



REVISED ADDENDUM  
REGULAR MEETING OF THE  
TORONTO CATHOLIC DISTRICT SCHOOL BOARD  
PUBLIC SESSION

Joseph Martino, Chair

Nancy Crawford, Vice Chair

Thursday, February 18, 2021

7:00 P.M.

---

	Pages
<b>8. Notices of Motions</b>	
8.a. <i>From Trustee Di Pasquale regarding Refund of School Rental Costs for Out of Bounds</i>	1
8.b. <i>From Trustee Di Giorgio regarding 2020/2021 Block Budget Increases (Equity Distribution)</i>	2
8.c. <i>From Trustee Di Giorgio regarding Toronto Catholic District School Board Hiring Practices and Conformance with Policy HM.40</i>	3
8.d. <i>From Trustee Di Giorgio regarding Governance at the Toronto Catholic District School Board, Request for Ministry Assistance</i>	4
8.e. <i>From Trustee Di Giorgio regarding Toronto Catholic District School Board Integrity Commissioner Responsibilities</i>	5
8.f. <i>From Trustee Lubinski regarding Communication on Toronto Catholic District School Board letterhead placed on City Council Agenda on February 1, 2021</i>	6 - 8
<b>11. Presentations</b>	
11.d. <i>Pinchin Ltd. regarding Toronto Catholic District School Board Three School Indoor Air Quality Study</i>	9 - 16

19.	<i>Reports of Officials for the Information of the Board of Trustees</i>	
19.a.	<i>Revised Return to School Update</i>	17 - 65
20.	<i>Reports of Officials Requiring Action of the Board of Trustees</i>	
20.e.	<i>Staffing at St. Anne Catholic Academy, School of Virtual Learning (Previously listed as Guidance Counsellor Report - Item 19b on the Agenda)</i>	66 - 70
22.	<i>Listing of Communications</i>	
22.a.	<i>From the Special Education Advisory Committee (SEAC): Approved Minutes of the Meeting Held January 20, 2021</i>	71 - 78



*Norm Di Pasquale*  
*Trustee Ward 9*

*E-mail: Norman.DiPasquale@tcdsb.org*

*Voicemail: 416-512-3409*

**To:** Regular Board Meeting February 18, 2021

**From:** Norm Di Pasquale, Trustee Ward 9

**Subject:** Notice of Motion: Refund of School rental costs for Out of Bounds

**MOVED BY: Norm Di Pasquale**, Toronto Catholic District School Board

**WHEREAS:** Out of Bounds is an organization that focuses on empowering youth around the Jane-Finch community who are gun violence survivors.

**WHEREAS:** Out of Bounds rented space at TCDSB schools after the Priority Schools Initiative was suspended.

**WHEREAS:** Out of Bounds is a grassroots organization that struggles to fund its own operations, and is in an extremely difficult financial position.

**THEREFORE BE IT RESOLVED THAT:** TCDSB refund rental costs to Out of Bounds from the 2018-2019 & 2019-2020 school year during the period when the Priority School Initiative was suspended.

**BE IT FURTHER RESOLVED THAT:** the funds be drawn from the Priority Schools Initiative funding.

**Norm Di Pasquale**  
**Trustee, Ward 9**



**Daniel Di Giorgio**  
**Trustee Ward 10**

**E-mail:** [Daniel.DiGiorgio@tcdsb.org](mailto:Daniel.DiGiorgio@tcdsb.org)

**Voicemail:** 416-512-3410

**To: Regular Board: February 18, 2021**

**From: Daniel Di Giorgio, Trustee Ward 10**

**Subject: Notice of Motion – 2020/2021 Block Budget Increases (Equity Distribution)**

---

**MOVED BY: Daniel Di Giorgio**, Toronto Catholic District School Board

**WHEREAS:** I raised concerns with various staff members in the past regarding potential irregularities and/or errors including but not limited to incorrect classification of schools as EPAN schools and questionable dollar allocations in the previous 2019/2020 block budget increase equity distribution.

**WHEREAS:** These concerns remained largely unaddressed until recently when discussions with staff in relation to a motion passed by the Board in December 2020 reinstating this initiative for the 2020/2021 school year have resulted in renewed discussions surrounding this topic and efforts have been made to revise the list, addressing many errors which previously existed.

