An Environmental Scan of Indoor Air Quality Support Programs for Schools and Child Care Settings in Canada

April 2024

canadian partnership for children's health & environment
partenariat canadien pour la sante des enfants et l'environnement

Healthy Environments for Learning Day
Promoting healthy learning environments for children and youth

Canadian Environmental Law Association
EQUITY. JUSTICE. HEALTH.

This document was prepared as part of the 2024 Healthy Environments for Learning Day (HELD) campaign to improve indoor air quality in schools and child care settings in Canada.
Learn more: healthyenvironmentforkids.ca/held

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CPCHE acknowledges that our collective work takes place on Indigenous traditional territories that stretch from coast to coast to coast across Turtle Island. As organizations and individuals dedicated to environmental health, we are deeply grateful to Indigenous peoples for their ongoing stewardship of these lands since time immemorial. We recognize that we are on a journey of reconciliation and are committed to listening, learning and working to decolonize our collaborative efforts towards the goal of healthy and sustainable environments for all children.

April 2024

About Us

About CPCHE

The Canadian Partnership for Children's Health and Environment (CPCHE) is a national collaboration of organizations working together since 2001 to advance children's environmental health in Canada. CPCHE's partner and affiliate organizations have expertise in clinical and public health, environmental protection, law and policy, child care, education, disability advocacy, and health equity. CPCHE's aim is to increase awareness and catalyze action to ensure that all children in Canada have healthy environments in which to live, learn, play and grow. www.healthyenvironmentforkids.ca

About HELD

Healthy Environments for Learning Day (HELD) is a key initiative of CPCHE. HELD, formerly Healthy Schools Day, takes place each April in Canada and aims to raise awareness of and encourage action to prevent environmental health risks to children in early learning and school environments.
www.healthyenvironmentsforkids.ca/held

About CELA

The Canadian Environmental Law Association (CELA) is a non-profit, public interest organization established in 1970 to use existing laws to protect the environment and to advocate environmental law reforms. As a specialty clinic funded by Legal Aid Ontario, CELA'S primary focus is on assisting low-income people and disadvantaged communities. CELA is a founding partner in CPCHE and is serving as the lead CPCHE partner organization for the 2024 HELD campaign. www.cela.ca

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Executive Summary

This report presents the outcomes of an environmental scan conducted to assess Indoor Air Quality (IAQ) support programs for schools and child care settings in Canada. The scan encompassed:

- an analysis of federal, provincial, municipal, and Indigenous jurisdiction over IAQ in schools and child care settings; and
- a high-level environmental scan of governmental policy instruments and programs that address IAQ in schools and child care settings, including laws, regulations and guidelines; financial supports; and technical assistance.

The scan was commissioned by the **Canadian Partnership for Children's Health and Environment (CPCHE)** as part of its collaborative 2024 **Healthy Environments for Learning Day (HELD)** campaign to advance IAQ in schools and child care programs across Canada, and in the context of strong and expanding scientific evidence of the adverse effects of poor IAQ on the health and well-being of students, educators, and staff.[1]

Key insights that emerged from the environmental scan include:

- **Existing Policy Levers:** In Canada, there are several legal mechanisms and categories of laws that can be leveraged to tackle IAQ challenges in schools and child care settings. These include occupational health and safety statutes, public health laws, building codes, educational statutes, and human rights legislation. However, our scan revealed a significant underutilization of these mechanisms to develop downstream policy and support programs specifically tailored to these environments.

- **Lack of Specificity:** Although both federal and provincial governments in Canada have developed programs to assist in improving IAQ (e.g., issuing guidance documents and guidelines, providing funding and grants, offering technical support and outreach programs), the current program landscape primarily includes general IAQ guidance lacking specificity for educational and child care settings. Moreover, there is insufficient targeted funding for IAQ improvements in these environments. This lack of tailored guidance and funding may lead to overlooking critical nuances and unique challenges encountered in these settings. For instance, factors such as high occupancy rates, frequent use of disinfectants/sanitizers, and various indoor activities contribute to elevated indoor pollutant levels (e.g., science classes, pools, arts and crafts activities involving the use of paints, glues, and other materials that emit volatile organic compounds (VOCs) and other pollutants, etc.). Furthermore, the lack of specificity may inadvertently lead to schools and child care settings not being adequately informed or

engaged with these initiatives, as they may not receive targeted promotion or perceive them as relevant to their particular context.

- **Equity Issues:** The findings from the scan bring to light significant equity issues, particularly in relation to child care facilities and Indigenous communities. Our analysis reveals that the majority of funding streams allocated for IAQ enhancements are integrated into school budgets, effectively excluding most child care settings from accessing financial support. Furthermore, there is a notable absence of tailored guidance and programs for home-based child care. This disparity is likely to disproportionately affect home-based child care facilities, amplifying equity challenges for under-resourced and socio-economically marginalized individuals and communities who may be more reliant on these services due to their affordability and accessibility.

  Additionally, our scan revealed limited targeted initiatives for Indigenous communities. Despite federal jurisdiction over IAQ in schools and child care facilities on First Nation reserves, our findings highlight a dearth of tailored guidance documents, funding streams, or technical assistance programs for these settings. This gap is particularly concerning given the prevalent IAQ challenges faced by many on-reserve communities including aging infrastructure, inadequate ventilation systems, mould growth, and disproportionate exposure to harmful pollutants due to the enduring impacts of colonialism and historical underfunding of First Nations education.

To address these gaps and challenges, opportunities for improvement include enhancing program coverage with tailored guidance, establishing targeted funding streams and grants for IAQ improvements, expanding technical assistance and outreach programs, ensuring sustainable resource allocation, prioritizing equity considerations, and establishing clear communication channels (see Summary of Findings for more detail).

Children are at a heightened risk of harm due to poor indoor air quality compared to adults.

Here are some reasons why:

- Children's respiratory systems are still developing, making them more susceptible to the harmful effects of indoor pollutants, such as dust, mould, and chemicals.[2]
- Children breathe at a faster rate than adults, inhaling a greater volume of air relative to their body weight. This increased breathing rate exposes them to higher concentrations of indoor pollutants, exacerbating the potential for adverse health effects.[3]
- Children are often more active than adults, engaging in physical activities that lead to deeper and more frequent breathing. This increased activity can further enhance their exposure to indoor pollutants present in the air.
- Children spend a significant portion of their time indoors in schools and child care settings. Prolonged exposure to indoor pollutants in these environments heightens their risk of experiencing adverse health effects.[4,5]

Introduction

Indoor air quality (IAQ) plays a crucial role in the health and well-being of students, teachers, and staff in schools and child care settings across Canada.[6] Poor IAQ can lead to a range of health issues, including respiratory problems, allergies, and reduced cognitive function, with negative implications for academic performance and attendance rates.[7] Vulnerable communities and individuals, such as children from low-income families and those with respiratory conditions, are at a higher risk of experiencing IAQ-related health challenges.[8]

Despite the significant impact of inadequate IAQ on both health and academic outcomes of children, there remains an absence of comprehensive federal or provincial policy measures and investments to ensure healthy IAQ in educational settings. However, Canada's federal and provincial governments have initiated some supportive programs aimed at assisting schools and child care settings in enhancing IAQ. These measures include guidance materials, educational initiatives, technical support, and funding opportunities designed to aid educational institutions in assessing and improving IAQ conditions.

To bridge the gap between the extensive evidence highlighting the adverse effects of poor IAQ and the implementation of relevant policies and programs, the **Canadian Partnership for Children's Health and Environment (CPCHE)** and **Canadian Environmental Law Association (CELA)** commissioned an environmental scan of IAQ support programs in schools and child care settings across Canada. This project involved: (1) an analysis of federal, provincial, and municipal jurisdiction over IAQ in schools and child care settings, and; (2) a high-level environmental scan of downstream governmental policy instruments and programs that address IAQ in schools and child care settings.

This report presents the outcomes of that scan, including data gathered and organized on presently active and recurring IAQ support programs (e.g., guidance documents and guidelines, funding streams and grants, and technical and other assistance programs). The report concludes with a summary of identified gaps and opportunities.

A. Methods

To assess the landscape of IAQ support programs in schools and child care settings across Canada, CPCHE and CELA conducted an environmental scan consisting of two main components:

1. **Jurisdictional Analysis:** To better understand the law and policy levers that can be used to tackle IAQ issues in schools and child care settings, an analysis of federal, provincial/territorial, municipal, and Indigenous jurisdiction over IAQ in schools and child

care settings was conducted.**Environmental Scan of IAQ Support Programs:** To analyze IAQ support programs available to schools and child care settings in Canada, a scan of government websites for all 13 provinces and territories, as well as the federal government, was conducted. Programs meeting the following criteria were included: (a) applicable to or designed specifically for schools and child care settings, (b) focused on improving IAQ, (c) funded or endorsed by government entities, and (d) supported by relevant documentation or official announcements.

For each identified program, detailed information was collected, including the names and jurisdictions of the government department providing the programs; the IAQ issue/technology covered under the program; availability and nature of services; and the eligibility criteria for the program.

A descriptive analysis was carried out on program details to produce summary information on program types, categories, and eligibility criteria.

