Minnesota Department of Health

# Appendix A: Guide for the Development and Implementation of a School or District Indoor Air Quality Management Plan

The Minnesota Departments of Health (MDH) developed this guide to help school officials create and implement an operational, effective, and district-specific Indoor Air Quality (IAQ) Management Plan. To qualify for funding, public school districts are required to develop an IAQ Management Plan. The bolded items are required. The additional guidance (unbolded) should also be considered. The ‘IAQ Management Plan Development Checklist’ shown below summarizes required and recommended steps and can be used to track the progress of developing and implementing an IAQ Management Plan. For more information, see the detailed discussion following the table.

IAQ Management Plan Development Checklist

|  |  |  |
| --- | --- | --- |
| **Step** | **Task (bolded items are required)** | **Date** |
| **1.** | **Appoint an IAQ Coordinator** |  |
| 1. | Complete MDH IAQ Coordinator Training or comparable course |  |
| **1.** | **IAQ Coordinator based or spends most of their time in school/district** |  |
| **1.** | **IAQ Coordinator capable of answering parent’s basic questions** |  |
| **1.** | **IAQ Coordinator authorized to receive and respond to complaints** |  |
| **1.** | **IAQ Coordinator understands responsibilities and separate role from maintenance** |  |
| 2. | Determine how building evaluations will be completed: EPA Tools for Schools (TfS) or equivalent |  |
| 2. | If using a method other than TfS, verify evaluation covers items in TfS checklists |  |
| 2. | Evaluate building maintenance in all school buildings and plan for yearly evaluations |  |
| 2. | Evaluate ventilation in all school buildings and plan for yearly evaluations |  |
| 3. | Determine how walkthrough inspections will be completed: TfS or equivalent |  |
| 3. | If using a method other than TfS, verify assessment covers items in TfS checklists |  |
| 3. | Conduct walkthrough inspection in all school buildings and plan for yearly walkthrough inspections |  |
| 4. | Draft specific new repairs, projects, practices, and procedures |  |
| 4. | Organize corrective actions in a “Schedule to Address Identified Issues” |  |
| **4.** | **Create and implement a written IAQ Management Plan that describes policies** |  |
| 5. | Select policies and procedures, such as the model policies in the MDH Model IAQ Management Plan |  |
| **5.** | **Make sure the IAQ Management Plan is operational and implemented** |  |
| **6.** | **Obtain school board adoption for the IAQ Management Plan** |  |
| **7.** | **Update your IAQ Plan yearly** |  |

## STEP 1. Appoint an IAQ coordinator

**(Bolded items are required)**

1. **Appoint an individual that is either based in the district or spends most of their time at the district.**
2. **The IAQ Coordinator must be capable of answering parents’ basic questions:**
   1. **where parents go to find answers to IAQ questions and concerns;**
   2. **where parents obtain checklists and self-help information to evaluate their child’s out-of-school situation;**
   3. **how parents can access information about the school; and**
   4. **what parents can do—how can a parent effect change.**
3. **The IAQ Coordinator must be authorized to respond to parents’ and staffs’ concerns as well as issues shared by state agencies and other people.**
4. **The IAQ Coordinator must fulfill a separate IAQ function from that of building systems maintenance expert.**

The IAQ Coordinator should complete an MDH IAQ Coordinator training course or a comparable school IAQ training that is at least half-day in length.

Typically, the IAQ Coordinator is:

* 1. The chief engineer, head of building and grounds, or the health and safety director. In small districts, the IAQ Coordinator is sometimes a principal, the business manager, or the superintendent
  2. Appointed by the appropriate district authority, such as the principal, a committee, or the superintendent
  3. Capable of communicating with district staff, students, parents, the media, and government agencies
  4. Knowledgeable of and willing to learn about IAQ-related issues such as building maintenance, heating and ventilation systems, common hazards, and products
  5. Readily available to respond to IAQ related questions and concerns, and have access to all facilities to inspect or respond to IAQ issues
  6. Able to manage long-term IAQ projects (from initial assessment, intervention, closure evaluation)
  7. Given the authority to address most IAQ issues

Consider forming an IAQ Team with representatives from different professions in the school and the community. Under other regulations, you may be required to have a health and safety committee.