**WHEREAS:** Staff still has not fully implemented the board motion as outlined and work remains to conform fully with the provisions outlined in the Board motion.

**WHEREAS:** I am often told that the publication of this type of data, although it is derived from publicly available data, stigmatizes certain school communities but I personally believe that the potential damage which can unfold for certain school communities when data of this nature is not made available for public scrutiny is a more significant concern.

**BE IT RESOLVED THAT:** in the interest of transparency and recognizing these are public funds, the 2019/2020 block budget equity distributions and the 2020/2021 block budget equity distributions be included in a report to Board highlighting changes made and that staff report back to board on ways to rectify any prior errors ensuring those communities which were potentially mistreated receive the funds they deserve.

**BE IT RESOLVED THAT:** any distribution of these types of funds across the system be made available in public reports moving forward.

**Daniel Di Giorgio,**  
**Trustee, Ward 10**



**Daniel Di Giorgio**  
**Trustee Ward 10**

**E-mail:** [Daniel.DiGiorgio@tcdsb.org](mailto:Daniel.DiGiorgio@tcdsb.org)

**Voicemail:** 416-512-3410

**To: Regular Board: February 18, 2021**

**From: Daniel Di Giorgio, Trustee Ward 10**

**Subject: Notice of Motion – TCDSB Hiring Practices and Conformance with Policy HM.40**

---

**MOVED BY: Daniel Di Giorgio, Toronto Catholic District School Board**

**WHEREAS:** staff provided a report to the Board of Trustees in **Private** session February 4th, 2021 in response to a **Public** trustee inquiry on June 18, 2020, claiming its content or portions thereof may be the subject of collective bargaining discussions.

**WHEREAS:** My understanding is that Principals and Vice Principals in the continuing education department are currently selected by the human resources department and teachers are not.

**WHEREAS:** My understanding is that teachers are required to apply annually to continuing education department positions and Principals and Vice Principals are not.

**WHEREAS:** My understanding is that Principals and Vice Principals in the continuing education department may potentially be subject to different requirements than the equivalent positions during the regular school year with regard to hiring practices and promotions/appointments.

**BE IT RESOLVED THAT:** in the interest of equitable and fair hiring processes, the Board direct the human resources department to explore the removal of any provisions potentially incorporated in continuing education Principal and Vice Principal positions which may not be covered in the collective agreement and/or may not conform with Board Policy HM.40 – Fair Practice in Hiring and Promotion.

**BE IT RESOLVED THAT:** candidates for Principal/Vice Principal and teaching positions in the continuing education department be required to apply annually and that the human resources department lead the entire recruitment process including but not limited to the creation of official job postings to ensure conformance with Board Policy HM.40 – Fair Practice in Hiring and Promotion.

**BE IT RESOLVED THAT:** staff confirm in a supplementary report to the Board of Trustees that the appointment/promotion of Principals and Vice Principals in the continuing education department conforms with Board Policy HM.40 – Fair Practice in Hiring and Promotion and are subject to the same requirements as typical Principal and Vice Principal appointments/promotions.

**Daniel Di Giorgio,**  
**Trustee, Ward 10**



**Daniel Di Giorgio**  
**Trustee Ward 10**

**E-mail:** *Daniel.DiGiorgio@tcdsb.org*

**Voicemail:** *416-512-3410*

**To: Regular Board: February 18, 2021**

**From: Daniel Di Giorgio, Trustee Ward 10**

**Subject: Notice of Motion – Governance at the TCDSB, Request for Ministry Assistance**

---

**MOVED BY: Daniel Di Giorgio, Toronto Catholic District School Board**

**WHEREAS:** the TCDSB could benefit from assistance made available by The Ministry of Education to school boards under the Education Act.

**BE IT RESOLVED THAT:** The Board direct the chair to submit a formal request to the Ministry of Education calling for the appointment of an investigator under Section 230 of the Education Act to review the TCDSB's handling of code of conduct, harassment and conflict of interest complaints from December 2018 to February 2021.

**BE IT RESOLVED THAT:** The Board direct the chair to submit a formal request to the Ministry of Education calling for the appointment of an additional investigator under Section 230 of the Education Act to determine whether the TCDSB complies with regulations 219 (1) of the Education Act – *Qualification of Members*.