B. Results

The environmental scan revealed several active and recurring IAQ support programs across various jurisdictions in Canada. These programs encompassed a range of governmental initiatives aimed at enhancing IAQ conditions in schools and child care settings. The results are organized into the following categories:

1. **Guidance Documents and Guidelines:** Official guidance materials provided by federal and provincial/territorial authorities that aim to assist schools and child care settings in assessing and improving IAQ, including those specifically geared to educational settings.
2. **Funding Streams and Grants:** Financial assistance programs available to schools and child care settings for IAQ-related initiatives, including grants, subsidies, and other governmental funding opportunities.
3. **Technical and Other Assistance Programs:** Technical support services and other forms of assistance available to schools and child care settings to address IAQ challenges, such as IAQ monitoring programs, training workshops, consultation services, and access to specialized equipment.

The “Summary of Findings” section provides insights into the availability, accessibility, and effectiveness of these programs, while also examining existing gaps and challenges in the IAQ support landscape.

Appendix A contains a table of identified IAQ support programs.

Indoor Air Quality in Schools and Child Care Settings is a Growing Concern

In the wake of the COVID-19 pandemic, the importance of effective ventilation in indoor environments, particularly in schools and child care settings, has been brought to the forefront. Adequate ventilation plays a crucial role in mitigating the spread of infectious diseases and ensuring a healthy indoor environment.[9]

Additionally, the escalating impacts of climate change have intensified the urgency of maintaining healthy IAQ. In 2023, Canada witnessed its most severe wildfire season to date, prompting school boards nationwide to limit outdoor activities.[10] Wildfires emit harmful pollutants such as particulate matter and volatile organic compounds, which can infiltrate indoor spaces, compromising IAQ and leading to adverse health effects, including respiratory issues and exacerbation of conditions like asthma.[11] Similarly, climate change-induced flooding can cause water damage and mould growth within school and child care settings, further compromising IAQ and posing health risks.[12]

Unfortunately, if the IAQ in schools and child care programs is subpar, keeping children indoors may not effectively safeguard their well-being.

As experts warn that similar problems will only become more common in the coming years, it is imperative that governments and policymakers prioritize IAQ support programs specifically tailored for these settings. Investing in IAQ initiatives is essential to ensure the health and safety of children and staff in educational and child care settings amid increasing environmental and public health challenges.

Legal Framework

A. Jurisdiction Over Indoor Air Quality in Canada

In Canada, jurisdiction over IAQ issues in schools and child care settings is divided between federal, provincial/territorial, municipal, and Indigenous governments. Each level of government plays a role in regulating and ensuring the safety of indoor environments. This section provides an overview of how each level of governmental jurisdiction is delineated under Canada's *Constitution Act, 1867*.[13]

i. Federal Jurisdiction

Under the *Constitution Act*, the federal government holds authority over IAQ through various avenues. Firstly, it exercises its power over the criminal law, broadly interpreted to encompass safeguarding public health and the environment, allowing for the enactment of laws directly related to IAQ and its impact on public health and safety.[14] Additionally, the federal government has the mandate to regulate interprovincial works and undertakings, which extends to certain aspects of infrastructure affecting IAQ.

Regulation of IAQ in schools and child care settings on First Nations reserves also falls under federal jurisdiction. This authority is derived from section 91(24) of the *Constitution Act*, which grants legislative authority over matters concerning on-reserve housing, child care, and education.

Federal responsibilities related to IAQ are executed through various means. For example, Health Canada plays a crucial role in assessing health impacts and providing guidelines for IAQ. It conducts research on indoor air pollutants, develops IAQ guidelines (refer to Appendix A), and offers recommendations for maintaining healthy indoor environments in a variety of different settings. The Canadian Centre for Occupational Health and Safety provides resources and guidance on occupational health and safety, including IAQ concerns in educational and child care settings.

Federal influence over IAQ enhancements is also exercised through funding initiatives. For instance, federal grants or incentives may be extended to provinces, territories, or First Nations to facilitate infrastructure upgrades or IAQ improvement endeavours in educational institutions, as outlined in Appendix A.

ii. Provincial/Territorial Jurisdiction

Various sections of the *Constitution Act* allocate provincial powers relevant to IAQ.[15] Generally, provinces and territories have jurisdiction over IAQ matters and have developed laws or policies in areas such as provincial/territorial services (including schools, hospitals, and public health programs), employment/occupational health and safety, and the design and construction of new buildings (as well as major renovations of existing buildings). Essentially, provinces and territories have primary jurisdiction over health, education, and child care services, including the regulation of IAQ in schools and child care settings.

iii. Municipal Jurisdiction

Municipalities derive their powers from provincial/territorial legislatures, typically through Municipal Law Acts or City Charters. While education is primarily a provincial/territorial responsibility, municipalities are often tasked with the delivery, implementation, or enforcement of public services/standards, such as public health, building codes and permits, property maintenance standards, and land use planning and approvals. Consequently, local inspection and enforcement powers are directly relevant to IAQ in schools and child care settings (e.g., those related to public health or maintenance for existing buildings). Local inspectors often also possess the authority to issue orders to ensure compliance with applicable (provincial/territorial) laws and regulations, such as Building Codes, Fire Codes, or Public Health legislation.

iv. Indigenous Jurisdiction

Indigenous governments have authority over the delivery of programs and services to their communities, including on-reserve education and child care.[16]

As of the 2018/19 academic year, the majority of on-reserve schools fell under the jurisdiction of First Nations governments with federal funding agreements.[17] However, there were seven schools directly operated by the federal government during that same period.[18]

For those schools under the first category, First Nations own and operate the educational settings and are responsible for managing projects to renovate or build new settings.[19] While the Government of Canada provides funding to First Nations to support those endeavours, First Nations retain ownership and operational oversight.[20]

The federal government similarly provides funding for Indigenous early learning and child care programs on reserves.[21] However, these programs are designed, delivered and administered under the jurisdiction of First Nations, Métis and Inuit governments.[22]

Federal funding for First Nations schools is insufficient to address infrastructure issues related to poor IAQ, a fact starkly illuminated by the COVID-19 pandemic.

Historically, First Nations schools on reserve have been chronically under-funded and under-resourced.[23] Issues such as disrepair, lack of clean water and sanitation, and overcrowding have long plagued on-reserve schools. [24] The Ontario COVID-19 Science Advisory Table highlighted how the pandemic intensified these challenges, leading to serious challenges in terms of effectively tackling IAQ issues, particularly in rural and remote communities.[25] Specific concerns regarding school infrastructure identified included aging HVAC systems and inadequate ventilation, crucial for maintaining IAQ during outbreaks and colder months.

Despite funding efforts by the Government of Canada to aid in the "safe return to school" on-reserve post-COVID-19[26], criticisms persist. Organizations such as the Assembly of First Nations, for example, have voiced concerns that while these measures mark a step in the right direction, they fall short of addressing the longstanding infrastructure deficits faced by First Nations communities. [27]

Several Calls to Action (CTA) outlined in the report of the Truth and Reconciliation Commission of Canada highlight the urgency for change in federal education funding and policy. For example, CTA 8 calls upon the federal government to "eliminate the discrepancy in federal education funding for First Nations children being educated on reserves and those First Nations children being educated off reserves."[28]

Addressing the systemic issues related to infrastructure and IAQ requires more comprehensive and sustained funding efforts to ensure equitable access to safe and healthy learning environments for First Nations students.

B. Law and Policy Levers Related to Indoor Air Quality in Schools and Child Care Settings

The scope of federal and provincial/territorial legislation potentially applicable to IAQ in schools and child care settings is extensive, encompassing laws related to occupational health and safety, public health, building codes, education, and human rights. This section examines the diverse legal mechanisms and categories of laws that can be utilized to address IAQ concerns in these settings:[29]

i. Occupational Health and Safety Laws

Occupational health and safety laws aim to safeguard the health and well-being of workers, including those in schools and child care settings. These laws typically include provisions addressing IAQ standards, ventilation requirements, and the prevention of hazards like mould or chemical exposures (refer to Appendix B). Provincial/territorial occupational health and safety legislation commonly includes a "general duty clause," requiring employers to provide a safe and healthy workplace, thus making IAQ maintenance the responsibility of the employer. For instance, in Ontario, the *Occupational Health and Safety Act* (OHSA) mandates that employers take every reasonable precaution in the circumstances to safeguard workers from hazards, including poor IAQ.[30]

ii. Public Health Legislation

Public health laws may recognize IAQ as a public health concern, especially in environments like schools and child care settings where vulnerable populations such as children are present. These laws often empower health authorities to investigate and address IAQ issues. For instance, in British Columbia, the *Public Health Act* grants health officers the authority to issue orders to address health hazards, including those related to IAQ.[31] In Ontario, public health standards established under the *Health Protection and Promotion Act* require boards of health to collaborate on strategies to reduce exposures to health hazards and promote healthy environments by address such topics as indoor air pollutants.[32] A full summary of provincial/territorial public health legislation and how it is used to address IAQ issues in public settings, such as schools and child care facilities, was not included in this scan.

iii. Building Codes and Regulations

Provincial/territorial building codes and regulations may include requirements pertaining to IAQ, such as ventilation standards and guidelines for construction and renovation. For example, Ontario's *Building Code Act, 1992* establishes province-wide standards for constructing, demolishing, and maintaining buildings, including schools.[33] The *Building Code Act* addresses IAQ issues in two main aspects. Firstly, it establishes standards for Heating, Ventilating, and Air-Conditioning (HVAC) systems, requiring compliance with "good engineering practice" as defined in handbooks by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). Secondly, it mandates outdoor air supply rates and removal of indoor air contaminants to prevent their accumulation beyond limits set by the American Conference of Governmental Hygienists. Additionally, the Act specifies materials for air duct systems to be constructed from non-combustible materials.

