INDOOR AIR QUALITY MANAGEMENT PLAN

BEMIDJI AREA SCHOOLS
INDEPENDENT SCHOOL DISTRICT #31
BEMIDJI, MINNESOTA

Updated : 2/4/2015
Program reviews and follow-up of program-related issues are documented below.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Action/Comments</th>
<th>Reviewed By:</th>
<th>Accepted By:</th>
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<tbody>
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<td>02/2013</td>
<td>No Action</td>
<td>Steve S.</td>
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<td>02/2014</td>
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<td>03/2015</td>
<td>Updated Plan</td>
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1. **Introduction**

The health, safety, comfort, and learning environment of students and staff are important aspects of Bemidji Public School's mission. Indoor air quality (IAQ) is a critical component of providing a healthy, safe, and comfortable learning environment.

Bemidji Public Schools has implemented an IAQ management plan that will help monitor and improve the quality of air in the school district's buildings.

The objectives of the IAQ management plan are to:

1. Reduce the levels of indoor air pollution through prevention measures such as: routine maintenance activities, periodic building evaluations/inspections, and IAQ specific policies.
2. Provide and maintain adequate fresh air exchanges by repairing and maintaining ventilation equipment.
3. Respond to IAQ related questions, concerns, and problems in a thorough and prompt manner and to effectively communicate the progress of investigations and their resolutions to all interested parties.

2. **Indoor Air Quality Coordinator**

Bemidji Public Schools has identified Steve Spindler, MDE Certification number 12476, as the indoor air quality coordinator (IAQC) for the District. The school administration and School Board is committed to providing the necessary support to meet the school district's IAQ Management Plan objectives. The indoor air qualities coordinator's responsibilities include the following:

1. Acting as the key contact person within the District to respond to and address IAQ issues and concerns.
2. Acting as the lead person to develop and manage the District's IAQ Management Plan in accordance with the Minnesota Department of Education (MDE) requirements. This includes coordinating building walk-through inspections, coordinating the building systems evaluations, coordinating the investigations of reported IAQ issues and concerns, and modifying the District IAQ Management Plan to fit the district's specific needs and objectives.
3. Attend IAQ workshops to ensure MDE certification.
4. Respond to reported IAQ concerns and issues.
5. Communicate with staff, parents, and other parties regarding questions or concerns regarding the district's IAQ Plan, policies, and procedures for dealing with IAQ concerns.
6. Do the annual review of the IAQ Plan which involves building walk-through inspections, building systems evaluations, and revising the Plan to include any new information obtained.

3. **Walk-through Inspection of School Buildings**

District staff representing Buildings & Grounds, Plant Operations, Engineering, and Safety Office performs an IAQ walk-through inspection of the functional spaces in all the building that house District operations.

See attachment 1 for inspection dates. The walk-through inspections involved observations that assessed the factors that affect indoor air quality through the use of general human senses (sight, smell, touch, and hearing). During the walk-through, all physical components that affect the air quality of all the functional spaces were examined, including the flooring, (all surfaces) walls, ceilings, furniture, air intakes, building entrances, mechanical rooms, and the roofs. The walk-through inspections provide information regarding the type, locations, and magnitude of apparent IAQ related issues and problems.

The walk-through checklists are used during the walk-through inspections. All observations, recommendations, and comments received from students and staffs during the walk-through inspections are noted on the checklist. All checklists should be signed and dated by the staff performing the inspections. Copies of the checklists and associated notes are best kept with the IAQ Management Plan in attachment 2 located in the District Safety Office.

IAQ issues identified during the walk-through inspection will be addressed by the IAQ coordinator. District staff will perform building walk-through inspections on an annual basis, and random building checks monthly.

4. **Building Systems Evaluation**

The IAQ coordinator will coordinate the distribution, collection, and evaluation of the "Tools for Schools" checklists. These checklists serve to educate staff about IAQ and help the IAQC to obtain related information from district staff. The checklists will be distributed to district staff: Teachers, Health Office, Food Service, and Building Maintenance (attachment 4).
Attachment 3 memo accompanying the distributed checklists identifies the purpose of the checklists, how to fill out the checklists, who the IAQ coordinator is and where to send the completed checklists.

The IAQC keeps a log of all returned checklists using the Tools for Schools log. During the evaluation of the checklists, obvious or likely IAQ problems were identified and the IAQC established specific policies or procedures to correct the problems. The checklists will be sent out on an annual basis to help assess the District's changing IAQ issues and concerns.

The goals of the returned checklists are: Teachers 20%, Health Office 100%, Food Service 100%, Building Maintenance 100%, and Ventilation 100%.

5. Evaluation and Resolution of IAQ Issues

Walk-through inspection and building evaluation finding:
During the walk-through inspections and building systems evaluation, Steve Spindler, District IAQC identified IAQ problems and issues. The issues identified are addressed according to the plans or policies outlined in the "IAQ Issue Resolution Table", located in attachment 6. The issues are prioritized from most important to least important. For urgent or simple issues the proposed solutions and their outcomes are described in the table.

The District determines which IAQ issues have to be deferred. Issues are deferred if:
1. They are suspected to take more than three months to resolve.
2. They are "big ticket" items that require re-appropriation of money.
3. Time restraints limit the district's ability to respond promptly.

The deferred maintenance issues are described in the "Deferred Maintenance Table" located in attachment 6. Issues are organized by priority and internal versus external work. The District expects to complete the necessary maintenance, renovation, and construction by the date indicated.