1. An existing committee may be used; for example, the Health and Safety Committee. However, specific time should be allotted during meetings to address IAQ issues.
2. Select individuals who can represent the school community (e.g., facility operators, teachers, health services, administrators, school board, parents, and students). Other individuals that could be considered are nutrition specialist, community representative, food service representative, school principal, custodians, school business official, local health official, service provider (environmental consultant), and parent with special expertise (e.g., HVAC engineer, architect, physician, etc.).
3. Specific duties can be assigned to IAQ Team members, according to individual skill and motivation. This may include assigning roles in the:
   1. distribution, collection, and evaluation checklists
   2. conducting walk-through inspections
   3. design and approval process of policies for the IAQ management plan
   4. education of district staff regarding specific IAQ issues
   5. review concerns reported to the IAQ Coordinator
4. The decision-making process of the IAQ Team should be carefully considered. It is recommended that the IAQ Team consider how decisions are made (majority, consensus, or by one person). An odd number of team members are recommended if decisions are based upon a majority vote.
5. List Team members, contact information, and their role in the IAQ Management Plan. The Team meeting agendas can be structured as follows. See below for details.
   1. Introductions, roles, review EPA and MDH resources, select evaluation and walkthrough methods, start evaluations
   2. Prepare for Walkthrough Inspections: Review MDH resources, EPA resources, history of building, building system evaluation findings
   3. Perform Walkthrough Inspections: document observations
   4. Review information collected: draft a plan to address identified issues, finalize content of IAQ Management Pan
   5. Communication: document school board approval, communicate progress on addressing identified issues, plan for new year

## STEP 2. Perform building system evaluations, such as the ventilation systems and maintenance operations

1. The IAQ Team or Coordinator should decide whether the building system evaluations will be completed using the EPA Tools for Schools (TfS) checklists or an equivalent evaluation and who will conduct the evaluation. The TfS ‘Ventilation’ and ‘Building Maintenance’ checklists from the EPA Tools for Schools kit could be distributed, collected, and evaluated (or an equivalent evaluation). If a survey different from the TfS checklists is used (for example, a contracted service provider conducts the evaluation), this is considered an equivalent evaluation.
2. An equivalent evaluation covers the following (see the checklists for more details)
   1. ventilation evaluation: air intakes, air filters, condensate areas, coils, cleanliness, mechanical rooms, dampers, controls, settings, outdoor air supply, air movement, and exhaust fans
   2. maintenance evaluation: building supplies, grounds supplies, dust control, floor cleaning, drain traps, moisture, and combustion appliances
3. An evaluation of the ventilation and maintenance should be performed every year, prior to the walk-through inspections, to assess issues not easily identifiable during the walkthrough inspections.
4. The Teachers Checklist and other checklists could also be considered. These checklists are available on the EPA website and TfS app.
5. Consider the pros and cons of using the TfS checklists vs. a more in-depth expert conducted ‘super walk-through’.
   1. the advantages of the TfS Checklists (or a similar staff survey) include:
      1. educating the staff, which should encourage behavior that promotes better IAQ, and encourage the prompt reporting of problems
      2. collecting information from the regular “users” of the spaces, which should provide information about IAQ issues that may change with time
      3. saving money (if the staff evaluation is less expensive than a contractor evaluation)
      4. developing expertise within the school staff
      5. demonstrating more directly that the school staff monitor and improve IAQ.
   2. the advantages of a super walkthrough (such as one done by an environmental consultant) include:
      1. saving the district staff time
      2. finding problems that may be missed by a non-expert filling in a survey
      3. environmental testing
      4. organizing findings and recommendation in a user-friendly format
      5. providing recommendations that might not be considered by district staff
6. If a staff survey is done, such as the TfS checklists, consider:
   1. doing the survey during an annual training or meeting, to ensure a high response rate, or creating an on-line survey that can organize data into a practical format
   2. doing the survey in early Spring, so there is time to do the walk-through inspections (while building is closed and HVAC operating normally), and then use the summer to complete renovations and repairs
   3. include a cover letter stating that the checklists are used to assist the district in evaluating their facilities to develop an IAQ Management Plan, and that specific complaints should be filed through the IAQ concern reporting process.
7. Minor editorial changes to the TfS checklists could be made to ensure they are customized to your school or district. For example, rather than pose general subjective questions, the Teacher’s Checklist could ask:
   1. Are rooms vacuumed X times per week?
   2. Is the room temperature between X and Y in the winter and A and B in the summer?
8. The IAQ Management Plan should include a policy describing how the building systems evaluation is done. When writing the building systems evaluation policy, you may want to include additional information that describes the approach you are using and the reasoning behind it. If you choose to have a contractor do the building systems evaluation, you could describe the negotiated contract in your IAQ Management Plan. This could include a description of the following contractual requirements:
   1. the minimum work necessary for equivalent building systems evaluations
   2. description (in writing) of the areas to be examined by the contractor
   3. creation of a concrete and practical set of recommendations as an outcome of the evaluation, including an interpretation of testing results
   4. distribution, collection, and evaluation of staff surveys by the contractor
   5. educational presentations for the staff.
9. Review the background information on the EPA TfS website and app, for further guidance.
10. Retain copies of the checklists or professional reports with IAQ Plan.