Notably, the National Building Code, although not legally binding, serves as the model for provincial/territorial building codes and is currently undergoing a review that could lead to

higher ventilation standards.[34] This is an important policy lever, as it could influence future amendments to provincial/territorial codes.

iv. Education Legislation

Education laws and regulations may contain provisions concerning the health and safety of students and staff, including mandates for maintaining IAQ. While specifics may vary by province or territory, education authorities typically hold responsibility for ensuring safe and healthy environments in schools. For instance, on Prince Edward Island, the *Education Act* places obligations on school authorities to maintain safe and healthy environments in schools.[35] Under this legislation, teachers and principals are required to "attend to the health, comfort, and safety of the students." Addressing IAQ concerns falls within the scope of these responsibilities, and failure to do so may result in legal consequences, including potential liability for negligence.

v. Human Rights Legislation

Human rights laws may also be relevant, particularly if IAQ issues disproportionately affect groups protected under such legislation, such as individuals with disabilities or respiratory conditions. These laws ensure equitable treatment and may be invoked if IAQ problems result in discrimination or adverse impacts on protected groups.

Example: Human Rights Legislation, Multiple Chemical Sensitivities and IAQ

Individuals with Multiple Chemical Sensitivities (MCS) represent a specific group who are disproportionately affected by unhealthy IAQ conditions. MCS is a condition characterized by heightened sensitivity to various chemicals found in everyday environments, such as fragrances, cleaning products, and building materials.[36] For those with MCS, exposure to these substances can trigger debilitating symptoms, including headaches, nausea, respiratory issues, and cognitive impairments.[37] As of 2020, MCS was known to affect over 1.1 million people in Canada.[38]

Recognized as a disability by the Canadian Human Rights Commission in 2007, MCS entitles affected individuals to protection under human rights legislation.[39]

In conclusion, a variety of legal instruments—from occupational health and safety laws to building codes, and public health and human rights legislation—provide a framework for addressing IAQ issues in schools and child care settings across Canada.

Summary of Findings

A. Program Landscape Analysis

Despite significant legal authority at both federal and provincial/territorial levels to address IAQ issues in Canadian schools and child care settings, our environmental scan has revealed a deficiency in the utilization of these legal and policy mechanisms to develop downstream policy and support programs specifically tailored to these environments.

The current program landscape primarily includes general IAQ guidance lacking specificity for educational and child care settings, along with insufficient targeted funding for IAQ improvements in these environments. Notably, our scan did not identify any funding streams exclusively dedicated to IAQ enhancements in child care settings, including home-based child care.

i. Guidance Documents and Guidelines

The environmental scan uncovered only one federal guidance document specifically addressing IAQ in schools and child care settings, dating back twenty years.[40] General guidelines were identified on topics including radon, mould, Volatile Organic Compounds (VOCs), outdoor pollutants, ventilation, and overall IAQ. Furthermore, the federal government offers numerous general guidance documents on residential IAQ, covering a range of pollutants.[41]

Similarly, at the provincial/territorial level, the majority of provinces/territories (excluding Quebec) offer only generalized IAQ guidance. In contrast, Quebec stands out with five school-specific guidance documents, covering general IAQ, ventilation, mould, and pesticide application.

While federal and provincial/territorial governments provide broad IAQ guidance, the effectiveness of these measures in addressing the specific challenges faced by educational and child care institutions remains uncertain. The lack of tailored guidance may hinder effective implementation and lead to suboptimal IAQ management practices.

Refer to Appendix A for a full list of guidance documents and guidelines identified at the federal and provincial/territorial levels.

Quebec's Leading Approach to IAQ Guidance in Schools

Quebec stands out among Canadian provinces for its comprehensive approach to IAQ guidance specific to schools. The province has developed five distinct guidance documents, issued by both the Ministry of Education and the Ministry of Agriculture, Environment, and Natural Resources, aimed at addressing various aspects of IAQ management in educational settings. These include:

1. a guide to prevention and intervention for ensuring air quality in schools;
2. a maintenance guide for ventilation systems in schools, including information on responsibilities and good practices;
3. a guide to managing mould growth in schools;
4. a guide to good practices for managing natural ventilation in classrooms, and;
5. guidance on pesticide application in daycares and schools.[42]

In addition to these guidance documents, Quebec offers a systematic testing program for key IAQ indicators in school buildings. This program includes monitoring of carbon dioxide (CO2) levels, relative humidity, and temperature.[43]

ii. Funding Streams and Grants

Regarding funding streams and grants, our environmental scan unveiled minimal federal support specifically directed towards IAQ improvements in schools, with only one identified funding stream focused on ventilation enhancements.

At the provincial/territorial level, the majority of provinces/territories incorporate IAQ improvement funding into their annual school budget grants. However, these funds lack explicit earmarking for IAQ enhancements, requiring schools to prioritize such initiatives amidst competing budgetary demands.

Certain provinces, such as British Columbia and Nova Scotia, also offer funding streams incentivizing energy efficiency upgrades, which indirectly facilitate IAQ enhancements linked to energy-efficient HVAC systems. However, the availability of such funding remains contingent upon broader energy efficiency initiatives rather than specific IAQ priorities.

Notably, our scan revealed a notable absence of any identified funding streams or grants exclusively available for IAQ improvements in child care settings.

Refer to Appendix A for a full list of funding streams and grants identified at the federal and provincial/territorial levels.

iii. Technical Assistance and Outreach Programs

The provision of technical support and outreach programs dedicated to IAQ management appears to be sparse across the country. While some regions offer IAQ monitoring programs, such as those in Quebec and Newfoundland and Labrador, comprehensive technical assistance and educational outreach efforts targeting schools and child care settings are lacking.

Refer to Appendix A for a full list of technical assistance and outreach programs identified at the provincial/territorial levels.

B. Gaps and Challenges

Our environmental scan unveiled significant gaps and challenges in addressing IAQ concerns in schools and child care settings across Canada, highlighting deficiencies in program coverage, guidance, resource allocation, and equity considerations.

i. Program Coverage

Our scan identified three primary gaps in program coverage. Firstly, while numerous resources are available at federal and provincial/territorial levels offering general IAQ guidance, many lack specificity tailored to the unique needs of schools and child care settings. This oversight risks neglecting critical nuances and challenges specific to these environments. Moreover, due to this lack of specificity, schools and child care settings may unintentionally remain uninformed or disengaged from these initiatives, as they might not receive tailored promotion or recognize their relevance to their specific circumstances, possibly resulting in the underutilization of valuable resources and support.

Secondly, although many IAQ documents for schools and child care settings cover parameters like ventilation and mould, they often overlook other crucial IAQ issues such as radon. They often also fail to address challenges unique to educational settings (e.g., exposure to various pollutant sources from activities such as arts and crafts or science classes, frequent use of disinfectant/sanitizing chemicals, and concentrated diesel exhaust from school buses), leaving gaps in comprehensive IAQ management strategies.

Thirdly, while some IAQ support programs target schools, the vast majority of identified programs and funding streams are either inaccessible by or not tailored to child care settings, exacerbating disparities in IAQ management between these environments.

ii. Resource Allocation

The environmental scan also identified several significant gaps in the allocation of resources for IAQ management in schools and child care settings across Canada. These gaps pose challenges to achieving optimal indoor environmental quality and may disproportionately impact schools and child care settings in under-resourced and socio-economically marginalized communities.

First, as noted above, IAQ support funding at the provincial/territorial level is typically integrated into annual school budget grants. However, these funds lack explicit earmarking for IAQ enhancements, forcing schools to prioritize such initiatives amidst competing budgetary demands. This poses a significant challenge, especially for schools in rural and remote areas with limited budgets due to factors like lower student enrolment or a lack of external fundraising (e.g., from the local community). Such schools often grapple with resource constraints and aging infrastructure, exacerbating the difficulty of prioritizing IAQ initiatives within their budgets.

Second, there is a notable absence of identified funding streams or grants exclusively available for IAQ improvements in child care settings. This lack of dedicated funding undermines efforts to ensure healthy indoor environments for younger children, neglecting the unique IAQ challenges faced by child care settings (e.g., frequent use of disinfecting and sanitizing chemicals, unique susceptibility of infants and toddlers to indoor air pollutants, etc.).

Third, the provision of technical support and outreach programs dedicated to IAQ management in educational settings appears to be sparse across the country. This lack of support hinders the ability of schools and child care settings to effectively address IAQ concerns and implement recommended measures. Without adequate guidance and assistance, schools and child care settings may struggle to navigate complex IAQ issues.

Challenges in Navigating Complex IAQ Issues: An Example of "Best Practice" Guidance Not Reaching the Frontlines

In 2022, CPCHE and the Canadian Child Care Federation (CCCF), in collaboration with researchers at the University of Ottawa, conducted a national survey on health and sustainability within the child care sector.[44] A non-representative sample of 2000 child care professionals completed the survey. A concerning finding was that nearly one in twelve respondents (7%) reported the use of ozone air purifiers, devices Health Canada issued an interim order against in 2021 due to associated health risks.[45] Similarly alarming, 12% of respondents reported using "fogging" devices to disperse disinfecting chemicals into the air, a practice that can increase inhalation of such chemicals by children and staff, and that has not been shown to be effective at reducing COVID transmission.[46] This example underscores the

Fourth, ensuring sustained IAQ enhancements requires ongoing testing of IAQ, maintenance, and implementation of recommended measures, which can pose logistical and resource-related challenges for schools and child care settings. Limited resources may hinder a facility's ability to maintain IAQ improvements over time, further complicating efforts to achieve optimal indoor environmental quality.