Resolving problems reported to the IAQ coordinator:
Problems are reported to the IAQC through the IAQ Concern Reporting Form located in attachment 5. The IAQC documents all IAQ concerns, performs an initial investigation and documents and communicates the resolution to all interested parties. All concerns are investigated and documented reflecting the District's commitment to addressing all IAQ related concerns.

The IAQC uses the IAQ Concern Reporting Form and EPA's "Tools for Schools" to help identify IAQ problems. If the problem cannot be identified or persists despite the District’s effort to identify and correct it the IAQC discusses the matter with appropriate district officials in order to determine whether external assistance is needed. When the problem is successfully identified the IAQC communicates with the relevant parties, documents the action taken and keeps copies of the documents in attachment 5. When the problem requires some kind of policy change the IAQC organizes a meeting with district administration to develop and recommend policy changes. Upon adoption of any new or revised policy changes these policies are added to the existing IAQC Management Plan.

6. Communication Policy

It is the goal of Bemidji Area Schools to develop and maintain the trust of the community and staff. One of the ways to achieve this goal is through good effective communication. To limit misinformation and confusion the IAQC and other District employees will communicate with the relevant parties in a prompt, courteous, and consistent manner until the issue is resolved to the greatest extent possible. Every time a concern is addressed or resolved the IAQC reports the measures and the resolution of the identified concern to the appropriate parties. This will ensure that all parties know what actions have been taken.

In addition, the IAQC will inform staff and parents about:
1. the IAQ Management Plan
2. how to use the Plan
3. how to obtain the IAQ concern reporting form
4. how to contact the District IAQC about IAQ issues

This information will be found in all staff handbooks and the school calendar. These resources will be given to all staff, students, and parents at the beginning of the school year.
7. **IAQ Concern Reporting and Response Policy**

The District encourages the reporting of IAQ concerns regardless of how trivial the issue may seem. The prompt reporting and resolution of the IAQ issues has the potential to prevent serious problems from developing which should prevent potential health effects and unnecessary costs.

The IAQCP encourages concerned staff, students and parents to report their IAQ concerns in writing. The "IAQ Concern Reporting Form" should be used but is not required. The IAQ concern should be sent to the District IAQC Steve Spindler, phone: 218-333-3149 or email sspindler@bemidji.k12.mn.us at the District Safety Office.

The IAQC will then initiate an official IAQ concern reporting process. EPA's "Tools for Schools" and IAQ Concern Report Form will be used in investigating the IAQ concern. All documents and reports will be available for review at the District Safety Office. These reports will be filed with the District IAQ Plan.

8. **Emergency Response Policy**

It is up to the discretion of school administration to determine emergencies on a case by case basis. If doubt exists about whether exposure to a specific hazard constitutes an emergency a precautionary approach may be used to allow district staff time to evaluate the situation. If a hazard poses a direct health threat to students and staff, the affected building areas will be evacuated. All avenues of communication will be utilized to warn and inform interested parties in a prompt manner.

9. **Preventive Maintenance and Operation**

Preventive maintenance means the routine inspection, adjustment, and repair of building structures and systems (including but not limited to: heating, ventilation, air conditioning systems (HVCA), unit ventilation, local exhaust, fresh air intakes, and flooring). Preventive maintenance plays a major role in maintaining the quality of air by assuring that the building systems are operating effectively and efficiently.

Bemidji Area School’s preventive maintenance schedule is located in attachment 7. It describes the schedule and location of building and ventilation components that are inspected and maintained on a routine basis. The schedule was established using the
past experience of District personnel and following the manufacturers specifications and technical guides.

District personnel performing the preventive maintenance follow the checklist strictly. The IAQC and the District Chief Engineer monitor its completion and all records of preventive maintenance are kept at the place of origin, the District Engineering Office and the District Safety Office IAQ Mgt Plan attachment 7.

10. **Other IAO Related Environmental Policies**

Bemidji Area Schools have established the following environmental policies and programs to help improve and maintain the quality of air within our schools. Questions or concerns pertaining to integrated pest management (IPM), asbestos, smoking, lead, radon gas, and chemicals used in the schools can contact the District Safety Office at 218-333-3149 or email: spindler@bemidji.k12.mn.us.

11. **Annual Review**

Bemidji Area Schools perform an annual review in order to make sure the IAQ Management Plan is current with what is happening in the District. The annual review involves the following: building systems evaluations, walk-through inspections, reviewing IAQ concern reports, other information discussing new IAQ issues with District staff, and changing the IAQ Management Plan as needed.

12. **Documentation of School Board Approval**

The Bemidji Area Schools School Board approves the District IAQ Management plan as part of the district Health and Safety Policy at the June School Board meeting. Minutes from the school board meeting indicating IAQ Management Plan approval can be found in the District Superintendent's Office.
ATTACHMENTS
## Attachment 1: Annual Building Inspection Check-off Form

<table>
<thead>
<tr>
<th>Building</th>
<th>Date</th>
<th>Comments</th>
<th>Date</th>
<th>Comments</th>
<th>Date</th>
<th>Comments</th>
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<tbody>
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<td>Central</td>
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<td>Community Ed</td>
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<td>Horace May</td>
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<tr>
<td>J.W. Smith</td>
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<td>Lincoln</td>
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<td>Middle School</td>
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<td>Northern</td>
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<td>Nymore Arena</td>
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<td>Paul Bunyan</td>
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<td>Senior High</td>
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<td>Dist Warehouse</td>
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</tbody>
</table>
Walkthrough Inspection Checklist

Name: 

School: 

Room or Area: 

Date Completed: 

Signature: 

Instructions

1. Read the IAQ Backgrounder and the Background Information for this checklist.

2. Keep the Background Information and make a copy of the checklist for future reference.

3. Complete the Checklist.
   - Check the “yes,” “no,” or “not applicable” box beside each item. (A “no” response requires further attention.)
   - Make comments in the “Notes” section as necessary.

