Clean Indoor Air Toronto

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Infrastructure & Environment Committee
Toronto City Hall
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To the Infrastructure & Environment Committee of the City of Toronto;

We are *Clean Indoor Air Toronto*, a group of concerned Toronto residents who are dedicated to improving indoor air quality in our shared public spaces. Many of us are parents of children attending TDSB schools; other members of our group have chronic health conditions that make them vulnerable to infection. We are joined with many other concerned Toronto residents and organizations in making the requests outlined below.

If the COVID-19 pandemic has taught us anything, it's that the air in our shared indoor spaces isn't as clean as we think. COVID-19 and many other serious infectious diseases like measles and polio, are primarily transmitted through the air. The risk is especially high in poorly ventilated spaces.

Since public health protections were lifted in 2022, airborne infectious diseases have continued to circulate at high levels in Toronto. We continue to observe the toll that constant illness is having on our communities, particularly amongst students and education staff, frontline workers, as well as the tremendous strain on Toronto's healthcare system.

Clean, safe-to-breathe, indoor air is an accessibility issue. Without indoor air quality regulations and information on the air quality in a given space, people who wish to protect themselves from airborne diseases cannot access a shared indoor space without risking exposure. This is a barrier of access to the city's services and facilities.

Access to clean indoor air is also an equity issue. Poor indoor air quality is associated with higher rates of disease and poor health; buildings with poor air quality are more likely to be found in lower income communities. In addition, the majority of Toronto's public schools are in a state of disrepair, which has meant poor air quality within these buildings. The City of Toronto has an indoor air quality policy for its office-based employees[1], but this policy does not extend to all of Toronto's buildings, creating an inequitable access to clean air. The City of Toronto has the power to address this inequity and improve access to clean indoor air.

The Ontario *Building Code* relies on ventilation Standard 62.1, written by the American Society of Heating, Ventilating and Air Conditioning Engineers (ASHRAE).[2,3] However, this *Code* is rarely enforced after construction; compliance is assumed but only checked when someone complains. There are no laws or regulations that directly govern and enforce acceptable indoor air quality, and there is no defined standard for what constitutes clean, safe-to-breathe air. Many Toronto buildings do not comply with ASHRAE Standard 62.1, and that includes our public schools.

To add to that, the events of the past 5 years have shown that the current ventilation standard is outdated.[4] It is not designed to handle the multiple challenges we now face:

- Air pollution from climate change-related events, e.g., wildfire smoke, aerosolized pollution and pathogens from heavy rains/flooding[5–7];
- Serious airborne infectious diseases[8,9];
- Harmful indoor air pollutants that were not contemplated when ASHRAE Standard 62.1 was written, including fine particulates (PM2.5), microplastics, and perfluorylalkyl and polyfluoroalkyl substances (PFAS).[10–13]

The health impacts of poor air quality include cancer. A significant proportion of cancers are associated with inhaling air pollution commonly found indoors, including PM2.5 particulates, microplastics, and PFAS.[14] Other cancers may be due to a prior viral infection acquired by airborne transmission.[15,16] Investment in clean indoor air will have a significant impact in reducing the incidence of such cancers and benefit our long-term health.

ASHRAE and other expert organizations, including the Harvard T.H. Chan School of Public Health, have issued new guidance to manage these challenges.[17,18] Yet, 5 years after the start of the pandemic, Toronto has made no moves to implement the latest guidance on indoor air quality management.

At present, the TransformTO Net Zero strategy does not include an indoor air quality policy, which means that the health of building occupants may be overlooked during any HVAC retrofits to reduce emissions and energy consumption. By overlooking indoor air quality as part of Net Zero strategy, we may be setting the stage for another version of Sick Building Syndrome, with high levels of illness and poor health amongst building occupants.

We urge the Infrastructure & Environment Committee to include the following in the TransformTO Net Zero Strategy:

1. **A city-wide Indoor air quality (IAQ) policy and bylaw** that follow the latest recommendations from ASHRAE and the Ontario Society of Professional Engineers (OSPE) with regards to reducing airborne disease transmission and fine particulate (PM2.5) air pollution.[17,19,20] This policy must include a standard for clean, safe-to-breathe air, specifying a minimum Clean Air Delivery Rate, comprising a minimum ventilation rate and air filtration with MERV-13 filters in HVAC systems and portable air purifiers, and verification of IAQ metrics.

2. **A program to accelerate indoor air quality improvement in Toronto's buildings**, including incentives for HVAC upgrades/retrofits that meet the standards laid out in the City's IAQ policy in item (1).