Addressing these gaps in resource allocation is essential to promoting healthy indoor environments in schools and child care settings across Canada.

iii. Equity Issues

The findings from the scan bring to light significant equity issues, particularly in relation to child care settings and Indigenous communities.

To begin with, a notable concern arises from the exclusion of child care settings from current funding avenues and support initiatives. This is likely to disproportionately affect home-based child care settings, amplifying equity challenges for individuals and communities reliant on these services due to their affordability and accessibility.

Unlicenced home-based child care programs often operate outside the regulatory framework. For example, in Ontario licensed child care centres, licenced home child care agencies, and some licenced home-based child care locations undergo regular inspections by the Ministry of Education and are required to meet provincial standards set out under the *Child Care and Early Years Act, 2024*.[47] Unlicenced home-based child care programs, on the other hand, lack similar scrutiny and sources of support. This disparity underscores the urgent need for equitable access to healthy indoor environments for all children, irrespective of the setting.

Moreover, despite federal jurisdiction over IAQ in schools and child care settings on First Nation reserves, our scan found limited targeted guidance documents, funding streams, or technical assistance programs tailored for these settings. This gap is particularly concerning given the IAQ challenges faced by many on-reserve communities including aging infrastructure, inadequate ventilation systems, mould growth, and disproportionate exposure to harmful pollutants, in many cases due to the enduring impacts of colonialism and historical underfunding of First Nations education.

For example, a recent study in remote northwestern Ontario found that 21% of Indigenous children in four First Nations communities had been hospitalized for respiratory infections before reaching age 2, highlighting their heightened vulnerability to the adverse health effects of poor IAQ in schools and child care settings.[48] Elevated air pollutant levels in many homes further emphasize the necessity for targeted support, particularly when homes additionally serve as child care settings.[49]

Honouring Shannen's Dream: Addressing Indigenous School Infrastructure and Indoor Air Quality Challenges

Shannen's Dream, named in memory of Shannen Koostachin, is about "making sure that First Nations children and youth have the same education opportunities as others but in ways that respect their language and culture and takes into account that they may not be starting from the same place."[50] Originating from Attawapiskat, Shannen, her classmates, and their community campaigned for a new school for over three decades due to health issues stemming from a nearby diesel spill.[51] Despite Shannen's passing in 2010, her vision endured, culminating in the construction of a new school in 2014.[52] Shannen's Dream embodies her belief that every child deserves access to "safe and comfy schools."[53]

As noted above, aging infrastructure, Inadequate ventilation systems, mould growth, and exposure to harmful pollutants are common IAQ issues in schools and child care settings serving Indigenous communities. These problems can exacerbate respiratory illnesses, allergies, and other health issues among students and staff, hindering their ability to learn and work effectively.

Shannen's Dream underscores the urgent need for improved infrastructure and resources in Indigenous schools and child care settings, including measures to address IAQ concerns. Ensuring that these educational settings have safe and healthy indoor environments is essential for supporting the well-being and academic success of Indigenous children and communities.

C. Future Directions

Moving forward, it is imperative to address the identified gaps and challenges in IAQ support in Canadian schools and child care settings. To this end, several opportunities emerge from our findings:

1. **Enhanced Program Coverage:** To improve program coverage, there is a critical need for the development and dissemination of tailored IAQ guidance documents and guidelines specifically designed for educational and child care settings. These resources should address the unique challenges and requirements of schools and child care settings,

including source reduction, ventilation, mould remediation, pollutant sources, and exposure mitigation strategies. The standards should be set to reflect children's greater susceptibility to harm from air pollution. Where health-based IAQ guidelines exist, such as for radon, these should be actively promoted for implementation in educational settings. Collaboration between federal, provincial, and territorial governments, as well as educational stakeholders, health and IAQ experts, is essential to ensure comprehensive coverage.

2. **Targeted Funding Streams and Grants:** Efforts should be made to establish dedicated funding streams and grants exclusively aimed at IAQ improvements in both schools and child care settings (including home-based child care). These funding initiatives should prioritize projects that address IAQ concerns, such as ventilation upgrades, indoor pollutant reduction measures, and IAQ monitoring programs. Earmarking of funds for IAQ enhancements is crucial to ensure that schools and child care settings can prioritize IAQ initiatives without competing with other budgetary demands. Additionally, specific funding streams should be allocated for IAQ improvements in child care settings to address the current lack of targeted support in this area.

3. **Expanded Technical Assistance and Outreach Programs:** The provision of technical support and outreach programs dedicated to IAQ management should be expanded across the country, targeting various groups for support. These programs should offer educational resources, training sessions, and access to IAQ experts to assist schools and child care settings in implementing effective IAQ management strategies. Furthermore, IAQ monitoring programs should be established or expanded to facilitate ongoing assessment of IAQ and inform decision-making processes. These opportunities should also be extended to support agencies such as public health and child care agencies, so they in turn can better support schools and child care settings. Collaboration with local health authorities, environmental agencies, professional associations with relevant technical expertise, and educational associations can help enhance the effectiveness of these efforts.

4. **Sustainable Resource Allocation:** Efforts should be made to ensure sustainable resource allocation for IAQ management in schools and child care settings. This includes ongoing maintenance and implementation of recommended IAQ measures to sustain improvements over time. Adequate resources should be allocated to support the ongoing operation of IAQ initiatives and address any emerging IAQ challenges.

5. **Equity Considerations:** Equity considerations should be integrated into all aspects of IAQ support programs. Efforts should be made to address disparities in IAQ management between different types of child care settings, including home-based child care. Priority for funding and support should be given to under-resourced communities, communities facing environmental injustice (e.g., disproportionate exposure to polluting industries and transportation corridors), and First Nations, Inuit and Métis communities where IAQ

challenges may be particularly pronounced due to factors such as chronic underfunding, remote locations, and inadequate infrastructure.

6. **Communication Channels:** Clear and effective communication channels, established collaboratively with relevant sectors, are needed to ensure that guidance documents, funding streams and grants, as well as technical and other assistance, are readily accessible and understandable to all stakeholders. This is particularly important considering potential language barriers, especially for home-based child care. Governments should prioritize transparent and timely communication, and ensure that resources are distributed equitably to address IAQ concerns across all educational settings.

Learning from other jurisdictions:

US EPA - Creating Healthy Indoor Air Quality in Schools

The United States Environmental Protection Agency's (EPA) "Creating Healthy Indoor Air Quality in Schools" program offers an array of resources aimed at promoting healthy indoor environments in educational settings across the country.[54]

Central to the program is the provision of guidance documents and guidelines highlighting the importance of IAQ in schools and its impact on student health and academic performance. The IAQ Tools for Schools initiative, for example, offers a framework for IAQ management in schools, step-by-step guidance on assessing, addressing, and maintaining good IAQ, guidance on preventive measures, as well as instructional materials to support IAQ initiatives.

On-demand training webinars and resources to enhance understanding of IAQ benefits and best practices in schools. The School IAQ Assessment App includes a detailed walkthrough assessment checklist addressing critical building-related environmental health issues.

Belgium – Clean Indoor Air Law

Due to the expertise gained from the COVID-19 pandemic and a heightened understanding of the crucial role of good IAQ for health, Belgium implemented an IAQ law in November 2022.[55] The law encourages spaces to assess and improve air quality by measuring IAQ, conducting risk analyses, and implementing action plans.[56] The law introduces a certification and labeling system to inform the public about IAQ standards.[57] It establishes a platform for collaboration among relevant industries, authorities, and the scientific community to enhance IAQ knowledge and awareness.[58] Although not currently mandatory, future requirements will affect operators and owners, including those in schools and child care settings, necessitating the use of air

Conclusion

Our environmental scan sheds light on the critical importance of addressing IAQ concerns in Canadian schools and child care settings. Despite significant legal authority at federal and provincial/territorial levels, our findings expose a shortfall in leveraging these legal and policy mechanisms to formulate tailored downstream policies and support programs for these environments. Our research reveals a troubling absence of targeted support programs, insufficient allocation of resources, and a failure to integrate equity considerations into IAQ support initiatives.

The current program landscape primarily includes general IAQ guidance, lacking specificity for schools and child care settings, along with insufficient targeted funding for IAQ improvements. These gaps in program coverage leave schools and child care settings vulnerable to indoor air pollutants, jeopardizing the health and well-being of children, educators, and other staff.

Moreover, the absence of dedicated resources for child care settings exacerbates equity issues, particularly for under-resourced and socio-economically marginalized communities that may be more reliant on unlicensed and/or home-based child care services due to factors such as affordability and accessibility. Additionally, the lack of targeted initiatives for Indigenous communities is particularly troubling due to disproportionate IAQ challenges resulting from the ongoing impacts of colonialism including aging infrastructure and historical underfunding. This perpetuates health disparities and environmental injustices within these communities.