**BE IT RESOLVED THAT:** The Board direct the chair to appeal to the Ministry requesting a performance review under Ontario Regulation 43/10 - *Provincial Interest in Education* focusing on the performance of the Board and the Board's director of education in carrying out their respective duties.

**Daniel Di Giorgio,**  
**Trustee, Ward 10**



**Daniel Di Giorgio**  
**Trustee Ward 10**

**E-mail:** *Daniel.DiGiorgio@tcdsb.org*

**Voicemail:** *416-512-3410*

**To:** Regular Board: February 18, 2021

**From:** Daniel Di Giorgio, Trustee Ward 10

**Subject:** Notice of Motion – TCDSB Integrity Commissioner Responsibilities

---

**MOVED BY:** Daniel Di Giorgio, Toronto Catholic District School Board

**WHEREAS:** upon examination of Ontario Regulation 384/07 – *Integrity Commissioner: Powers, Duties and Functions under the Act*, it does not appear that the Integrity Commissioner has the authority to investigate workplace harassment complaints (Policy H.M.14).

**WHEREAS:** It is incumbent upon The Board to act in a timely fashion when dealing with these types of matters.

**BE IT RESOLVED THAT:** The Board request a written response from both the Integrity commissioner (IC) and the TCDSB's General Counsel confirming whether or not the office of the IC has the authority to handle issues of this nature.

**BE IT RESOLVED THAT:** The Board authorize the Director of Education to take any necessary steps to ensure any pending complaints of this nature are addressed in a timely manner ensuring the Board fulfills its responsibility.

**Daniel Di Giorgio,**  
**Trustee, Ward 10**



*Teresa Lubinski  
Trustee Ward 4*

*E-mail: [Teresa.Lubinski@tcdsb.org](mailto:Teresa.Lubinski@tcdsb.org)*

*Voicemail: 416-512-3402*

**To:** Regular Board Meeting , February 18, 2021

**From:** Teresa Lubinski, Trustee Ward 4

**Subject: Notice of Motion** - Communication on TCDSB letterhead placed on City Council Agenda on February 1, 2021

**MOVED BY: Teresa Lubinski**, Toronto Catholic District School Board

---

**WHEREAS:** The Board was notified on February 8th that four Trustees of this Board have sent a communication on TCDSB Letterhead to the Mayor and City Council of Toronto regarding their displeasure with articles that have been published in the newspaper (attached).

**WHEREAS:** Section 4, page 4 of 14 of the Trustee Code of Conduct T.04 states the following: "The Trustee acknowledge they may only act on behalf of the Board through resolution and may not act individually or purport to represent the interests of the Board without the knowledge and consent of the Board of Trustees shown through resolution"

**BE IT RESOLVED THAT:** The staff brings a report to confirm whether the trustees identified in the letter to Mayor Tory and Councillors (Trustee De Domenico, Trustee Di Pasquale, Trustee Li Preti, Trustee Rizzo) acted on their personal behalf and not on behalf of the Board.

**Teresa Lubinski  
Trustee, Ward 4**







Markus  
de Domenico

**TRUSTEE WARD 2**

Norm  
Di Pasquale

**TRUSTEE WARD 9**

Ida Li Preti

**TRUSTEE WARD 3**

Maria Rizzo

**TRUSTEE WARD 5**

## Joint Letter re: Motion MM 28.9

---

Mayor Tory and City Councillors,

We are writing this joint letter in support of Councillor Wong-Tam's motion to Cancel City of Toronto Advertisement in the Corriere Canadese newspaper.

After much misinformation in the Corriere Canadese we call on the representatives of the City of Toronto to take a stand against homophobia and transphobia. This abhorrent discourse should never be normalized or sanctioned by our city.

The key reason why we support and encourage this action is the focus over the past year the Corriere Canadese has had of writing homophobic and transphobic articles that attack our students, staff and trustees. These articles are well documented in a recent PressProgress article: <https://pressprogress.ca/former-liberal-cabinet-minister-joe-volpe-condemns-lgbtq2-lobby-in-italian-canadian-local-newspaper/>, including calling the LGBTQ lobby "probably the most intolerant organization around.", as well as demeaning a local LGBTQ peer counselling service (<https://www.corriere.ca/english-articles/tcdsb-website-hosts-pornographic-site-defended-by-trustees/>).

