

INDOOR AIR QUALITY

Background

The purpose of the Indoor Air Quality (IAQ) Program is to identify the existing situation in each school and the recommended standards, then allocate responsibilities to rectify and document situations. The result is to be a gradual improvement in the indoor environment in facilities in School District 43, to meet the published standards and to provide an appropriate environment conducive to achieving the educational goals of the District.

Procedures

1. Scope

- 1.1 The identification, assessment and rectification of deficient indoor environments will be done within the limits imposed by the funding, occupational and WCB standards, and the personnel resources available to the Facilities Department, and the District in general. In all cases, the Facilities staff will respond to complaints quickly to assess the incident or problem. The provision of advice and feedback on those findings will be a priority action to ensure timely feedback and maintenance of a co-operative partnership between school staff and the Facilities Department.

2. Authority

- 2.1 The standards for indoor environment recited here are drawn from the CTA agreement Part II article 36.4 and the new WCB BC Regulation 296/97 and such ASHRAE documents and standards as are relevant.

3. Participants

- 3.1 The Facilities Department does not have the staff or funding to conduct full and regular air sampling throughout the facilities. As a result of this, we rely on school staff as the initial monitoring agency. The Maintenance Department will be involved in the repair and maintenance of the air handling and heating equipment as well as improving the building envelope of the facilities. The daily, weekly, and seasonal maintenance inspections will be an opportunity for observing and correcting housekeeping and running problems with such equipment.
- 3.2 The operation of the various minor equipment involved in the schools is often the responsibility of the custodial staff and their input and assistance in observing irregularities or housekeeping problems will be an important component in the maintenance of IAQ standards. The custodial staff are also responsible for receiving and installing filters for most interior air handling systems.

- 3.3 The Purchasing Department, in its role as importers of equipment and material, will play a role in the limiting of items which can increase the indoor pollutants. Selection and screening of such products can assist in reducing the pollutant loads in the facilities.
- 3.4 The Project Department managers and designers for new facilities and renovations have an opportunity to identify problems and arrange for suitable HVAC equipment to provide an indoor environment to meet or exceed the code requirements and optimize the systems with the use of energy to meet those requirements.
- 3.5 The various participants in the entire process of monitoring, assessing and rectifying deficiencies will be coordinated by the Manager of Resource Conservation in the Facilities Department. In addition to this coordination, he/she will establish the list of existing priorities, the technical testing equipment and material to respond to additional inquiries and observations and will make recommendations to correct any problems.
- 3.6 Finally, an umbrella plan will be created to direct resources to those facilities, due to their age, construction, or previous complaints, to identify existing conditions and potential improvements, over a number of budget years.

4. Standards

- 4.1 The standards which will be referenced for this program are based on two separate documents. The WCB revised Standards BC Regulation 296/97 will be used to identify those workplace critical factors. These standards will be the minimum for action. This standard is based on relative CO₂ concentrations above atmospheric (650 ppm + ambient).
- 4.2 The next level of standard, which is the ASHRAE 62-1989 standard, is a voluntary recommendation for 15 CFM per person of outdoor air. This standard makes assumptions on the quality of outdoor air. This standard is voluntary for buildings and systems installed before 1989 and focuses on design airflow rather than room air conditions. This standard, though not retroactive, will be used as a target against which existing conditions and proposed changes can be measured.
- 4.3 The WCB regulations Chapter 4 accepts existing buildings built before 1989, and to the standard in effect at the time, provided that the CO₂ ppm guideline is not compromised.
- 4.4 The temperature guidelines for classroom environment is based on seasonal environments and clothing and is as follows:

	Occupied deg F DB	Deg C DB	Unoccupied Deg F DB	Deg C
	Winter/Summer	Winter/Summer	Winter/Summer	Winter/Summer
Classroom	68-70/72-76	20-21/22-24	60-65/75+	15-18/23+
Hallways/Store	68/75+	20/23+	60/75+	15/23+

5. Actions

Observation and reporting

- 5.1 The first action in the program will be the occupant monitoring the space in which they work. This can involve seeing or smelling something unusual or objectionable, or extend to feelings of extreme drowsiness, headaches or vertigo. The action suggested will be to phone the Manager of Resource Conservation (939-9201) to log an observation. The date, time and source of the problem will assist the staff in identifying the source and the potential correction. Where a problem persists, the staff or teacher involved in the observation can use Form A, Indoor Environment Observation, which requires the following information:
- Receipt of observation
 - Preliminary investigation
 - Preliminary report
 - Incident research
 - Situation Assessment
 - Remedial Action
 - Follow-up