Moving forward, concerted efforts are needed to address the identified gaps and challenges in IAQ management. This includes the development of tailored guidance documents, establishment of targeted funding streams, expansion of technical assistance and outreach programs, and sustainable resource allocation. Equity considerations must be integrated into all aspects of IAQ initiatives to ensure that all children, regardless of their background or educational setting, have access to a safe and healthy indoor learning environment.

Ultimately, while guidelines and programs have a role to play in addressing IAQ issues in schools and child care settings, our scan highlights the pressing need for legally enforceable standards and requirements. Establishing clear and binding regulations would ensure accountability and consistency in IAQ management practices across educational settings.

Appendix A: Indoor Air Quality Programs

This appendix provides information on IAQ programs implemented at both the federal and provincial/territorial levels across Canada. The policies and programs outlined herein were identified through an environmental scan conducted in March 2024 according to the methodology outlined above (see "Introduction"). While extensive efforts were made to capture all relevant initiatives, it is possible that some may have been inadvertently overlooked. Furthermore, it's important to acknowledge that the search was conducted in English only, potentially limiting the inclusion of programs.

A.1 Federal Indoor Air Quality Programs

i. Guidance Documents and Guidelines

PROVIDER	DOCUMENT NAME	IAQ CATEGORY	DESCRIPTION	DATE PUBLISHED
Health Canada	Indoor Air Quality: Tools for Schools Action Kit for Canadian Schools	General IAQ (e.g. ventilation, radon, lead, mould, contaminants)	The IAQ Action Kit was developed as a tool to help school boards, principals and their management teams, and school employees understand and address IAQ problems. The kit provides information and activities that can be used to improve the indoor environment of schools, help prevent IAQ problems, and promptly resolve problems if they do arise. The kit is intended primarily for use by elementary and secondary schools, however its principles and activities can also benefit community colleges, universities, and preschool and daycare centres.	March 2003

PROVIDER	DOCUMENT NAME	IAQ CATEGORY	DESCRIPTION	DATE PUBLISHED
	Radon Guideline	Radon	The Canadian guideline for radon is 200 becquerels per cubic metre (Bq/m^3). In addition to residential homes, this guideline applies to public buildings and workplaces with an occupancy of more than 4 hours per day.	2009
	Radon – Reduction Guide for Canadians	Radon	Guidance on measuring the radon level in residential homes, dealing with contractors for radon reduction, reducing radon, preventing radon problems in new homes, and maintaining a radon-reduction system.	February 2023
	Guidance for Fine Particulate Matter (PM2.5) in Residential Indoor Air	Fine Particulate Matter	Guidance on indoor levels of PM2.5, including recommendation that levels should be kept as low as possible, as there is no apparent threshold for its health effects.	2012
	Indoor Air Reference Levels for Chronic Exposure to Volatile Organic Compounds	VOCs	This document provides indoor air reference levels (IARLs) for chronic exposure to volatile organic compounds (VOCs). IARLs are intended to supplement Health Canada's Residential Indoor Air Quality Guidelines (RIAQGs). This overview document provides a summary of IARLs for chronic exposure to VOCs that are current as of December 2016.	2018
	Ventilation and the Indoor Environment	Ventilation	This document describes air quality concepts and outlines the following basic elements of ventilation in Canadian houses:	2018

PROVIDER	DOCUMENT NAME	IAQ CATEGORY	DESCRIPTION	DATE PUBLISHED
			○ Strategies to maintain acceptable IAQ; ○ Natural ventilation, including house air leakage, and air pressures inside and outside the house; ○ Mechanical ventilation and the different available options, each with their benefits and drawbacks, including a description of related issues such as system maintenance, filter selection, and ventilation system controls; and ○ Factors affecting ventilation needs and efficiency in Canadian houses.	
	Protecting Your Indoor Air from Outdoor Pollutants	Outdoor pollutants	Infographic that describes strategies to reduce levels of pollutants indoors and reduce infiltration of outdoor pollutants.	2020
	Residential Indoor Air Quality Guidelines	Acetaldehyde, acrolein, carbon dioxide, carbon monoxide, formaldehyde, naphthalene, nitrogen dioxide, ozone, radon,	The Guidelines present recommended exposure limits for contaminants, i.e., the concentration below which health effects are unlikely to occur. The guidelines include long-term and short-term exposure limits.	2022

PROVIDER	DOCUMENT NAME	IAQ CATEGORY	DESCRIPTION	DATE PUBLISHED
		toluene, xylenes		
	Guide to addressing moisture and mould indoors	General Mould	General guidance on ways to identify, remediate, and prevent moisture and mould issues indoors. intended for the general public, including property owners, landlords and tenants, as well as public health and building professionals.	January 2023
National Research Council of Canada	Indoor Air Quality Guidelines and Standards (General)	General IAQ (e.g. ventilation, radon, lead, mould, contaminants)	This report summarizes some of the most well-established guidelines and standards relating to indoor air quality, including those that are used most frequently in North America.	2005

PROVIDER	DOCUMENT NAME	IAQ CATEGORY	DESCRIPTION	DATE PUBLISHED
Canadian Committee on Indoor Air Quality	Guide for Indoor Air Quality: Indoor Environment Quality (IEQ) and Productivity in Workplaces/Achievements in Schools	General IAQ (e.g. ventilation, radon, lead, mould, contaminants)	The purpose of this guide is to inform building designers, managers, operators, educational authorities, employers, occupants and visitors about indoor environmental quality (IEQ), in relation to well-being, students' achievement in educational settings, and workers' productivity.	2020
Canadian Centre for Occupational Health and Safety	Indoor Air Quality - General	General IAQ	General information on the importance of Indoor Air Quality (IAQ), the factors that affect it, how to deal with problems, and how to prevent them.	2022
	Indoor Air Quality – Moulds and Fungi (General)	Mould and Fungi (General, not specific to schools and child care settings)	General information on mould, how to deal with problems, and how to prevent them.	2021

ii. Funding Streams and Grants

PROVIDER	PROGRAM NAME	IAQ CATEGORY	DESCRIPTION	DEADLINES
Infrastructure Canada	Investing in Canada Infrastructure Program	Ventilation	The program offers funding to aid communities in mitigating air and water pollution, enhancing water quality, bolstering climate resilience, and fostering a clean-growth economy. Notably, it includes funding for ventilation enhancements in schools. Eligible expenses cover various measures such as retrofitting, repairing, and upgrading HVAC systems, prioritizing spaces lacking mechanical ventilation. Additionally, funds can be used for HVAC system maintenance, purchasing and installing mechanical ventilation filters, as well as acquiring standalone high-efficiency particulate air (HEPA) filter units and filters.	Territories have until **March 31, 2025**, to submit their projects.
Indigenous Services Canada	First Nations Enhanced Education Infrastructure Fund	General IAQ	Indigenous Services Canada (ISC) collaborates with First Nations to offer financial and advisory support for basic public infrastructure, including education facilities. Part of this program is the Enhanced Education Infrastructure Fund. Rather than requiring an application, funding is determined based on information provided in the mandatory annual First Nations Infrastructure Investment Plan. Proposed projects undergo assessment by ISC regional officials and are prioritized using the School Priority Ranking Framework. This framework considers factors such as the condition of existing facilities, overcrowding, accessibility to off-reserve schools, design, and opportunities for cost-efficiency.	To be eligible to receive funding, First Nations communities must submit their First Nations Infrastructure Investment Plan every year to their ISC regional office by **September 30.**

A.2 Provincial/Territorial Indoor Air Quality Programs

i. Guidance Documents and Guidelines

PROV/TERR	PROVIDER	DOCUMENT NAME	DESCRIPTION	DATE PUBLISHED
Alberta	Employment and Immigration	Indoor Air Quality Toolkit	Offers insights into typical IAQ issues and proposes practical solutions to common problems. While applicable to various workplaces, the Tool Kit is primarily designed for non-industrial settings, such as office buildings, meeting rooms, and basic kitchen or lunchroom environments, with limited chemical usage and cleaning activities. It may also be relevant to home-based businesses or very light industrial workplaces.	2009
	Alberta Health	Environmental Public Health Indoor Air Quality Manual: A Guide for Environmental Public Health Professionals	Describes a general framework and provides a menu of tools to empower Alberta Environmental Public Health professionals (EPHPs) in their investigations and management of IAQ matters. Includes a discussion Indoor Air Quality in schools.	2012
British Columbia	WorkSafe BC	Indoor Air Quality: A Guide for Building Owners, Managers, and Occupants	A guide on how to maintain good IAQ in buildings, prevent air quality problems, and correct problems that may arise. It also provides information on IAQ requirements in BC's Occupational Health and Safety Regulation.	2005
New Brunswick	WorkSafe NB	Air Quality	Includes guidance for employers about occupational health and safety requirements related to indoor air quality, including ventilation, temperature, relative humidity, and air contaminants.	2023