These articles spread homophobia & transphobia and due to Corriere's unending focus on the Toronto Catholic District School Board, they have the effect of intimidating and further marginalizing our LGBTQ students, as well as intimidating our staff who do not want to be the focus of a homophobic article. Our staff have received threats as a direct result of Joe Volpe's homophobic reporting.

Toronto has shown it is serious in upholding the Ontario Human Rights Code. Passing this motion will ensure taxpayer funds are not used to support a newspaper that is in the business of writing homophobic and transphobic articles. We implore you to stand up for our LGBTQ students and the LGBTQ community at large by supporting this motion.

We urge you to take a stand against the outdated arguments and vile homophobia and transphobia expressed in the Corriere Canadese, pull their ads and support LGBTQ+ students and families in our city.



# TCDSB Three School Indoor Air Quality Study

Stephen Booth, Director of OHS and IAQ, CET, LEED AP



# Project Overview



1. Mother Cabrini – Mechanically Ventilated
  2. St. Jane Francis – Mechanically Ventilated
  3. St. Raphael – No Mechanical Ventilation
- Sensors for CO<sub>2</sub>, Temperature, and Relative Humidity installed in representative classrooms and admin areas.
  - Sensors installed on doors and windows.
  - How were the different schools performing with respect to ventilation rates.



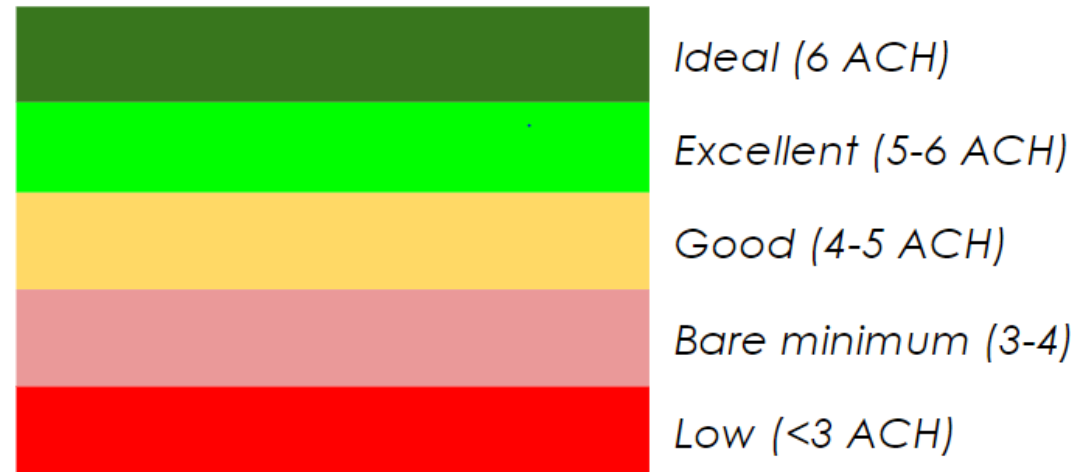
# CO2 as an Indicator of Ventilation Rates.



Carbon dioxide is an ideal indicator of ventilation in occupied buildings. Indoor steady state carbon dioxide concentrations rise with occupant load and respiration rates and are reduced based on the amount of outdoor air being introduced.

ASHREA base ventilation recommendation is a steady state CO2 Concentration of 1100 ppm