## STEP 3. Perform building walkthrough inspections

1. The IAQ Coordinator or Team should decide whether the walkthrough inspection will use the United States Environmental Protection Agency’s Tools for Schools (TfS) “Walkthrough Checklist” (see TfS website or the app).
2. An alternative checklist can be used. The evaluation should be equivalent to the TfS Walkthrough Checklist (see checklist for more information). If using a method other than TfS, make sure the walkthrough inspection:
   1. includes occupied spaces (classrooms, hallways, offices, kitchen) and other ‘functional’ areas (exterior, roof, mechanical rooms, bathrooms, storage rooms, boiler)
   2. checks: cleaning needs, fresh air ventilation, pests, nearby pollutants, pesticides, moisture, walk-off mats, temperature, humidity, odors, mold, water damage, occupant concerns, dry drain traps, exhaust ventilation, chemicals, fuel containers, engines, combustion appliances, lead, and radon
3. The walkthrough inspection should be performed yearly in each educational and administrative building used by the school district, including rental properties, to identify potential IAQ problems and evaluate obvious operations and maintenance problems.
4. The walkthrough inspection should be performed by qualified individual(s), such as the IAQ Coordinator, building maintenance staff, head of building and grounds, a service provider (e.g., consultant), or a combination of individuals.
5. The walkthrough inspections should focus on the following issues.
   1. water intrusion problems (such as discoloration/bulging/cracks of ceiling, walls, flooring)
   2. ventilation failures (such as stuffiness, high level of odors, windows open, high temperatures, lack of air movement, excess dust levels, and humidity)
   3. building/structural failures (such as roof leaks, flooding in spring, failing paint, and mold growing on exterior wall surfaces)
   4. overall cleanliness of the buildings (such as carpets clean, dustiness, presence of past days garbage, and food/drink spills)
   5. need for operations and maintenance programs
6. While it may be better to first do the building systems evaluations before the walkthrough, either one can be done first, or they can call be combined into a ‘super-walkthrough’.
7. When preparing for the walkthrough inspection, plan how much time you need to complete each building, when to do the inspection and who will do it. Consider the following:
   1. minor editorial changes to the TfS checklist can be made to ensure they are customized to your school or district.
   2. an alternative format could be used, organized by room and all the checklist items that would apply (e.g., classroom, bathroom, storage room, etc.); this might help ensure all rooms have been inspected for all issues and a record exists that all rooms have been inspected
   3. if interrupting classes is a concern, an effort could be made to inspect classrooms right after they have been occupied, such as during lunch break or the end of the day
   4. if there is urgency to get inspections done quickly, assign individuals to buildings for the first year; you can always change it to one person for all buildings when there is more time the second year
   5. if optional air testing is done during the walkthrough (e.g., temperature, carbon dioxide, etc.), check to make sure equipment is operating and calibrated per manufacturer
   6. consider using an electronic checklist such as the EPA’s Tools for Schools mobile application
8. The walkthrough inspection should be performed during normal occupancy and operational times – while classrooms are occupied and the ventilation equipment running.
   1. the inspection should cover occupied spaces (classrooms, hallways, offices, kitchen) and other areas (exterior, roof, mechanical rooms, storage rooms, boiler)
   2. it should take about 3 to 5 minutes per room, 15 minutes for the attic/roof, and 15 minutes for building exterior and entrances (remember this is a quick overview of the building)
   3. the walkthrough inspector(s) should ask questions of building occupants and write comments, to clarify the nature and history of known or potential IAQ issues (this approach also demonstrates to school staff the effort being made to create a healthy school)
   4. while not preferable, walkthrough inspections can be done during unoccupied times (this reduces the amount of time it takes to get through a building and to avoid disruptions to classes)
9. A service provider can perform the walkthrough inspections. It is recommended that school staff also perform a walkthrough inspection prior to the service provider’s walkthrough inspection. A separate walkthrough inspection completed by a staff member(s) should:
   1. ensure school staff are familiar with their buildings
   2. provide school staff information that can be shared with the professional
   3. help in the recognition of IAQ issues that aren’t apparent at the time of the professional’s inspection
10. The IAQ Coordinator or an IAQ team member should review the completed checklist(s) to ensure that information has been appropriately documented.
11. The IAQ Management Plan should include a policy describing how the walkthrough inspections are done.
12. Review the TfS background information located on the EPA TfS website and app, for further guidance.
13. Retain copies of the checklists or professional reports with the IAQ Plan.