4. Return the checklist portion of this document to the IAQ Coordinator.

### 1. GROUND LEVEL

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
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<tbody>
<tr>
<td>1a. Ensured that offices are dusted and vacuumed regularly</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1b. Ensured that ventilation units operate properly</td>
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<tr>
<td>1c. Checked for nests and droppings near outdoor air intakes</td>
<td></td>
<td></td>
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<tr>
<td>1d. Determined that dumpsters are located away from doors, windows, and outdoor air intakes</td>
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</tr>
<tr>
<td>1e. Checked potential sources of air contaminants near the building (chimneys, stacks, industrial plants, exhaust from nearby buildings)</td>
<td></td>
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<tr>
<td>1f. Ensured that vehicles avoid idling near outdoor air intakes</td>
<td></td>
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<td></td>
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<tr>
<td>1g. Minimized pesticide application</td>
<td></td>
<td></td>
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<tr>
<td>1h. Ensured that there is proper drainage away from the building (including roof downspouts)</td>
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<td></td>
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<tr>
<td>1i. Ensured that sprinklers spray away from the building and outdoor air intakes</td>
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<td></td>
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<tr>
<td>1j. Ensured that walk-off mats are used at exterior entrances and that they are cleaned regularly</td>
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### 2. ROOF

*While on the roof, consider inspecting the HVAC units (use the Ventilation Checklist).*

<table>
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<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a. Ensured that the roof is in good condition</td>
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<tr>
<td>2b. Checked for evidence of water ponding</td>
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<tr>
<td>2c. Checked that ventilation units operate properly (air flows in)</td>
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<td></td>
</tr>
<tr>
<td>2d. Ensured that exhaust fans operate properly (air flows out)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2e. Ensured that air intakes remain open, even at minimum setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2f. Checked for nests and droppings near outdoor air intakes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2g. Ensured that air from plumbing stacks and exhaust outlets flows away from outdoor air intakes</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

### 3. ATTIC

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>3a. Checked for evidence of roof and plumbing leaks</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3b. Checked for birds and animal nests</td>
<td></td>
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### 4. GENERAL CONSIDERATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
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</tr>
</thead>
<tbody>
<tr>
<td>4a. Ensured that temperature and humidity are maintained within acceptable ranges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4b. Ensured that no obstructions exist in supply and exhaust vents</td>
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</tbody>
</table>
4. GENERAL CONSIDERATIONS (continued)

4c. Checked for odors .................................................................☐ ☐ ☐
4d. Checked for signs of mold and mildew growth..........................☐ ☐ ☐
4e. Checked for signs of water damage ...........................................☐ ☐ ☐
4f. Checked for evidence of pests and obvious food sources .............☐ ☐ ☐
4g. Noted and reviewed all concerns from school occupants ..................☐ ☐ ☐

5. BATHROOMS AND GENERAL PLUMBING

5a. Ensured that bathrooms and restrooms have operating exhaust fans .......☐ ☐ ☐
5b. Ensured proper drain trap maintenance:
   Water is poured down floor drains once per week (approx. 1 quart of water) ....☐ ☐ ☐
   Water is poured into sinks at least once per week (about 2 cups of water) ......☐ ☐ ☐
   Toilets are flushed at least once per week .............................................☐ ☐ ☐

6. MAINTENANCE SUPPLIES

6a. Ensured that chemicals are used only with adequate ventilation and when
    building is unoccupied .............................................................................☐ ☐ ☐
6b. Ensured that vents in chemical and trash storage areas are operating
    properly .......................................................................................................☐ ☐ ☐
6c. Ensured that portable fuel containers are properly closed .....................☐ ☐ ☐
6d. Ensured that power equipment, like snowblowers and lawn mowers, have
    been serviced and maintained according to manufacturers’ guidelines ........☐ ☐ ☐

7. COMBUSTION APPLIANCES

7a. Checked for combustion gas and fuel odors.........................................☐ ☐ ☐
7b. Ensured that combustion appliances have flues or exhaust hoods ..........☐ ☐ ☐
7c. Checked for leaks, disconnections, and deterioration ............................☐ ☐ ☐
7d. Ensured there is no soot on inside or outside of flue components ..........☐ ☐ ☐

8. OTHER

8a. Checked for peeling and flaking paint (if the building was built before
    1980, this could be a lead hazard) .................................................................☐ ☐ ☐
8b. Determined date of last radon test ............................................................☐ ☐ ☐

NOTES
Bemidji Area Schools

Dear Staff Member:

Bemidji Area Schools is proud of its indoor air quality program. This letter accompanies specific guidance prepared by the U.S. Environmental Protection Agency (EPA) that shows how you can help us make this program more successful.

Bemidji Area Schools takes a leadership role in providing a safe, comfortable, and productive environment for our students and staff so that we achieve our core mission - educating students. Bemidji Area Schools will follow the EPA guidance to improve our indoor air quality (IAQ) by preventing as many IAQ problems as possible, and by quickly responding to any IAQ problems that may arise.

Good indoor air quality requires an ongoing commitment by everyone in our district. You can make the program a success by reading the background information and applying the simple yet important activities in your checklist that is attached.

When you have read the IAQ backgrounder and completed the checklist, return the checklist to: District Safety Office, attn: Steve Spindler, so that follow-up can be done on any unresolved IAQ problems you might have. If you have any questions or concerns about IAQ or the IAQ Plan, please contact Steve Spindler, District Safety Manager at 333-3149 or email: sspindler@bemidji.k12.mn.us.