**TARGET IS AT LEAST 5 TOTAL AIR CHANGES PER HOUR**



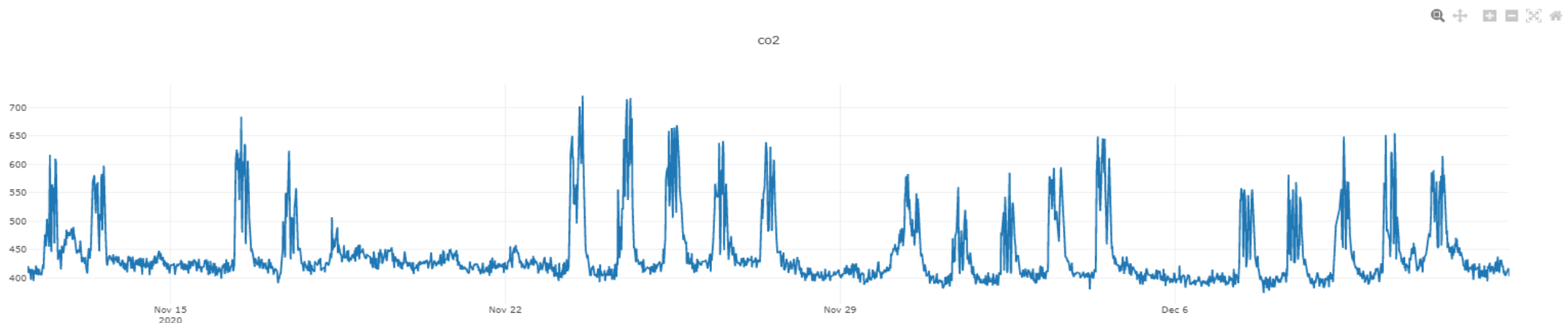
**~800 ppm = 4 ACH in 850 sf Class with 20 students and two adult staff**

<https://schools.forhealth.org/>

# Overview of Findings



- Classrooms at Mother Cabrini and St. Jane Francis generally had adequate ventilation with some minor exceptions / exceedances.
- Classrooms at St. Raphael regularly exceeded both the 800ppm and 1200ppm recommended limits.
- The length of time windows were open did not improve CO2 concentrations in the non-mechanically ventilated buildings.
- There was no planned pattern of window use.



# TCDSB Questions



1. Did having windows open in the classrooms lead to improved ventilation?
2. Was there indication that awning style or vertical sliding windows resulted in superior ventilation outcomes?
3. Did the size of the window openings impact ventilation rates based on the number of open windows and carbon dioxide (CO<sub>2</sub>) concentrations in the classes?
4. Was the building effectively flushed via the HVAC system or natural ventilation in the vacant period between school days and over the weekend?
5. Were there classroom occupant densities that lead to better controlled CO<sub>2</sub> concentrations?

# Recommendations for Mechanically Ventilated Schools



1. Ensure the HVAC systems are properly balanced.
2. Ensure the units are equipped with the highest MERV rating possible (ideally MERV 13).
3. Where humidification systems are installed ensure they are functioning properly.
4. Operate HVAC systems for a minimum of 2.5 hours before and after occupancy to help flush / filter airborne particulate between school days.
5. Address potential problem spots by supplementing with a portable air filtration unit.
6. With proper operation of the ventilation system supplemented where necessary with portable filtration units additional passive window ventilation will not be required.



# Recommendations for Non-Mechanically Ventilated Schools



- **Passively ventilated buildings require the same or greater levels of design as mechanically ventilated spaces to function properly.**
- Utilize portable air filters to replace ventilation.
- The four-inch restricted window opening must remain to meet code.
- Operate portable HEPA filters for a minimum of 2.5 hours before and after occupancy.
- Get the most out of window ventilation:
  - ✓ Open top and bottom windows where equipped and when outdoor temperatures allow.
  - ✓ Where equipped open top segments only during cold / hot weather to minimize temperature impacts.
- Monitor CO<sub>2</sub> through a test period to see if these changes show results.

A background image showing several hands raised in the air, with index fingers pointing upwards, suggesting a voting or a Q&A session. The image is slightly blurred, focusing on the gesture. A semi-transparent red horizontal band is overlaid across the middle of the image.

# QUESTIONS?



REPORT TO

REGULAR BOARD

## REVISED RETURN TO SCHOOL UPDATE

*"I can do all things through him who strengthens me."  
Philippians 4:13*

Created, Draft	First Tabling	Review
February 11, 2021	February 18, 2021	<a href="#">Click here to enter a date.</a>
Barbara Loporati, Senior Coordinator, Planning Services Corrado Maltese, Coordinator, Occupational Health and Safety John Wujek, Superintendent, Area 5 and Parent Engagement Shawna Campbell, Superintendent, Area 3 and Early Years Shazia Vlahos, Chief of Communications and Government Relations Michael Loberto, Superintendent, Planning and Development Services Deborah Friesen, Superintendent, Capital Development, Asset Management and Renewal Adrian Della Mora, Executive Superintendent of Human Resources Omar Malik, Acting Chief Information Officer		
<b>INFORMATION REPORT</b>		

