of 2)**

• **GENERAL**

- ___ 1. All water softeners and circulating pumps turned OFF
- ___ 2. All exterior lighting to be turned OFF where practical
- ___ 3. Assign someone to track the weather and take the necessary precautions (as directed by the Central Office) in the event of a severe freeze

• **FOR SCHOOLS WITH NO ENERGY MANAGEMENT SYSTEM**

- 1. All HVAC equipment OFF or thermostats on heaters lowered to 55°F

• **FOR SCHOOLS WITH ENERGY MANAGEMENT SYSTEMS**

- ___ 1. DO NOT TURN OFF ANY EQUIPMENT CONTROLLED BY THE ENERGY MANAGEMENT SYSTEM WITHOUT CONSULTING PARISH MAINTENANCE SUPERVISOR

UPON COMPLETION OF ALL SHUTDOWN PROCEDURES THE HEAD CUSTODIAN/JANITOR MUST SIGN THIS FORM STATING THAT TASKS ARE COMPLETE.

Signature of Head Janitor/Custodian

Date

I certify that the above *Christmas Shutdown Procedures* are complete.

Signature of Principal

Date

RETURN THIS COMPLETED FORM TO: _____

Name, Title

BY: _____

Date

INCENTIVES

There are many incentives that may be used to encourage faculty, staff and students to become actively involved in energy management. Of course, if the superintendent and school board set an energy policy, everyone must be expected to follow it. However, when the participants feel they have something tangible to gain by complying, they may be more conscientious in their compliance with the policy. Just as an aside, it may also be desirable to let faculty, staff and students know if there is a penalty for non-compliance with the adopted energy policy.

Several school systems throughout the state have devised both creative and workable incentive plans for their school districts. The following are merely suggestions for you to use when developing incentive plans for your school systems.

- Establish a benchmark and compare energy usage from one school year to the next. You could rebate a certain percentage of the savings (5, 10, 25, 50 or some other percentage) to each school for their discretionary use.
- Smaller incentives could be given for comparison of usage during one month (i.e. September 1994 to September 1995). Alternative rewards include a pizza party or ice cream party for the school that reduced energy costs by the largest percentage during the specified time frame.
- Some school systems set an annual goal (for example, a decrease of 10% over last year) for each school based upon past performance and/or type of system at each school. At the end of the school year, schools are rewarded based upon the percentage decrease in utilities consumption and rebated a sliding scale dollar amount per student. If you would like more information about this plan, please let us know.

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