Your help and cooperation in making this program a success is appreciated.

Please return the checklist by: _____________________________

Sincerely,

Steve Spindler,
Indoor Air Quality Coordinator
District Safety Manage
Building and Grounds Maintenance Checklist

Name: ____________________________
School: ____________________________
Room or Area: __________________ Date Completed: _______________
Signature: _______________________

Instructions
1. Read the IAQ Backgrounder and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   • Check the “yes,” “no,” or “not applicable” box beside each item. (A “no” response requires further attention.)
   • Make comments in the “Notes” section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

1. BUILDING MAINTENANCE SUPPLIES
   Yes No N/A
   1a. Developed appropriate procedures and stocked supplies for spill control .................................................................
   1b. Reviewed supply labels ........................................................................................................................................
   1c. Ensured that air from chemical and trash storage areas vents to the outdoors ................................................................
   1d. Stored chemical products and supplies in sealed, clearly labeled containers ................................................................
   1e. Researched and selected the safest products available ..........................................................................................
   1f. Ensured that supplies are being used according to manufacturers’ instructions ..................................................
   1g. Ensured that chemicals, chemical-containing wastes, and containers are disposed of according to manufacturers’ instructions ..........................................................
   1h. Substituted less- or non-hazardous materials (where possible) ........................................................................
   1i. Scheduled work involving odorous or hazardous chemicals for periods when the school is unoccupied ..................................
   1j. Ventilated affected areas during and after the use of odorous or hazardous chemicals ..........................................................

2. GROUNDS MAINTENANCE SUPPLIES
   2a. Stored grounds maintenance supplies in appropriate area(s) ................................................................
   2b. Ensured that supplies are used and stored according to manufacturers’ instructions ..................................................
   2c. Established and followed procedures to minimize exposure to fumes from supplies ..........................................................
   2d. Reviewed and followed manufacturers’ guidelines for maintenance ..........................................................
   2e. Replaced portable gas cans with low-emission cans ..........................................................................................
   2f. Stored chemical products and supplies in sealed, clearly-labeled containers ..........................................................
   2g. Ensured that chemicals, chemical-containing wastes, and containers are disposed of according to manufacturers’ instructions ..........................................................

3. DUST CONTROL
   3a. Installed and maintained barrier mats for entrances ..........................................................................................
   3b. Used high efficiency vacuum bags ..........................................................................................................
   3c. Used proper dusting techniques ..........................................................................................................
   3d. Wrapped feather dusters with a dust cloth ....................................................................................................
   3e. Cleaned air return grilles and air supply vents ..........................................................................................

1 of 2
4. FLOOR CLEANING

4a. Established and followed schedule for vacuuming and mopping floors...........☐ ☐ ☐
4b. Cleaned spills on floors promptly (as necessary)...........................................☐ ☐ ☐
4c. Performed restorative maintenance (as necessary).......................................☐ ☐ ☐

5. DRAIN TRAPS

5a. Poured water down floor drains once per week (about 1 quart of water)...........☐ ☐ ☐
5b. Ran water in sinks at least once per week (about 2 cups of water)...............☐ ☐ ☐
5c. Flushed toilets once each week (if not used regularly).................................☐ ☐ ☐

6. MOISTURE, LEAKS, AND SPILLS

6a. Checked for moldy odors...................................................................................☐ ☐ ☐
6b. Inspected ceiling tiles, floors, and walls for leaks or discoloration (may indicate periodic leaks) .................................................................☐ ☐ ☐
6c. Checked areas where moisture is commonly generated (e.g., kitchens, locker rooms, and bathrooms) .................................................................☐ ☐ ☐
6d. Checked that windows, windowsills, and window frames are free of condensate .............................................................................................................☐ ☐ ☐
6e. Checked that indoor surfaces of exterior walls and cold water pipes are free of condensate .............................................................................................................☐ ☐ ☐
6f. Ensured the following areas are free from signs of leaks and water damage:
   Indoor areas near known roof or wall leaks.......................................................☐ ☐ ☐
   Walls around leaky or broken windows.............................................................☐ ☐ ☐
   Floors and ceilings under plumbing.................................................................☐ ☐ ☐
   Duct interiors near humidifiers, cooling coils, and outdoor air intakes ..........☐ ☐ ☐

7. COMBUSTION APPLIANCES

7a.Checked for odors from combustion appliances .............................................☐ ☐ ☐
7b. Checked appliances for backdrafting (using chemical smoke).......................☐ ☐ ☐
7c. Inspected exhaust components for leaks, disconnections, or deterioration.....☐ ☐ ☐
7d. Inspected flue components for corrosion and soot.........................................☐ ☐ ☐

8. PEST CONTROL

8a. Completed the Integrated Pest Management Checklist...................................☐ ☐ ☐

NOTES
Teacher’s Classroom Checklist

Name: ________________________________
School: ______________________________
Room or Area: _______________ Date Completed: _______________
Signature: ______________________________

1. GENERAL CLEANLINESS

Yes No N/A

1a. Ensured rooms are dusted and vacuumed regularly ................................................... ☐ ☐ ☐
1b. Ensured rooms are free of clutter ............................................................................. ☐ ☐ ☐
1c. Ensured that trash is removed daily ......................................................................... ☐ ☐ ☐
1d. Ensured that no food is stored in classroom overnight ............................................ ☐ ☐ ☐
1e. Ensured that animal food is stored in tightly sealed containers ................................ ☐ ☐ ☐
1f. Ensured room is free of pests and vermin .................................................................. ☐ ☐ ☐
1g. Used unscented, school-approved cleaners and air fresheners, if any, in rooms .......... ☐ ☐ ☐