3. **An IAQ monitoring system for indoor levels of carbon dioxide (CO_2) and PM2.5, for municipal buildings, public schools and child care centres**, which includes a publicly available website for real-time reporting of collected data.[19,21]

A clean indoor air policy which includes IAQ monitoring would align with the City of Toronto's goal of reducing emissions, and increasing our resilience to the effects of climate change and related air pollution. It would also help to protect Toronto residents from the spread of airborne diseases. For under-ventilated spaces, the retrofits/upgrades to install heat exchangers would improve ventilation while having minimal energy impact. Inclusion of IAQ monitoring and controls in HVAC retrofits/upgrades would be highly beneficial, as it would allow for improved ventilation, while preventing over-ventilating and energy wastage. An incentive program for HVAC retrofits/upgrades that includes IAQ monitoring could be integrated with the City of Toronto's TransformTO program, and potentially the Environmental Grants & Incentives program.[22,23]

In addition, inclusion of a clean indoor air policy as part of the Net Zero strategy aligns with the City of Toronto's Budget priorities, including maintaining a State of Good Repair in municipal buildings, investing in climate action and resilience, and increasing accessibility.[24]

In our response to the public consultation held by the Environment, Climate, and Forestry Division (ECFD), sent on March 11, 2025, we noted that cost was a primary concern for voluntary uptake of Net Zero retrofits, as well as a lack of awareness, with barriers to accessing information about indoor air quality.

Studies have shown that the upfront cost of investing in policies and actions that provide access to clean indoor air is relatively low, compared to the outsize positive effect it will have on the health of our communities. ASHRAE published a cost/benefit analysis for implementing Standard 241 to control airborne diseases, and found that the economic benefit in terms of reducing infection and increasing productivity could be as high as 10 times the initial investment.[25]

In our March 11 letter to the ECFD, we also noted that improved IAQ need not come at the expense of the City's emissions goals and that there should be greater emphasis on protecting the health of building occupants by providing clean, safe-to-breathe indoor air. These issues have become a matter of urgency, given that climate change-related events like wildfires are becoming more frequent and severe, and Ontario is struggling to contain measles, a serious airborne disease.

We are concerned that on-going efforts to implement retrofits to reduce energy consumption and emissions have overlooked the importance of the health of building occupants and the need to provide clean indoor air. In particular, we are concerned about the use of demand-controlled ventilation where there is placement of a carbon dioxide (CO_2) sensor in the air handling ducts of a building, rather than in each room or ventilation zone of the building. This disregards ASHRAE's guideline regarding demand-controlled ventilation, which states that a CO_2 sensor must be placed in each room or ventilation zone of the building and that ventilation should be controlled to the room/zone with the lowest ventilation rate.[26] Placement of a CO_2 sensor in the air handling ducts would measure CO_2 level as a building-wide average and it would not show rooms that are not receiving adequate ventilation.

We are also concerned about the IAQ in Toronto's public schools and child care centres, particularly the Toronto District School Board (TDSB). Buildings are a primary source of emissions in Toronto, contributing to 56% of community-wide emissions and the TDSB has 582 school buildings.[27,28] In the TDSB's 2024-2025 Climate Action Plan, TDSB buildings emitted 119,617 tonnes of CO_2 in 2022-23 and their Net Zero target date is 2050.[29] Due to chronic underfunding, 84.1% of TDSB schools are in a state of disrepair.[30] It has been known since at least 2015 that many TDSB schools have poor indoor air quality, impacting learning outcomes.[31] CIATO members continue to observe instances of poor IAQ in TDSB classrooms. Given that these buildings are heavily used by Toronto residents, we ask that the Infrastructure & Environment Committee consider possible avenues to assist the TDSB so that they can accelerate their timeline to achieve Net Zero, in order to better align with the City's target date of 2040. With Net Zero retrofits that provide a minimum Clean Air Delivery Rate, we can support the health of our students and education staff, thus greatly improving learning and productivity, while reducing the burden of illness due to airborne diseases and exposure to air pollution.

We urge the Infrastructure & Environment Committee to include an indoor air quality policy that will protect the health of building occupants as part of the TransformTO Net Zero strategy. In addition, we ask that the Committee recommend to City Council to invest in policies and actions that will provide clean, safe-to-breathe indoor air. By doing so, the City of Toronto can reduce barriers and inequities that prevent Torontonians from achieving their fullest potential, and fulfilling their aspirations without the risk or burden of poor health, in addition to ensuring that all can access city services and facilities safely.

Yours Sincerely,

On behalf of Clean Indoor Air Toronto (CIAT)

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