Quebec	Ministry of Education	Guide to prevention and intervention on air quality in schools	This guide aims to equip prevention and intervention teams, alongside staff and management in each commission school, with the necessary knowledge and skills to ensure good IAQ in the workplace. Objectives include understanding the importance of IAQ maintenance, detecting and addressing IAQ issues promptly, and developing effective intervention strategies. It also refers to a separate intervention guide for IAQ in health services and preschool childcare. Notably, the guide does not cover analytical methods for evaluating environmental contaminants due to the specialized expertise and resources required, which may not always be available at the school board level.	1996
		Maintenance guide for ventilation systems in schools: responsibilities and good practices	This guide focuses solely on maintenance aspects of ventilation systems in schools, rather than design or general IAQ considerations. It identifies legal obligations and consensus-based standards where applicable. Its primary aim is to serve as an efficient tool for building managers. Tables within the document offer varying levels of detail, catering to different levels of understanding, from basic notions to more in-depth information and references.	2006
		Guide to managing mould growth in schools	This guide provides information on the most relevant publications on the issue of mould proliferation. Beyond theory, it takes into account practical experience acquired in various schools in Quebec. Tables within the document offer varying levels of detail, catering to different levels of understanding, from basic notions to more in-depth information and references.	2014
		Guide to good practices for managing natural ventilation in classrooms	This guide was written to provide additional information to managers and occupants of school buildings on natural ventilation in classrooms. It presents, among other things, the mechanisms at work in natural ventilation as well as the best	November 2022

			practices to follow to ensure good natural ventilation in school buildings.	
	Ministry of Agriculture, Environment and Natural Resources	Pesticide Application in Daycares and Schools	General guidance on pesticide use and application in child care settings and schools.	2023
Saskatchewan	Ministry of Health	Indoor Air Quality and Ventilation (General)	General guidance on ways to improve indoor ventilation.	N/A
	WorkSafe Saskatchewan	Indoor Air Quality: Investigating Concerns	This guide is intended to assist workplaces in investigating and resolving common indoor air quality concerns. It is intended for workplaces such as offices, schools and retail outlets. It is not intended for home-based businesses, manufacturing or other industrial workplaces	August 2023
Nunavut	Department of Health	Indoor Air Quality (General)	General guidance on ways to improve indoor ventilation.	N/A

ii. Funding Streams and Grants

PROV/TERR	PROVIDER	PROGRAM NAME	IAQ CATEGORY	DESCRIPTION	AMOUNT OF FUNDING AVAILABLE	DEADLINES

British Columbia	Ministry of Education and Child Care	Annual Facility Grant (AFG)	Ventilation	AFG is part of the Asset Rehabilitation and Maintenance suite of funding programs. AFG funding is provided to boards of education to be used at their discretion to address repair and maintenance priorities at schools. Eligible expenditures cover HVAC upgrades (improvements, replacements or provision of heating, ventilation, and air conditioning systems), among other categories.	Grant amounts calculated based on student enrolment, average age of settings, and geographic factors.	N/A
		Carbon Neutral Capital Program (CNCP)	IAQ projects linked to energy-efficiency (e.g. HVAC upgrades)	The CNCP is a program which is available to provide specific funding to energy-efficiency projects that lower the school districts carbon emissions.	N/A	N/A
		School Enhancement Program (SEP)	Ventilation and Other Issues Affecting Safety	The School Enhancement Program aims to help school districts extend the life of their settings through a wide range of improvement projects, including HVAC upgrades (i.e., heating, ventilation, air conditioning). Projects are selected based on addressing safety and functionality issues, significance to the district (e.g., rural schools with limited alternatives), and positive benefits over costs. Selection criteria	N/A	N/A

				emphasize need, priority, and support for student learning and safety.		
Nova Scotia	Department of Education and Early Childhood Development	School Capital Repair Plan	IAQ projects linked to energy-efficiency (e.g. HVAC upgrades)	Supports renovations enhancing the learning environment for students and teaching conditions for educators. Projects encompass energy efficiency enhancements, elevator upgrades, window replacements, and repairs to walls, foundations, roofs, and doors. Additionally, improvements to parking, transportation flow, and both interior and exterior repairs are included. This funding supports 26 projects across all seven regional education centers and the Conseil scolaire acadien provincial.	N/A	N/A
Ontario	Ministry of Education	School Condition Improvement (SCI) Fund	Ventilation	Allows school boards to rejuvenate aging building components surpassing or nearing their useful life cycle, identified through the ministry's School Facility Condition Assessment Program. Projects must align with the goal of addressing facility renewal needs, either assessed or proactive. Funding prioritizes major building components and systems, with 70% directed towards foundations, roofs, and systems like plumbing and HVAC. The remaining 30% can address interiors or site components. Unspent funds carry forward, following a "70/30" rule, and must be depreciable expenditures	$1,070 million	2023-2024 school year

				reported in the ministry's renewal database, with payments made twice a year.		
		School Renewal Allocation (SRA)	Ventilation	Allows school boards to revitalize and renew aged building systems and components. This includes roof replacement and replacing of aged HVAC systems. SRA funding also allows school boards to undertake capital improvements (e.g., add new ventilation systems to increase fresh air intake). The ministry encourages school boards to prioritize SRA expenditures to address facility condition, ventilation, health and safety, general code requirements and accessibility.	$375 million	2023-2024 school year (All new SCI and SRA allocations will expire in approximately 2.5 years with your 23-24 school year funds expiring **March 31, 2026**. All existing SCI and SRA funds available from prior school years will expire **March 31, 2027**.)
		School Operations Allocation (SOA)		Enables school boards to cover operating expenses for school settings, such as heating, lighting, maintenance, and cleaning. Updates for the 2023-24 school year include continued funding to	$2.3 billion	2023-2024 school year

				optimize ventilation in schools. This involves running ventilation systems longer, installing higher-grade filters, and replacing filters more frequently. The estimated allocation for ventilation optimization is approximately $29.5 million for the school year. Previously provided as temporary PPF funding to address COVID-19 pandemic impacts, this funding is now embedded within the allocation.		
Yukon	Department of Highways and Public Works/Department of Education	N/A	General IAQ	The Department of Highways and Public Works in collaboration with the Department of Education operate and maintain all schools in the territory. If modifications or upgrades were required, the expenditures would be through the budgets in those departments.[60]	N/A	N/A

iii. Technical and Other Assistance

PROV/TERR	PROVIDER	PROGRAM NAME	PROGRAM DESCRIPTION	PROGRAM ELIGIBILITY CRITERIA
Newfoundland and Labrador	Department of Digital Government	N/A	Environmental Health Officers (EHOs) conduct routine inspections of schools and child care settings, supported by the Department of Health and Community Services. Inspections	N/A

	and Service NL		cover indoor air quality concerns, including vehicle idling near entrances, moisture issues, strong-smelling cleaning agents, odour sources, exterior paint or roofing odours, temperature/humidity, dust accumulation, VOC emissions from various sources, carpet odours, exhaust fan functionality, and allergens.[61] However, the Department of Health and Community Services doesn't provide funding, guidance, or programs for improving indoor air quality in these settings.	
Ontario	Ministry of Education	School Condition Assessment Program	Facility assessments for schools will be conducted province-wide by teams consisting of two engineers, one specializing in building design and construction, and the other in building systems. Pilot assessments will precede the official launch for smooth implementation and consistency. Assessments will cover education settings at least eight years old with a full assessment, while those five to seven years old will receive a reduced assessment. Ventilation review will focus on HVAC systems, assessing capabilities, conditions, and providing cost estimates for upgrades. School boards will provide ventilation-related information for review during assessments to generate reports aimed at enhancing ventilation and air quality.	All K-12 schools, adult education settings, and outdoor education centres will undergo a facility condition assessment every five years. Additionally, one administrative building per cycle, including board offices and maintenance settings, will be assessed. Short-term leases under nine years won't qualify for assessment. Only settings expected to operate for the next five years will be assessed, excluding those not utilized for programming. Approval is required for assessing out-of-scope facilities.
Quebec	Ministère de l'Éducation/	Air Quality Testing Program for	A systematic testing program for the following three air quality indicators in school buildings: CO2 levels, relative humidity and temperature.	The sensors are being installed in accordance with the established priorities:

	Ministère de la Santé et des Services sociaux	School Buildings		Priority 1: Schools where CO2 concentrations over 2 000 ppm have been observed Priority 2: Schools where CO2 concentrations over 1 500 ppm have been observed Priority 3: Schools with natural ventilation Priority 4: Schools with mechanical ventilation
Saskatchewan	Ministry of Education	N/A	The Ministry of Education does not have specific resources related to air quality; however, all regulated settings are required to complete an annual health inspection. Public health would follow up on any concerns regarding air quality.[62]	N/A
Northwest Territories	Department of Health and Social Services	N/A	The Environmental Health Unit provides a technical and supportive role in the territories to improve indoor air quality. The Department offers no direct funding or outreach program. It will be up to individual schools, school boards or the Department of Education, Culture and Employment to set standards for indoor air quality for schools and provide the necessary support.[63]	N/A

Appendix B: Select Legislation Related to Indoor Air Quality in Schools and Child Care Settings

This appendix provides information on select laws and regulations implemented at federal and provincial/territorial levels across Canada that are potentially relevant to IAQ in schools and child care settings. As noted in section B (ii) of this report, provincial/territorial public health legislation empowers public health authorities to investigate health hazards, which can include indoor air quality in public settings. A detailed analysis of potentially relevant provisions in public health legislation, as well as in education and child care acts, was outside the scope of this environmental scan.