2. ANIMALS IN THE CLASSROOM

Yes No N/A

2a. Minimized exposure to animal allergens ................................................................... ☐ ☐ ☐
2b. Ensured that animals are kept in cages (as much as possible) ................................... ☐ ☐ ☐
2c. Ensured that cages are cleaned regularly ................................................................... ☐ ☐ ☐
2d. Placed animal cages away from supply and return vents ....................................... ☐ ☐ ☐
2e. Consulted school nurse about student allergies or sensitivities (privacy laws may limit the information that health officials can disclose) ........................................... ☐ ☐ ☐
2f. Identified potential allergies of students .................................................................... ☐ ☐ ☐
2g. Moved sensitive students away from animals and habitats ....................................... ☐ ☐ ☐

3. DRAIN TRAPS IN THE CLASSROOM

Yes No N/A

3a. Ensured that water is poured down floor drains once per week (approx. 1 quart of water) .................................................................................................................. ☐ ☐ ☐
3b. Ensured that water is run in sinks at least once per week (about 2 cups of water) ....... ☐ ☐ ☐
3c. Ensured that toilets are flushed once each week, especially if not used regularly ..... ☐ ☐ ☐

4. EXCESS MOISTURE IN CLASSROOMS

Yes No N/A

4a. Ensured that condensate is wiped from windows, windowsills, and window frames ................................................................................................................................. ☐ ☐ ☐
4b. Ensured that cold water pipes are free of condensate ................................................ ☐ ☐ ☐
4c. Ensured that indoor surfaces of exterior walls are free of condensate ....................... ☐ ☐ ☐
4d. Ensured areas around and under classroom sinks are free of leaks ......................... ☐ ☐ ☐
4e. Ensured classroom lavatories are free of leaks ......................................................... ☐ ☐ ☐
4f. Ensured ceiling tiles and walls are free of leaks (discoloration may indicate periodic leaks) ......................................................................................................................... ☐ ☐ ☐
4g. Ensured that spills are cleaned promptly .................................................................... ☐ ☐ ☐

Instructions

1. Read the IAQ Backgrounder and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   • Check the “yes,” “no,” or “not applicable” box beside each item. (A “no” response requires further attention.)
   • Make comments in the “Notes” section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.
5. THERMAL COMFORT

5a. Ensured moderate temperature (should generally be 72°F–76°F) ....................
5b. Ensured there are no signs of draftiness ...........................................................
5c. Ensured that students are not seated in direct sunlight ....................................
5d. Ensured that indoor humidity is maintained at acceptable levels (between 30 and 60 percent) .............................................................

6. VENTILATION

6a. Located unit ventilator ....................................................................................
6b. Located air supply and return vents .................................................................
6c. Ensured air is flowing from supply vent ..........................................................
6d. Ensured the air supply pathway is not obstructed ............................................
6e. Ensured there are no vehicle exhaust, kitchen/food, and chemical odors in the classroom .................................................................
6f. Ensured there are no signs of mold or mildew (refer to Appendix H of the IAQ Reference Guide) ...............................................................
6g. Determined operability of windows ...............................................................
# Food Service Checklist

Name: _____________________________  
School: ____________________________  
Room or Area: ___________  
Date Completed: ________________  
Signature: _________________________

## Instructions

1. Read the IAQ Backgrounder and the Background Information for this checklist.

2. Keep the Background Information and make a copy of the checklist for future reference.

3. Complete the Checklist.
   - Check the “yes,” “no,” or “not applicable” box beside each item. (A “no” response requires further attention.)
   - Make comments in the “Notes” section as necessary.

4. Return the checklist portion of this document to the IAQ Coordinator.

## 1. COOKING AREA

<table>
<thead>
<tr>
<th></th>
<th>1a. Determined that local exhaust fans operate properly (note if fans are excessively noisy)</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1b. Checked for odors near cooking, preparation, and eating areas</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>1c. Ensured that exhaust fans are used whenever cooking, washing dishes, and cleaning</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>1d. Determined that gas appliances function properly</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>1e. Verified that gas appliances are vented outdoors</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>1f. Ensured there are no combustion gas or natural gas odors, leaks, back-drafting, or headaches when gas appliances are used</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>1g. Ensured that kitchen is clean after use</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>1h. Determined there are no signs of microbiological growth in the kitchen, including the upper walls and ceiling (for example, mold, slime, and algae)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>1i. Selected biocides registered by EPA (if required), followed the manufacturer’s directions for use, and carefully reviewed the method of application</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>1j. Verified the kitchen is free of plumbing and ceiling leaks (signs include stains, discoloration, and damp areas)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

## 2. FOOD HANDLING AND STORAGE

|   | 2a. Checked food preparation, cooking, and storage areas for signs of insects and vermin (for example, feces or remains) | ☐   | ☐  | ☐  |
|   | 2b. Stored leftovers in well-sealed containers with no traces of food on outside surfaces | ☐   | ☐  | ☐  |
|   | 2c. Ensured that food preparation, cooking, and storage practices are sanitary | ☐   | ☐  | ☐  |
|   | 2d. Disposed of food scraps properly and removed crumbs | ☐   | ☐  | ☐  |
|   | 2e. Wiped counters clean with soap and water or a disinfectant (according to school policy) | ☐   | ☐  | ☐  |
|   | 2f. Swept and wet mopped floors | ☐   | ☐  | ☐  |