6. Priorities

- 6.1 In the event of unusual odors or particulates or smells, there is some urgency in determining the origin of the problem at once. The escape of gas or flammables, or smoke from combustion should be investigated at once. The presence of odorless tasteless gases, or the lack of oxygen are more often felt indirectly rather than directly, and those effects on the body are cause for serious investigation as well.
- 6.2 The detection of flammable gas or products of combustion will be cause for immediate and emergency investigation by the site personnel and by Facilities staff.
- 6.3 On receipt of a telephone or written observation, the Manager of Resource Conservation will record the observation in the IAQ Log and begin investigating. Based on the severity of the complaint, and magnitude, the Manager of Resource Conservation will attend to the site to determine the seriousness and degree of action required. As a minimum, the extent and cause of the deficiency will be determined.
- 6.4 Where the problem is the result of a temporary operating condition, an operational assessment will be made to determine if the facility can continue to be occupied or whether a temporary evacuation is necessary. For operational situations such as blocked filters or broken fan belts, a Rush Work Order will be instituted for the Maintenance Department.
- 6.5 For those situations where the situation is a result of improper design or habitual occurrence, the Manager will conduct baseline evaluations of IAQ

conditions. Temporary or data logging monitors will be provided if necessary to determine how urgently the changes are required.

- 6.6 Once the source of the problem has been identified, the Manager will determine the best way to achieve the required airflows and recommend remedial action to the Director of Facilities. The Manager of Resource Conservation is responsible for advising the occupants of the planned changes and for coordinating with the maintenance and procurement staff for the changes.
- 6.7 Any change made will require an evaluation of the changes through post-activity monitoring records and the subsequent report to the occupants/staff involved.
- 6.8 Where it is determined that no remedial action is required, the Manager will advise the school staff or Principal and the reasons for that determination.

7. Procedures

- 7.1 The receipt and analysis of IAQ complaints and observations will be documented to allow tracking of the complaints and the subsequent action.
- 7.2 The creation of an umbrella IAQ plan will be the responsibility of the Manager of Resource Conservation. The plan will be drafted and distributed each year by the end of September. The plan will call for an assessment of custodial actions and year-end activities in June of each year. Implementation of changes of a non-urgent nature are expected to occur in July and August of each year.
- 7.3 The September plan review will be the occasion for discussions with custodial staff and procurement on their roles in reduction of indoor pollutants.
- 7.4 Departments are welcome to suggest and assist in the ongoing assessment and remediation activities throughout the year. Suggestions should be forwarded to the Manager of Resource Conservation in the Facilities Department.

8. Appendices

- 1. Forms
 - A1 Indoor Environment Observation
 - A2 IAQ Log sheet
 - A3 PM HVAC Inspection Record
 - A4 IAQ Site Follow Up Test Data
- 2. Equipment
 - B1 YES Hand Held Sampler
 - B2 YES Datalogger
- 3. Standards
 - C1 WCB Chapter 4
 - C2 ASHRAE 68R
 - C3 CSA Z204-94 Guideline for Maintaining an HVAC System
- 4. Committees
 - Health and Safety Committee

9. Indoor Air Quality Procedures Summary

The indoor environment in SD43 is comprised of a large number of buildings constructed from 1910 to 1999. The systems for air movement heating and cooling provided over that period have gone through a large number of evolutions and changes. If the environment in a particular space becomes unsuitable for teaching, it is the staff member's responsibility to advise the Principal first.

- Observe The occupant detects something unusual, (sound, smell, taste, feeling) and determines that an observation should be made.
- Investigate The Principal will investigate the observation, and determine if it is temporary, or potentially ongoing, then whether it needs immediate action, further investigation by him/her, or technical investigation by more qualified staff.
- Record Forms are provided for written observations, and these are received and recorded by the Manager Resource Conservation, located in the Facilities Department. The Principal can forward the observation to the Manager of Resource Conservation, in writing or by fax/phone, for further investigation.
- Investigate The next step is to determine the cause of the problems, such as malfunctioning equipment, inoperative automatic or manual controls, temporary weather problems or central equipment failures. Manager Resource Conservation will respond to investigate the scope of the problem and conduct preliminary air sampling. This usually confirms the type of problem and magnitude of the problem. (inadequate air, poor filtration, high humidity, smells, dust, pollen, mildew)
- Report The Manager Resource Conservation reports back to the Principal the extent of the problem and source, so that the staff can be advised of the actual extent of the problem. Manager Resource Conservation then determines temporary technical solutions if necessary, and issues Work Requests to Maintenance to correct the problem.
- Corrections Where the problem cannot be corrected immediately, Manager Resource Conservation will investigate the causes and corrective options, and take responsibility for finding a technical solution, as well as providing the Principal with an estimate of the scope and time required to design and rectify the situation. Interim solutions will be discussed with the Principal to ensure there are no unacceptable risks to the health of teachers, students and staff. For complex large problems, the Manager Resource Conservation will engage a consultant to determine the risk and best course of action, so that the project can be inserted in the Capital Plan.
- Report The School Health and Safety Committee and the District Safety Officer shall be kept apprised of the status and progress of the investigation by the Principal.

Revised: June 2023

Reference: Section 65, 85, School Act

Workers' Compensation Board Regulation

ASHRAE Standard