

Teacher/Staff Procedures

Office and classroom temperatures should average 70-76 degrees when occupied.

Staff members will be expected to properly manage their classrooms or work areas. This includes shutting off computers, lighting, electronic devices, and/or closing windows and blinds at the end of the day.

Electrical appliances such as refrigerators are permitted in the classroom ONLY when approved for medical or instructional purposes. When approved, they need to be installed by the maintenance department. Appliances in the common staff dining and break areas will also need to be installed by the maintenance department.

Unnecessary lighting in occupied areas should be turned off. All lights should be turned off when students, teachers and staff leave their area.

Custodial team leaders are responsible for assisting educators and staff in implementing energy efficient practices, and to manage HVAC systems for individual buildings. Custodians will be provided an end-of-the-day and weekend shutdown list.

Administrative Procedures

Exterior doors, vestibule doors, and windows should remain closed for energy as well as security purposes. Propping doors open and leaving windows open allows the potential for increased humidity inside the building, as well as allowing heating and/or cooling to escape.

Room temperatures that fall outside the energy procedures should be reported to office staff.

Office staff will use the work order system to report temperature problems. Office staff will contact the custodial team leader when an entire wing of a building is compromised, or temperatures fall well outside the energy procedures, constituting an emergency.

Custodian Procedures

The custodial team leaders will manage HVAC systems as directed. They will check the overall building temperatures upon arrival each morning to ensure that HVAC systems have begun to engage to bring temperatures to guideline levels. If HVAC systems are not engaged, they will make a report immediately to the facilities department.

Custodians will practice energy efficient transition lighting by leaving hallway and common area lighting at security levels until shortly prior to student arrival.

Custodians will double check to ensure that classroom and work areas have been properly shutdown by educators and staff. This includes closing blinds and windows, and reporting areas where computers, lighting and electrical appliances are repeatedly left on.

Custodians will turn on lights only in the areas in which they are working.

Custodian team leaders will contact the facilities department if any area of a building falls below winter setback temperatures during their shift. All overhead and receiving doors will remain open ONLY during active deliveries.

Facilities Department Procedures

The daily start time for each campus' HVAC systems will be set to recover to guideline temperatures by the time students arrive. HVAC will be scheduled to go off approximately one (1) hour after student dismissal.

The HVAC system will be set to maintain temperatures during events as approved through the Use of School Facilities Procedures schedule.

HVAC systems will be placed in setback or shutdown mode when the buildings are unoccupied during nights, weekends, summer, breaks, and holidays.

Night, weekend, and holiday setback temperatures will be set to maintain the integrity of each facility. Minimum heating setbacks will be 55 degrees and maximum cooling set points will be 76 degrees.

Maintenance, in conjunction with the electric company, will be expected to devise a plan for turning the air conditioning units on in phases to minimize simultaneous electrical draw.

All air handlers and/or zones on computerized DDC (Direct Distributed Control) or time clocks should be set in the AUTO position and programmed to shut down at the end of the occupied school day, during weekends, breaks, and holidays. All vestibule blower units adjacent to outside doors should be off during the cooling season.

Best Practices for Schools HVAC maintenance

The best way to ensure routine maintenance occurs for all HVAC units is to have SOP's and a maintenance logbook for the HVAC systems. Often, due to lack of repair or maintenance, HVAC systems, if not the cause, exacerbate indoor air quality problems. The following list contains items that can be included in a maintenance program to reduce this risk. This list does not include maintenance of the mechanical components such as motors. Those items should be addressed following manufacturer's recommendations.

IAC 33-4-5 requires schools to establish and maintain a written procedure for routine maintenance of HVAC systems.