## 3. WASTE MANAGEMENT

|   | 3a. Selected and placed waste in appropriate containers | ☐   | ☐  | ☐  |
|   | 3b. Ensured that containers’ lids are securely closed | ☐   | ☐  | ☐  |
|   | 3c. Separated food waste and food-contaminated items from other wastes, if possible | ☐   | ☐  | ☐  |
|   | 3d. Stored waste containers in a well-ventilated area | ☐   | ☐  | ☐  |
|   | 3e. Ensured that dumpsters are properly located (away from air intake vents, operable windows, and food service doors) | ☐   | ☐  | ☐  |
### DELIVERIES

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>

4a. Instructed vendors to avoid idling their engines during deliveries

4b. Posted a sign prohibiting vehicles from idling their engines in receiving areas

4c. Ensured that doors or air barriers are closed between receiving area and kitchen

---

**Notes**
# Building and Grounds Maintenance Checklist

**Name:**

**School:**

**Room or Area:** __________  **Date Completed:** __________

**Signature:** __________

## Instructions

1. Read the IAQ *Backgrounder* and the Background Information for this checklist.

2. Keep the Background Information and make a copy of the checklist for future reference.

3. Complete the Checklist.
   - Check the “yes,” “no,” or “not applicable” box beside each item. (A “no” response requires further attention.)
   - Make comments in the “Notes” section as necessary.

4. Return the checklist portion of this document to the IAQ Coordinator.

### 1. BUILDING MAINTENANCE SUPPLIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. Developed appropriate procedures and stocked supplies for spill control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b. Reviewed supply labels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1c. Ensured that air from chemical and trash storage areas vents to the outdoors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1d. Stored chemical products and supplies in sealed, clearly labeled containers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1e. Researched and selected the safest products available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1f. Ensured that supplies are being used according to manufacturers’ instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1g. Ensured that chemicals, chemical-containing wastes, and containers are disposed of according to manufacturers’ instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1h. Substituted less- or non-hazardous materials (where possible)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1i. Scheduled work involving odorous or hazardous chemicals for periods when the school is unoccupied</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1j. Ventilated affected areas during and after the use of odorous or hazardous chemicals</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2. GROUNDS MAINTENANCE SUPPLIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a. Stored grounds maintenance supplies in appropriate area(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2b. Ensured that supplies are used and stored according to manufacturers’ instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2c. Established and followed procedures to minimize exposure to fumes from supplies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2d. Reviewed and followed manufacturers’ guidelines for maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2e. Replaced portable gas cans with low-emission cans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2f. Stored chemical products and supplies in sealed, clearly-labeled containers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2g. Ensured that chemicals, chemical-containing wastes, and containers are disposed of according to manufacturers’ instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3. DUST CONTROL

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a. Installed and maintained barrier mats for entrances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3b. Used high efficiency vacuum bags</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3c. Used proper dusting techniques</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3d. Wrapped feather dusters with a dust cloth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3e. Cleaned air return grilles and air supply vents</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 4. FLOOR CLEANING

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>4a. Established and followed schedule for vacuuming and mopping floors</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4b. Cleaned spills on floors promptly (as necessary)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4c. Performed restorative maintenance (as necessary)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### 5. DRAIN TRAPS

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>5a. Poured water down floor drains once per week (about 1 quart of water)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5b. Ran water in sinks at least once per week (about 2 cups of water)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5c. Flushed toilets once each week (if not used regularly)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### 6. MOISTURE, LEAKS, AND SPILLS

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>6a. Checked for moldy odors</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6b. Inspected ceiling tiles, floors, and walls for leaks or discoloration (may indicate periodic leaks)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6c. Checked areas where moisture is commonly generated (e.g., kitchens, locker rooms, and bathrooms)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6d. Checked that windows, windowsills, and window frames are free of condensate</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6e. Checked that indoor surfaces of exterior walls and cold water pipes are free of condensate</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
| 6f. Ensured the following areas are free from signs of leaks and water damage:  
Indoor areas near known roof or wall leaks | ☐ | ☐ | ☐ |
| Walls around leaky or broken windows | ☐ | ☐ | ☐ |
| Floors and ceilings under plumbing | ☐ | ☐ | ☐ |
| Duct interiors near humidifiers, cooling coils, and outdoor air intakes | ☐ | ☐ | ☐ |

### 7. COMBUSTION APPLIANCES

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>7a. Checked for odors from combustion appliances</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7b. Checked appliances for backdrafting (using chemical smoke)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7c. Inspected exhaust components for leaks, disconnections, or deterioration</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7d. Inspected flue components for corrosion and soot</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### 8. PEST CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>8a. Completed the Integrated Pest Management Checklist</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

---

**NOTES**
Ventilation Checklist

Name: ____________________________
School: ____________________________
Unit Ventilator/AHU No: ____________
Room or Area: ____________ Date Completed: ____________
Signature: ____________________________

Instructions
1. Read the IAQ Backgrounder and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for each ventilation unit in your school, as well as a copy for future reference.
3. Complete the Checklist.
   • Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   • Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

ACTIVITY 1: OUTDOOR AIR INTAKES
1a. Marked locations of all outdoor air intakes on a small floor plan (for example, a fire escape floor plan) ................................................................. □ □ □
1b. Ensured that the ventilation system was on and operating in "occupied" mode ................................................................................................. □ □ □

ACTIVITY 2: OBSTRUCTIONS
1c. Ensured that outdoor air intakes are clear of obstructions, debris, clogs, or covers ................................................................. □ □ □
1d. Installed corrective devices as necessary (e.g., if snowdrifts or leaves frequently block an intake) ................................................................. □ □ □