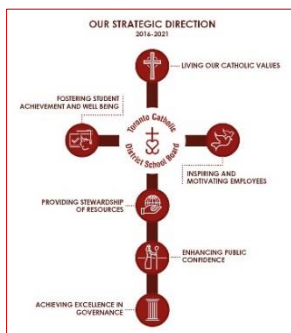
### Vision:

*At Toronto Catholic we transform the world through witness, faith, innovation and action.*

### Mission:

*The Toronto Catholic District School Board is an inclusive learning community uniting home, parish and school and rooted in the love of Christ.*

*We educate students to grow in grace and knowledge to lead lives of faith, hope and charity.*



Brendan Browne, PhD  
Director of Education

D. Koenig  
Associate Director  
of Academic Affairs

S. Camacho  
Acting Associate Director of  
Facilities, Business and  
Community Development

## **A. EXECUTIVE SUMMARY**

The last update to the Reopening Action Plan was submitted to the February 11, 2021 Corporate Services Committee meeting for information and consideration. This report provides additional information concerning items occurring over the last week. The Reopening Action Plan is updated as necessary and is available on the TCDSB website. Key updates and strategies are provided for consideration.

The province recently announced that March Break is post-poned until mid-April for this school year on the advice of Ontario's Chief Medical Officer and local public health agencies.

Access to Rapid Testing in local pharmacies has recently been made available and communicated to school-based staff. Michael Garron Hospital has also introduced take home COVID-19 oral-nasal testing kits for the East York and Scarborough area.

The consultant report on the results of the Indoor Air Quality study will be presented by Pinchin Ltd. and is included as an appendix to this report for the information of the Board.

TCDSB schools will continue to follow safety measures and guidance from Toronto Public Health as schools return to in person learning.

*The cumulative staff time required to prepare this report was 20 hours*

## **B. PURPOSE**

To provide the Board with updates as they pertain to the TCDSB Reopening Action Plan.

## **C. BACKGROUND**

1. *The TCDSB Reopening Action Plan, Staff Manual and Transition to Distance Learning Plan continue to reflect the process for operating schools safely.* Items from Board motions and Ministry updates that are confirmed

have been included as required. Schools will continue to follow established protocols for virtual and in person learning.

## **D. EVIDENCE/RESEARCH/ANALYSIS**

### **“March” Break**

1. ***The Ministry announced (on February 11, 2021) that the March Break is postponed until April 12-16, 2021.*** The province indicated that this decision was made with the best advice of Ontario's Chief Medical Officer of Health and public health officials, including consultations with many local Medical Officers of Health.
2. Students and staff are encourage to continue to ***access mental health resources available, specifically for managing ongoing stress and anxiety associated with the highly fluid landscape of this school year.*** Staff have access to the ***Employee and Family Assistance Program (EFAP)*** for assistance with various mental health and other family issues. Many resources ***for students seeking assistance with [mental health](#) concerns*** can be found on the board’s website.

### **Access to Rapid Testing**

3. The province has confirmed access to ***rapid testing in pharmacies for school-based staff.*** Testing is voluntary for staff. Information and key messages (Appendix ‘A’), along with the participating pharmacies located throughout the city, has been distributed to staff.
4. ***Michael Garron Hospital (MGH) has introduced a new initiative for families of 16 TCDSB schools located in East York and Scarborough . Beginning the week of February 16, MGH will drop off take home COVID-19 oral-nasal testing kits*** to the 16 schools listed below. These take home test kits are less invasive than the nasopharyngeal COVID test. Families will have access to take-home testing kits to make it easier for students to get tested for COVID-19.
  - Canadian Martyrs Catholic School
  - Holy Cross Catholic School
  - Holy Name Catholic School
  - Immaculate Heart of Mary Catholic School
  - Neil McNeil Catholic Secondary School

- Notre Dame Catholic Secondary School
  - Our Lady of Fatima Catholic School
  - St Anselm Catholic School
  - St Brigid Catholic School
  - St Denis Catholic School
  - St Dunstan Catholic School
  - St Joachim Catholic School
  - St John Catholic School
  - St John XXIII Catholic School
  - St Joseph Catholic School
  - St Patrick Catholic Secondary School
5. ***These take-home testing kits can be used if a student has symptoms of COVID-19 or if the student is sent home because another student or staff member in their class has tested positive for COVID-19.*** Parents will be able to drop off the child's swab to one of 10 nearby designated testing sites for analysis.