B.1 Occupational Health and Safety Laws

PROV/TERR	LEGISLATION	PROVISION
Alberta	Occupational Health and Safety Act, SA 2020, c O-2.2	General Duty Clause Section 3 requires employers to "ensure, as far as it is reasonably practicable for the employer to do so, the health, safety and welfare of workers engaged in the work of that employer"

British Columbia	Workers Compensation Act, RSBC 2019, c 1	General Duty Clause Section 21 requires employers to “ensure the health and safety of all workers working for that employer, and any other workers present at a workplace at which that employer's work is being carried out.”
	Occupational Health and Safety Regulation, BC Reg 296/97	General IAQ Doesn’t prescribe specific IAQ standards but section 4.79(1) requires the employer to ensure that the IAQ is investigated when: complaints are reported; occupancy in the space changes substantially; or renovations involving significant changes to the ventilation system occur Under section 4.79(2), the air quality investigation must include: assessment of the ventilation rate, unless the indoor carbon dioxide level is less than 650 ppm above ambient outdoor levels; inspection of the ventilation system as required in section 4.78(2) of the Reg.; sampling for airborne contaminants suspected to be present in concentrations associated with the reported complaints; and a record of the complaint, the findings of the investigation, and any actions taken Ventilation Requirements Under section 4.72, employers must ensure that a ventilation system for the supply and distribution of air and removal of indoor air contaminants is designed, constructed and operated in accordance with: established engineering principles; and ASHRAE 62-1989, Ventilation for Acceptable Indoor Air Quality, including with regard to outdoor air supply contained in Table 2 of the standard Under section 4.75, the ventilation system must be balanced to: ensure that each space within the building receives an adequate allotment of outdoor air; and accommodate the actual or the normally anticipated occupancy of each space Under section 4.76(1), a ventilation system must not be obstructed by material or equipment placed in front of the ventilation air intakes or discharge points.

		Under section 4.76(2), outdoor air intakes must be located so that outdoor air entering the ventilation system doesn't contain any contaminant in a concentration greater than normal outdoor ambient air in that locality. Under section 4.77, a ventilation system that discharges air from the work area must be designed to minimize the likelihood of exposing any worker at a workplace, including an adjacent workplace: to an air contaminant in a concentration exceeding either 10% of its applicable OEL, or an acceptable ambient air quality standard established by an authority having jurisdiction over environmental air standards, whichever is greater; and where practicable, to an objectionable odour Under section 4.78, the employer or owner of the ventilation system that's responsible for system maintenance must establish an effective preventive maintenance program that includes: regular inspections of all critical components of the ventilation system, such as dampers, fans, belts, baffles, ductwork, diffusers and control systems, and for conditions that would promote the growth of micro-organisms, such as water leaks or stagnant water pools; correction of any deficiencies found during the inspection; repair or replacement of malfunctioning and consumable components, such as filters and belts, and the cleaning of air distribution systems, ducts and dampers when necessary to correct an IAQ deficiency; adequate treatment of open water systems associated with ventilation equipment such as cooling towers and humidifiers, to control biological growth; and maintenance of combustion sources, such as furnaces, space heaters and water heaters to assure proper burning and exhausting of waste gases to prevent recirculation of gases to the workplace

Manitoba	The Workplace Safety and Health Act, CCSM c W210	General Duty Clause Section 4(1) requires an employer to ensure, so far as reasonably practicable, the health, safety and welfare at work of all his workers.
	Workplace Safety and Health Regulation, Man Reg 217/2006	General IAQ Section 4.1 requires that an employer, as much as is reasonably practicable, ensure that: a workplace has appropriate air quality and is adequately ventilated; and contaminants and impurities are prevented from accumulating in the air at a workplace Ventilation Requirements Under section 4.2, the employer or owner that provides a mechanical ventilation system at a workplace must ensure that: it's designed and installed in accordance with the requirements of the Manitoba Building Code, Manitoba Regulation 31/2011, and any applicable standard, code or municipal by-law; it provides sufficient amounts of air to replace the air it exhausts from the workplace; and its ventilation openings are kept free of obstructions and sources of contamination Under section 4.2, the employer and owner must also ensure that any mechanical ventilation system designed to recirculate air in the workplace removes particulate and gaseous contaminants through an air cleaning system that's designed, installed and maintained to protect workers' safety and health. Under section 4.2(c), the employer or owner that provides a mechanical ventilation system at a workplace must ensure that it, and any associated humidification equipment, is inspected and maintained by a competent person at a frequency that's sufficient to protect the safety and health of workers, and

		minimize the growth of biological contaminants and their dissemination through the system
New Brunswick	Occupational Health and Safety Act, SNB 1983, c O-0.2	General Duty Clause Section 9(1) requires employers to take every reasonable precaution to ensure the health and safety of its employees.
	General Regulation, NB Reg 91-191	General IAQ Under sections 20(1) and (2), the employer must ensure that a place of employment is adequately ventilated by either: natural ventilation which introduces outside air provided by openings having a combined area equal to at least 5% of the floor area; or mechanical ventilation that meets ASHRAE 62-1989, *Ventilation for Acceptable Indoor Air Quality*, including the supply rates of required outside air; but if there is no specified rate, the employer must ensure that a minimum of 8 litres/second/person of outside air is introduced Under section 20(3), the employer must ensure that a ventilation system prevents the return of exhausted air through the outside air intake. Under section 20(4), the employer must also ensure that exhausted air is replaced by air that: doesn't constitute a hazard to the health of employees; doesn't contain air contaminants in concentrations above 10% of the threshold limit values; is heated, when necessary, to maintain the required minimum temperature specified in section 21 of the Reg.; and is properly distributed so as not to cause undue drafts or disturbance of conditions
Newfoundland and Labrador	Occupational Health and Safety Act, RSNL 1990, c O-3	General Duty Clause Section 5 requires employers to "where it is reasonably practicable, provide and maintain a workplace and the necessary equipment, systems and tools that are safe and without risk to the health of the employer's workers"

	Occupational Health and Safety Regulations, 2012, NLR 5/12	General IAQ Section 45(1) requires employers follow ASHRAE and ACGIH standards to ensure that: there's appropriate circulation of clean and wholesome air; there's adequate ventilation; and impurities are made harmless and inoffensive Ventilation Requirements Under section 45(9)(d), the employer, contractor or owner must ensure that the mechanical ventilation system, including humidification equipment, is constructed and maintained to minimize the growth and dissemination of micro-organisms, insects and mites through the ventilation system, and (where reasonably practicable, is readily accessible for cleaning and inspection
Nova Scotia	Occupational Health and Safety Act, SNS 1996, c 7	General Duty Clause Section 13 requires employers to take every precaution that is reasonable in the circumstances to ensure the health and safety of persons at or near the workplace.
	Occupational Safety Regulations, NS Reg 44/99	General IAQ Section 15(a) requires employers to provide for a supply of fresh air into, and the removal of air from, a workplace or part of a workplace, so far as is reasonably practicable, sufficient to: keep the air reasonably pure, and render harmless all gases, vapours, dust or other impurities that are likely to endanger the health or safety of any person therein Ventilation Requirements Under section 15(c), the employer must ensure that all ventilation systems used for controlling the dissemination of gases, vapours, dust or other impurities, including their collection systems and emptying processes, are designed, installed, operated, maintained and repaired in an adequate manner by a competent person. Under section 15(c), the employer must ensure that all ventilation systems used for controlling the dissemination of gases, vapours, dust or other impurities, including their

		collection systems and emptying processes, are designed, installed, operated, maintained and repaired in an adequate manner by a competent person.
Ontario	Occupational Health and Safety Act, RSO 1990, c O.1	General Duty Clause Section 25(1) requires an employer to "take every precaution reasonable in the circumstances for the protection of a worker".
Prince Edward Island	Occupational Health and Safety Act, RSPEI 1988, c O-1.01	General Duty Clause Section 12 requires employers to ensure that "every reasonable precaution is taken to ensure the health and safety of persons at or near the workplace."
	Occupational Health and Safety Act General Regulations, PEI Reg EC180/87	General IAQ Section 11.1 requires the employer to ensure that the workplace is adequately ventilated by either natural or mechanical means so that the atmosphere doesn't endanger the health and safety of employees under normal working conditions. Ventilation Requirements Under section 11.4, the employer must ensure that all parts of ventilation systems are maintained and cleaned, and that ventilation openings are always free of any obstruction or source of contamination. Under section 11.7, the employer must ensure that the workplace is adequately ventilated by either:

		natural ventilation provided by windows, shutters or louvres which can be opened, having a combined area equal to at least 5% of the floor area; or mechanical ventilation, where the minimum amount of outside air introduced into any room is at least 0.45 m'/min. (15 c.f.m.) per person Under section 11.8, the employer must also ensure that the discharge of air from any exhaust system is in such a manner as to prevent the return of contaminants to any workplace.
Quebec	Act respecting occupational health and safety, CQLR c S-2.1	General Rights Section 9 provides that "every worker has a right to working conditions that have proper regard for his health, safety and physical and mental well-being."
Saskatchewan	The Saskatchewan Employment Act, SS 2013, c S-15.1	General Duty Clause Section 3-8 requires every employer to "ensure, insofar as is reasonably practicable, the health, safety and welfare at work of all of the employer's workers."
	Occupational Health and Safety Regulations, RRS c S-15.1 Reg 10	Ventilation Requirements Section 65 requires the employer, contractor or owner to: ensure the adequate ventilation of a place of employment; and to the extent reasonably practicable, render harmless and inoffensive, and prevent the accumulation of, any contaminants or impurities in the air by providing an adequate supply of clean and wholesome air and maintaining its circulation throughout the place of employment Section 67(1) requires an employer, contractor or owner must ensure that: the mechanical ventilation system, including any humidification equipment, is constructed and maintained to minimize the growth and dissemination of micro-organisms, insects and mites through the ventilation system; and where reasonably practicable, the components of a mechanical ventilation system are readily accessible for cleaning and inspection