ACTIVITY 3: POLLUTANT SOURCES
1e. Checked ground-level intakes for pollutant sources (dumpsters, loading docks, and bus-idling areas) ................................................................. □ □ □
1f. Checked rooftop intakes for pollutant sources (plumbing vents; kitchen, toilet, or laboratory exhaust fans; puddles; and mist from air-conditioning cooling towers) ................................................................. □ □ □
1g. Resolved any problems with pollutant sources located near outdoor air intakes (e.g., relocated dumpster or extended exhaust pipe) ................................................................. □ □ □

ACTIVITY 4: AIRFLOW
1h. Obtained chemical smoke (or a small piece of tissue paper or light plastic) ................................................................. □ □ □
1i. Confirmed that outdoor air is entering the intake appropriately ................................................................. □ □ □

ACTIVITY 2: AIR FILTERS
2a. Replaced filters per maintenance schedule ................................................................. □ □ □
2b. Shut off ventilation system fans while replacing filters (prevents dirt from blowing downstream) ................................................................. □ □ □
2c. Vacuumed filter areas before installing new filters ................................................................. □ □ □
2d. Confirmed proper fit of filters to prevent air from bypassing (flowing around) the air filter ................................................................. □ □ □
2e. Confirmed proper installation of filters (correct direction for airflow) ................................................................. □ □ □
2. SYSTEM CLEANLINESS (continued)

**ACTIVITY 5: DRAIN PANS**

2f. Ensured that drain pans slant toward the drain (to prevent water from accumulating) .................................................. Yes No N/A

2g. Cleaned drain pans ........................................................................................................

2h. Checked drain pans for mold and mildew ....................................................................

**ACTIVITY 6: COILS**

2i. Ensured that heating and cooling coils are clean .......................................................... Yes No N/A

**ACTIVITY 7: AIR-HANDLING UNITS, UNIT VENTILATORS**

2j. Ensured that the interior of air-handling unit(s) or unit ventilator (air-mixing chamber and fan blades) is clean ................................................................. Yes No N/A

2k. Ensured that ducts are clean .......................................................................................... Yes No N/A

**ACTIVITY 8: MECHANICAL ROOMS**

2l. Checked mechanical room for unsanitary conditions, leaks, and spills...................... Yes No N/A

2m. Ensured that mechanical rooms and air-mixing chambers are free of trash, chemical products, and supplies ................................................................. Yes No N/A

3. CONTROLS FOR OUTDOOR AIR SUPPLY

3a. Ensured that air dampers are at least partially open (minimum position)............... Yes No N/A

3b. Ensured that minimum position provides adequate outdoor air for occupants................................................................. Yes No N/A

**ACTIVITY 9: CONTROLS INFORMATION**

3c. Obtained and reviewed all design inside/outside temperature and humidity requirements, controls specifications, as-built mechanical drawings, and controls operations manuals (often uniquely designed) ................................. Yes No N/A

**ACTIVITY 10: CLOCKS, TIMERS, SWITCHES**

3d. Turned summer-winter switches to the correct position ............................................... Yes No N/A

3e. Set time clocks appropriately .......................................................................................... Yes No N/A

3f. Ensured that settings fit the actual schedule of building use (including night/weekend use)................................................................. Yes No N/A

**ACTIVITY 11: CONTROL COMPONENTS**

3g. Ensured appropriate system pressure by testing line pressure at both the occupied (day) setting and the unoccupied (night) setting ................................................................. Yes No N/A

3h. Checked that the line dryer prevents moisture buildup ................................................. Yes No N/A

3i. Replaced control system filters at the compressor inlet based on the compressor manufacturer’s recommendation (for example, when you blow down the tank) ................................................................. Yes No N/A

3j. Set the line pressure at each thermostat and damper actuator at the proper level (no leakage or obstructions) ................................................................. Yes No N/A

**ACTIVITY 12: OUTDOOR AIR DAMPERS**

3k. Ensured that the outdoor air damper is visible for inspection ................................. Yes No N/A

3l. Ensured that the recirculating relief and/or exhaust dampers are visible for inspection ................................................................. Yes No N/A

3m. Ensured that air temperature in the indoor area(s) served by each outdoor air damper is within the normal operating range ................................................................. Yes No N/A

**NOTE:** It is necessary to ensure that the damper is operating properly and within the normal.
### 3. CONTROLS FOR OUTDOOR AIR SUPPLY (continued)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3n.</td>
<td>Checked that the outdoor air damper fully closes within a few minutes of shutting off appropriate air handler</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3o.</td>
<td>Checked that the outdoor air damper opens (at least partially with no delay) when the air handler is turned on</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3p.</td>
<td>If in heating mode, checked that the outdoor air damper goes to its minimum position (without completely closing) when the room thermostat is set to 85°F</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3q.</td>
<td>If in cooling mode, checked that the outdoor air damper goes to its minimum position (without completely closing) when the room thermostat is set to 60°F and mixed air thermostat is set to 45°F</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
| 3r.      | If the outdoor air damper does not move, confirmed the following items:  
  - The damper actuator links to the damper shaft, and any linkage set screws or bolts are tight  
  - Moving parts are free of impediments (e.g., rust, corrosion)  
  - Electrical wire or pneumatic tubing connects to the damper actuator  
  - The outside air thermostat(s) is functioning properly (e.g., in the right location, calibrated correctly) | ☐   | ☐  | ☐   |

Proceed to Activities 13–16 if the damper seems to be operating properly.