#### **Staffing and Recruitment**

6. ***HR staff is capitalizing on the College of Teachers' announcement that they will be issuing Temporary Teaching Certificates*** (effective until December 2021) for students who are nearing the completion of their formal Bachelor of Education program. The TCDSB is recruiting these teachers and providing direction to system Principals regarding deployment to address daily absentee challenges not being addressed through normal channels.
7. ***Senior HR staff is analyzing enrolment projections to proactively plan for potential staffing scenarios related to September school staffing requirements.*** Timely communication with the Ministry of Education will inform our approach.
8. ***The Sick Leave & Disability and Academic Services Departments continue to closely monitor leave requests and sporadic employee absences. Principals have been provided a list of contingency plans to ensure continuity of program delivery and student safety.*** Enhancing employee awareness of our employer-sponsored Employee Family Assistance Plan remains a priority.



9. ***Senior TCDSB staff members have maintained regular contact with our union partners (TECT, TSU, and CUPE) to collaboratively address issues.*** Recent discussions are focusing on staffing timelines and proactive planning for September 2021.
10. ***The SMASH Education virtual experiential Core French program has been successfully launched.*** This program provides St. Anne students (Grades 1 – 8) with a Ministry of Education aligned core French supplemental resource. ***Senior staff has reallocated staff to allow direct core French instruction to begin for all grade 8 students at St. Anne Catholic Academy effective February 16, 2021, while not adversely impacting French program delivery within brick and mortar schools.***
11. ***HR staff is monitoring all quarantined staff to ensure that proper parameters are maintained.*** We continue to communicate with all employees regarding travel plans, quarantine requirements that may apply, and the need to commit to the employer to ensure continuity of program delivery and service.
12. ***Timely recruitment efforts are being sustained as we endeavor to bolster supply pools for key employee groups.*** All efforts reflect a deliberate focus on equity.

#### **Indoor Air Quality**

13. ***The report on the results of the Indoor Air Quality study is attached as Appendix 'B'.*** The consultant, Pinchin Ltd., will make a presentation of the results and recommendations. The report indicates that CO2 levels were well controlled in the schools with mechanical ventilation systems, regardless of whether windows were open or not. CO2 level is a good indicator of whether adequate air changes are occurring to help mitigate virus transmission. The report also confirms that portable HEPA filtration units are beneficial in improving the air quality in schools without mechanical ventilation.

#### **Technology**

14. ***Orders continue to flow, supply levels are running low, however measures are being taken to increase supply levels.*** There are more than 600 iPads and 600 Chromebooks in our supply. Additional ministry funding was announced which will be used to increase device supplies and fund internet for student remote learning needs.

**E. IMPLEMENTATION, STRATEGIC COMMUNICATIONS AND STAKEHOLDER ENGAGEMENT PLAN**

1. *Staff and families received communications about the return to in-person learning on February 16, 2021, including expectations, updated screening tool and student passport and secondary timetables.*
2. *A staff and family one-pager* has been developed and is being disseminated to assist with the transition to back to in-person learning.

**F. CONCLUDING STATEMENT**

This report is for the consideration of the Board.



### Pharmacy Testing – Key Messages

- You can get a COVID-19 test at a participating pharmacy if you **do not** have symptoms
- You will be asked to provide the name of your school/work location.

### **What to bring with you**

- your Ontario **health (OHIP) card** (you can still get tested if you do not have one)
- a **face covering or mask** (wear one at all times)
- **assistive or accessibility devices** (if you need them)
- **snacks** (if you must eat every so often for medical reasons)

### **At the testing location**

Follow public health measures, including:

- wearing a face covering or mask (only take it down below your nose when you are told to)
- keeping at least 2 metres away from people you do not live with
- washing or sanitizing your hands often

### **Getting your test result**

On average, most results are ready 48 hours after your test. This is not guaranteed and could take longer.