		Section 67(2) requires the employer, contractor or owner must ensure that a competent person inspects and maintains all parts of a mechanical ventilation system, cleans all louvres and replaces or adequately cleans all filters at a frequency that is sufficient to protect the health and safety of the workers. Under section 67(3), the employer, contractor or owner must keep all ventilation openings free of any obstruction or source of contamination.
Northwest Territories and Nunavut	Safety Act, RSNWT (Nu) 1988, c S-1	General Duty Clause Section 4 requires every employer to "(a) maintain his or her establishment in such a manner that the health and safety of persons in the establishment are not likely to be endangered; and (b) take all reasonable precautions and adopt and carry out all reasonable techniques and procedures to ensure the health and safety of every person in his or her establishment."
	Occupation Health and Safety Regulations, Nu Reg 003-2016	Section 68 requires the employer to: ensure the adequate ventilation of a work site; and to the extent reasonably possible, render harmless, and prevent the accumulation of, any contaminants or impurities in the air by providing an adequate supply of clean and wholesome air and maintaining its circulation throughout the work site. Under section 71(1), an employer must ensure that: the mechanical ventilation system, including any humidifying equipment, is constructed and maintained to minimize the growth and dissemination of micro-organisms, insects and mites through the ventilation system; and if reasonably possible, the components of a mechanical ventilation system are readily accessible for cleaning and inspection. Under section 71(2), the employer must ensure that a competent person inspects and maintains all parts of a mechanical ventilation system, cleans all louvres and replaces or adequately cleans all filters at intervals sufficient to ensure the effective operation of the system. Under section 71(2), the employer must keep all ventilation openings free of any obstructions and sources of contamination.

Yukon	Workers' Safety and Compensation Act, SY 2021, c 11	General Duty Clause Section 27 requires every employer to, "as far as is reasonably practicable, ensure that the workplace, equipment, work techniques, procedures and systems under the employer's control ensure the health and safety of its workers."

B.2 Public Health Laws

PROV/TERR	LEGISLATION	PROVISION
British Columbia	*Public Health Act*, SBC 2008, Ch 28	Part 4, Division 4 includes powers to make orders respecting health hazards and contraventions
Alberta	*Public Health Act*, RSA 2000 c P-37	Part 4 includes order-making powers
Saskatchewan	*The Public Health Act, 1994,* SS 1994, c P-37.1	Part 3, sections 25-26 are order-making powers.

Manitoba	*The Public Health Act*, CCSM, c P210	Part 3, sections 24-29 are order-making powers
Ontario	*Health Protection and Promotion Act*, RSO 1990, c H7	Part 3, section 13 is order-making power
Quebec	*Public Health Act*, ch S-2.2	Section 106 is order-making power
Nova Scotia	*Health Protection Act*, SNS 2004, c 4	Part 1, Sections 20-21 are order-making powers
New Brunswick	*Public Health Act*, SNB 1998, c P-22.4	Part II, section 6
Prince Edward Island	*Public Health Act*, RSPEI 1988, c P-30.1	Part II, section 24

Newfoundland	*Public Health Protection and Promotion Act*, SNL2018, ch P-37.3	Part VII, section 38
Nunavut	*Public Health Act*, SNu 2016, c 13	Part 8, section 59
Northwest Territories	*Public Health Act*, SNWT 2007, c17	Part 2, section 11
Yukon	*Public Health and Safety Act*, RSY 2022, c 176	Section 17

B.3 Education and Child Care Laws

PROV/TERR	LEGISLATION	PROVISION
British Columbia	*School Act*, RSBC 1996, ch 412 *Child Care BC Act*, SBC 2001, Ch 4	*Potentially relevant provisions not analyzed*
Alberta	*Education Act*, SA 2012, c E-0.3 *Early Learning and Child Care Act*, SA 2007, c E-0.1	*Potentially relevant provisions not analyzed*
Saskatchewan	*The Education Act, 1995*, SS 1995, c E-0.2 *The Child Care Act*, SS 2014, c C-7.31	*Potentially relevant provisions not analyzed*
Manitoba	*The Public Schools Act*, CCSM c P250 *The Early Learning and Child Care Act*, SM 2021, c 41	*Potentially relevant provisions not analyzed*

Ontario	*Education Act*, RSO 1990, c E.2 *Child Care and Early Years Act, 2014*, SO 2014, c 11, Sched 1	*Potentially relevant provisions not analyzed*
Quebec	*Education Act*, CQLR, ch I-13.3 *Educational Childcare Act*, CQLR, ch S-4.1.1	*Potentially relevant provisions not analyzed*
Nova Scotia	*Education Act*, SNS 2018, c 1, Sch A *Early Learning and Child Care Act*, RSNS 1989, c 120	*Potentially relevant provisions not analyzed*
New Brunswick	*Education Act*, SNB 1997, c E-1.12 *Early Childhood Services Act*, SNB 2010, c E-0.5	*Potentially relevant provisions not analyzed*
Prince Edward Island	*Education Act*, RSPEI 1988, c E-0.2 *Early Learning and Child Care Act*, RSPEI 1988, c E-0.1	*Potentially relevant provisions not analyzed*

Newfoundland	*Schools Act, 1997*, SNL 1997, ch S-12.2 *Child Care Act,* SNL 2014, ch C-11.01	*Potentially relevant provisions not analyzed*
Nunavut	*Education Act*, SNu 2008, c 15 *Child Day Care Act*, RSNWT (Nu) 1988, c C-5	*Potentially relevant provisions not analyzed*
Northwest Territories	*Education Act,* SNWT 1995, c 28 *Child Day Care Act,* RSNWT 1988, c C-5	*Potentially relevant provisions not analyzed*
Yukon	*Education Act*, RSY 2002, c 61 *Child Care Act,* RSY 2002, c 30	*Potentially relevant provisions not analyzed*

B.4 Pesticide Laws

FED/PROV/TERR	LEGISLATION	PROVISION
Federal	Pest Control Products Act, SC 2002, c 28	Under the authority of the Pest Control Products Act (PCPA), the Pest Management Regulatory Agency registers pest control products to be used, sold, manufactured, stored or imported into Canada. These registered products cannot be used contrary to the regulations under the PCPA or the directions on the label.
Quebec	Pesticides Management Code, p 9.3, r 1	It is prohibited to use almost all pesticides inside and outside pre-schools, primary schools, secondary schools, elementary, secondary schools, child care centres, day care centres, and home child care residences, and specific rules must be observed when using authorized pesticides.

B.5 Smoking and Vaping Laws

PROV/TERR	LEGISLATION	PROVISION
Alberta	Tobacco and Smoking Reduction Act, SA 2005, c T-3.8	Section 3 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.

British Columbia	Tobacco and Vapour Products Control Act, RSBC 1996, c 451	Section 2.2 prohibits persons from smoking or vaping in schools.
Manitoba	Non-Smokers Health Protection and Vapour Products Act, CCSM c N92	Section 2 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.
New Brunswick	Smoke-Free Places Act, RSNB 2011, c 222	Section 3 prohibits persons from smoking or vaping in schools.
Newfoundland and Labrador	Smoke-Free Environment Act, SNL 2005, c S-16.2	Section 4 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.
Nova Scotia	Smoke-Free Places Act, SNS 2002, c 12	Section 5 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.
Ontario	Smoke-Free Ontario Act, SO 2017, c 26, Sch 3	Section 12 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.

Prince Edward Island	Smoke-Free Places Act, RSPEI 1988, c S-4.2	Section 4 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.
Quebec	Tobacco Control Act, CQLR c L-6.2	Section 2.1 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.
Saskatchewan	The Tobacco and Vapour Products Control Act, SS 2001, c T-14.1	Section 11 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.
Northwest Territories	Smoking Control and Reduction Act, SNWT 2019, c 29	Section 3 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.
Nunavut	Tobacco Control and Smoke-Free Places Act, SNu 2003, c 13	Section 14 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.
Yukon	Smoke-Free Places Act, SY 2008, c 8	Section 4 prohibits persons from smoking or vaping in schools and child care centres, including licensed private home child care.

B.6 Other Relevant Federal Laws

LEGISLATION	RELEVANCE
Canadian Environmental Protection Act, 1999, SC 1999, c 33	In June 2023, Bill S-5, the *Strengthening Environmental Protection for a Healthier Canada Act*, established the "right to a healthy environment" within the *Canadian Environmental Protection Act, 1999* (CEPA). This has potential implications for improving IAQ in schools and child care settings.[64] CEPA, Canada's primary environmental protection legislation, mandates the assessment of substances to mitigate risks to both the environment and human health. Health Canada, under CEPA, conducts health risk assessments for indoor air contaminants and develops Residential Indoor Air Quality Guidelines (RIAQG), influencing IAQ standards, guidance, and support programs set by provincial and territorial governments. Currently, the Government of Canada is developing an Implementation Framework for the Right to a Healthy Environment under CEPA, outlining principles, research initiatives, and mechanisms to support this right. These efforts may impact decisions under CEPA and subsequently influence IAQ initiatives in educational and child care settings.

Appendix C: References

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