## STEP 4. Develop a ‘Schedule to Address Identified Issues’

1. Evaluate the information gathered from the walkthrough inspections, building systems evaluations, and other efforts, looking for causes of specific IAQ problems, incidents or concerns and possible solutions. Be mindful of the following patterns when drawing conclusions:
   1. are problems connected to each other by location within a building, through shared ventilation systems, building features, or activities?
   2. do problems occur at a certain time of day, suggesting a relationship to facility operation or maintenance (such as bus idling, cleaning, cooking, projects, etc.)?
2. If you have many checklists, you should prioritize the evaluation of the checklists in the following order:
   1. problems that appear widespread, reported in multiple locations
   2. checklists from problem areas identified during other assessments
   3. minor issues or specific to one room or staff member.
3. To aid your investigation of IAQ issues, use the EPA ‘TfS Problem Solving Tool,’ the ‘TfS IAQ Coordinator’s Guide (Ch. 10-13),’ and the ‘TfS IAQ Reference Guide’. Also consult other EPA, CDC, and MDH resources. Contact MDH, PCA, MDE, and/or your environmental service provider if you struggle to determine or resolve specific IAQ issues.
4. Draft a list of repairs, projects, practices, and procedures.
   1. use the ‘Example Schedule to Address Identified Issues’ (Attachment 3) or a similar format
   2. when drafting, consult individual IAQ Team members, the design specifications of building materials, manufacturer guidance, service providers, and school officials’ previous experiences in drafting a plan.
   3. consult the Model IAQ Management Plan and attachments to inform the IAQ Team of possible policy options
   4. meet with IAQ team to review the draft schedule
   5. review with your business manager about setting realistic timelines for complex or costly projects (e.g., MDE approval is needed for projects using health and safety funding)
5. Finalize the plan with appropriate school officials and other stakeholders

## STEP 5. Create a written IAQ Management Plan

**(Bolded items are required)**

1. **Create a written IAQ Management Plan, which describes policies that address the needs of your school or district.**
2. **Make sure the plan is operational and implemented.**
3. **The plan must describe the authority and responsibilities of the IAQ coordinator.**
4. Create policies that are action-oriented and describe practices and procedures that are implemented in buildings. Do not include theoretical items or general reference information that aren’t being followed currently.
5. Verify policies are specific to the staff and buildings, and consistent with other school policies.
6. If using the Model IAQ Management Plan, changes should be made to it to make it district or school specific. Consider including the recommended policies and policies describing other regulations, to create a comprehensive plan.

## STEP 6. Obtain school board adoption for the IAQ Management Plan

**(Bolded items are required)**

1. **Present the IAQ Management Plan to the school board for their review and adoption as part of the ten-year facility plan adoption required of school districts and intermediate districts, not charter schools, under statute 123B.595.**
2. **Retain copies of school board approval, such as board meeting minutes.**

When presenting the IAQ management Plan, discuss with the board the purposes of approval process:

1. Ensuring compliance with state statute which requires an IAQ Management Plan that is consistent with best practices
2. Legitimizing and strengthening the IAQ Plan
3. Reinforcing staff accountability
4. Verifying IAQ policies are consistent with board’s views and other policies
5. Supporting resource allocation to implement the ‘Schedule to Address Identified Issues’.

## STEP 7. Update your IAQ Plan yearly

**(Bolded items are required)**

**At a minimum, confirm or revise the following sections for consistency with MDE policy and state statute:**

1. **An IAQ Coordinator is functioning the roles stated under Step 1, which is also described under the ‘IAQ Coordinator’ policy in the Model Plan**
2. **An operational IAQ Management Plan is implemented**

Consider completing all the steps described in this plan guide as part of your update, including:

1. Perform walkthrough inspections and building systems evaluations once a year
2. Revise the IAQ Plan according to all the new information gathered and the changes in operations and building structures
3. Obtain school board approval
4. Consider additional new information and issues that have been brought to the attention of school officials, such as through reported concerns since the last revision of the IAQ Management Plan and developments and regulations through governmental agencies.
5. Meet with the IAQ Team to review annual findings and proposed plan revisions.
6. Edit the IAQ Plan to reflect the reality (not ideals) of your district’s IAQ practices and procedures and district administrative culture, while ensuring consistency with MDE’s health and safety policy publications. Add new policies and revise existing policies. Remove obsolete or unused sections from the Plan. Streamline or modify checklists to increase efficiency and participation.
7. Inform parents and staff every year about how to contact the IAQ Coordinator, to contact and find answers to their IAQ questions and concerns. The district website and printed materials (e.g., school newsletter, calendar) could be used; include the phone number, email, and office address of the IAQ Coordinator.
8. Concerns should be filed in writing, such as a written concern form
9. Keep copies of the IAQ Management Plan in every building principal office.

Minnesota Department of Health  
Indoor Air Unit  
625 Robert St N  
PO Box 6975  
St. Paul, MN 55164-0975  
651-201-4933  
[indoorair.healthl@state.mn.us](mailto:indoorair.healthl@state.mn.us)  
[www.health.state.mn.us](http://www.health.state.mn.us/)

9/9/22

To obtain this information in a different format, call: 651-201-4933