**ACTIVITY 13: FREEZE STATS**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3s.</td>
<td>Disconnected power to controls (for automatic reset only) to test continuity across terminals</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

OR

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3t.</td>
<td>Confirmed (if applicable) that depressing the manual reset button (usually red) trips the freeze stat (clicking sound indicates freeze stat was tripped)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3u.</td>
<td>Assessed the feasibility of replacing all manual reset freeze-stats with automatic reset freeze-stats</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**NOTE:** HVAC systems with water coils need protection from the cold. The freeze-stat may close the outdoor air damper and disconnect the supply air when tripped. The typical trip range is 35°F to 42°F.

**ACTIVITY 14: MIXED AIR THERMOSTATS**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3v.</td>
<td>Ensured that the mixed air stat for heating mode is set no higher than 65°F</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3w.</td>
<td>Ensured that the mixed air stat for cooling mode is set no lower than the room thermostat setting</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**ACTIVITY 15: ECONOMIZERS**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3x.</td>
<td>Confirmed proper economizer settings based on design specifications or local practices</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**NOTE:** The dry-bulb is typically set at 65°F or lower.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3y.</td>
<td>Checked that sensor on the economizer is shielded from direct sunlight</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3z.</td>
<td>Ensured that dampers operate properly (for outside air, return air, exhaust/relief air, and recirculated air), per the design specifications</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**NOTE:** Economizers use varying amounts of cool outdoor air to assist with the cooling load of the room or rooms. There are two types of economizers, dry-bulb and enthalpy. Dry-bulb economizers vary the amount of outdoor air based on outdoor temperature, and enthalpy economizers vary the amount of outdoor air based on outdoor temperature and humidity level.
3. CONTROLS FOR OUTDOOR AIR SUPPLY (continued)

ACTIVITY 16: FANS
3aa. Ensured that all fans (supply fans and associated return or relief fans) that move outside air indoors continuously operate during occupied hours (even when room thermostat is satisfied) ..............................................

Yes No N/A

NOTE: If fan shuts off when the thermostat is satisfied, adjust control cycle as necessary to ensure sufficient outdoor air supply.

4. AIR DISTRIBUTION

ACTIVITY 17: AIR DISTRIBUTION
4a. Ensured that supply and return air pathways in the existing ventilation system perform as required.................................................................

4b. Ensured that passive gravity relief ventilation systems and transfer grilles between rooms and corridors are functioning ..........................

NOTE: If ventilation system is closed or blocked to meet current fire codes, consult with a professional engineer for remedies.

4c. Made sure every occupied space has supply of outdoor air (mechanical system or operable windows) .........................................................

4d. Ensured that supply and return vents are open and unblocked ..............

NOTE: If outlets have been blocked intentionally to correct drafts or discomfort, investigate and correct the cause of the discomfort and reopen the vents.

4e. Modified the HVAC system to supply outside air to areas without an outdoor air supply .................................................................

4f. Modified existing HVAC systems to incorporate any room or zone layout and population changes ......................................................

4g. Moved all barriers (for example, room dividers, large free-standing blackboards or displays, bookshelves) that could block movement of air in the room, especially those blocking air vents.................................

4h. Ensured that unit ventilators are quiet enough to accommodate classroom activities.................................................................

4i. Ensured that classrooms are free of uncomfortable drafts produced by air from supply terminals .........................................................

ACTIVITY 18: PRESSURIZATION IN BUILDINGS

NOTE: To prevent infiltration of outdoor pollutants, the ventilation system is designed to maintain positive pressurization in the building. Therefore, ensure that the system, including any exhaust fans, is operating on the “occupied” cycle when doing this activity.

4j. Ensured that air flows out of the building (using chemical smoke) through windows, doors, or other cracks and holes in exterior wall (for example, floor joints, pipe openings) ..............................................

5. EXHAUST SYSTEMS

ACTIVITY 19: EXHAUST FAN OPERATION
5a. Checked (using chemical smoke) that air flows into exhaust fan grille(s) .......
5. EXHAUST SYSTEMS (continued)

ACTIVITY 20: EXHAUST AIRFLOW

NOTE: Prevent migration of indoor contaminants from areas such as bathrooms, kitchens, and labs by keeping them under negative pressure (as compared to surrounding spaces).

5b. Checked (using chemical smoke) that air is drawn into the room .................................................................

Stand outside the room with the door slightly open while checking airflow high and low in the door opening (see “How to Measure Airflow”).

5c. Ensured that air is flowing toward the exhaust intake........................................

ACTIVITY 21: EXHAUST DUCTWORK

5d. Checked that the exhaust ductwork downstream of the exhaust fan (which is under positive pressure) is sealed and in good condition ............

6. QUANTITY OF OUTDOOR AIR

ACTIVITY 22: OUTDOOR AIR MEASUREMENTS AND CALCULATIONS

NOTE: Refer to “How to Measure Airflow” for techniques.

6a. Measured the quantity of outdoor air supplied (22a) to each ventilation unit........................................................................................................................................

6b. Calculated the number of occupants served (22b) by the ventilation unit under consideration ..........................................................................................................................................................

6c. Divided outdoor air supply (22a) by the number of occupants (22b) to determine the existing quantity of outdoor air supply per person (22c) ......

ACTIVITY 23: ACCEPTABLE LEVELS OF OUTDOOR AIR QUANTITIES

6d. Compared the existing outdoor air per person (22c) to the recommended levels in Table 1...............................

6e. Corrected problems with ventilation units that supplied inadequate quantities of outdoor air to ensure that outdoor air quantities (22c) meet the recommended levels in Table 1 ......................................................

NOTES