1. Unit Ventilators – routine maintenance should include the following
 - a. clean intake and exhaust vents
 - b. clean drip pan and condensate drain line
 - c. clean coils
 - d. clean all accessible areas of interior of unit
 - e. insure fresh air damper linkage is functioning
 - f. clean air intake on exterior of building
 - g. if intake on ground level, check for pooling water along building
 - h. change filter (we suggest at minimum use a good quality pleated filter)
 - i. noise level should not be disruptive to students and teacher
 - j. with fresh air damper at lowest setting, supply sufficient outside air to maintain a maximum of 700 ppm carbon dioxide over the outdoor measurement (ASHRAE recommends 15 CFM outside air/person for classrooms)
 - k. all cleaning residue that causes irritation or respiratory distress should be flushed from system prior to students returning to classroom

2. Central systems- routine maintenance should include the following
 - a. clean intake and exhaust vents in rooms
 - b. examine ductwork behind supply and return vents for accumulated dust and or mold
 - c. clean coils
 - d. clean drip pan and condensate drain line
 - e. insure dampers are functioning properly
 - f. on automatic systems, with damper set at lowest setting, ensure minimum outside air to maintain maximum of 700 ppm carbon dioxide over the outside measurement (ASHRAE recommends 15 CFM outside air/person for classrooms)
 - g. check that fresh air intake is not blocked and no standing water or mold near intake. Do not allow birds to roost or nest on vents.
 - h. Ensure individual thermostats are working
 - i. Ensure individual room dampers are functioning properly
 - j. Clean or replace filters (use good grade of filter)
 - k. Systems should have been balanced to ensure minimum movement of odors from one area to another and minimum fresh air requirement is met for all rooms

- l. Examine outside air intakes for cleanliness, and ensure no standing water near the intake.
 - m. all cleaning residue that causes irritation or respiratory distress should be flushed from system prior to students returning to classroom
 - n. Check integrity of ductwork.
3. All systems
- a. Check to see area in front of air intakes is unobstructed (keep shrubs a minimum of 3 feet from air intakes)
 - b. Check to ensure there is no standing water near air intakes
 - c. Use air filters that have an acceptable minimum efficiency rating.
 - d. Locate waste containers (both indoor and outdoor) away from any air intakes or air return vents.
 - e. On new construction or renovations, air intakes and exhausts should be located so as to minimize the possibility of re-intrainment of exhaust gasses, car exhausts or other outdoor pollutants.

Links:

EPA's best practices for Schools

<http://www.epa.gov/region02/children/k12/english/k12-4of5.pdf>

EPA's "Design Tools for Schools" Heating Ventilation and Air Conditioning Systems

<http://www.epa.gov/iaq/schooldesign/hvac.html>

EPA's "Should You Have the Air Ducts in Your Home Cleaned"

<http://www.epa.gov/iaq/pubs/airduct.html>

Minnesota Dept. of Health "Indoor Air Quality (IAQ) in Schools"

<http://www.health.state.mn.us/divs/eh/indoorair/schools/>

The following page is an example maintenance chart produced by the Minnesota Department of Health and amended by the Indiana State Department of Health

Attachment 4: Example Preventive Maintenance Schedule

Edit according to operational needs of each school building.

	Every 3 Months	Every 6 Months	Annually	Every 2 Years	As Needed
HVAC System					
Filters Replaced/Fitted Properly	x				x
Fan / Air Flow Direction	x				
Belt Tension			x		
Drain Pans Empty/Clean	x				
Drain Condensate lines cleaned	x				
Overall Cleanliness of Ducts and Unit			x		
15-20 percent of Air Delivered is Fresh				x	
Calibration of System				x	
Thermostats Functional	x				
CLEANING SCHEDULE					
Cleaning of Heating Coils			x		
Cleaning of Cooling Coils		x			
Cleaning of Drainage Areas		x			
Cleaning of Ductwork					x
AIR INTAKE					
Avoid Obstructions	x				
Air Flows into duct	x				
No Pollutant Sources Nearby (garbage, idling vehicles, exhaust)	x				
Dampers Operational	x				
Motors Operational	x				
LOCAL EXHAUST SYSTEMS					
Proper Exhaust Volume			x		
Air Direction Correct			x		
Fan Functional			x		
Outdoor Vent Checked / Cleaned			x		
OTHER					
Sewage Traps Filled with Water Weekly	x				
Hazardous Chemicals Storage		x			
Walk-off Mat Cleanliness	x				
Carpet Cleanliness	x				
Leaks, Stains, Moisture Inspection	x				
Clean All Classroom Tables, Diffusers, Shelves	x				x
Deep Clean Carpets, Strip and Wax Floors		x			x
Water stained ceiling tile should be replaced	x				