Depending on the testing location, you may be able to get your result:

- online on the [Test Results Website](#) if you have a photo (green) health card
- on another website that the testing location will tell you about
- by phone

The testing location will give you instructions that are specific to your situation.

### **While you wait for your test result**

**If you have COVID-19 symptoms and/or were exposed to a known COVID-19 case, including getting a COVID Alert notification**

You should [self-isolate](#) (stay at home) while you wait for your result.

### **If you do not have symptoms and were not exposed**

You can continue as normal while you wait for your result and follow COVID-19 public health measures, including wearing a face covering, frequent handwashing, and

maintaining physical distance from those outside your household. Pay attention to your health to note if anything changes.

### Testing positive or negative

#### Positive

A positive result means it is likely that you **have** the virus.

You must [self-isolate](#) (stay at home) until public health clears you.

Your local public health unit will contact you and ask you contact tracing questions. They will also let you know when you can stop self-isolating.

Contact your doctor or health care provider for more information and guidance.

#### Negative

A negative result means **we were not able to detect the virus at the time of your test.**

You should continue to follow COVID-19 public health measures, including wearing a face covering, frequent handwashing, and maintaining physical distance from those outside your household. Pay attention to your health to note if anything changes.

### If you were exposed to a COVID-19 positive person and test negative

You must continue to self-isolate for 14 days after your last exposure with that person, even if you test negative.

**PHARMACY INFORMATION**

Pharmacy Type	City	Address	Postal Code	Phone Number	Website
Shoppers	Toronto	1630 Danforth Ave	M4C 1H6	(416) 461-2453	<a href="https://stores.shoppersdrugmart.ca/en/store/500/">https://stores.shoppersdrugmart.ca/en/store/500/</a>
Shoppers	East York	1601 Bayview Ave	M4G 3B5	(416) 489-1873	<a href="https://stores.shoppersdrugmart.ca/en/store/982/">https://stores.shoppersdrugmart.ca/en/store/982/</a>
Shoppers	Toronto	1027 Yonge St	M4W 2K9	(416) 961-0155	<a href="https://stores.shoppersdrugmart.ca/en/store/926/">https://stores.shoppersdrugmart.ca/en/store/926/</a>
Shoppers	Toronto	3446 Dundas St W	M6S 2S1	(416) 766-8131	<a href="https://stores.shoppersdrugmart.ca/en/store/1166/">https://stores.shoppersdrugmart.ca/en/store/1166/</a>
Shoppers	Toronto	1400 Dupont St	M6H 2B2	(416) 532-9214	<a href="https://stores.shoppersdrugmart.ca/en/store/1304/">https://stores.shoppersdrugmart.ca/en/store/1304/</a>
Shoppers	Toronto	360A Bloor St W	M5S 1X1	(416) 961-2121	<a href="https://stores.shoppersdrugmart.ca/en/store/806/">https://stores.shoppersdrugmart.ca/en/store/806/</a>
Shoppers	Etobicoke	123 Rexdale Blvd	M9W 1P1	(416) 743-1645	<a href="https://stores.shoppersdrugmart.ca/en/store/857/">https://stores.shoppersdrugmart.ca/en/store/857/</a>
Shoppers	Etobicoke	900 Albion Rd	M9V 1A5	(416) 741-2430	<a href="https://stores.shoppersdrugmart.ca/en/store/954/">https://stores.shoppersdrugmart.ca/en/store/954/</a>
Shoppers	North York	4841 Yonge St	M2N 5X2	(416) 222-1174	<a href="https://stores.shoppersdrugmart.ca/en/store/986/">https://stores.shoppersdrugmart.ca/en/store/986/</a>
Shoppers	Toronto	5095 Yonge St	M2N 6Z4	(416) 226-0313	<a href="https://stores.shoppersdrugmart.ca/en/store/1250/">https://stores.shoppersdrugmart.ca/en/store/1250/</a>
Shoppers	North York	3874 Bathurst St	M3H 3N3	(416) 635-5601	<a href="https://stores.shoppersdrugmart.ca/en/store/838/">https://stores.shoppersdrugmart.ca/en/store/838/</a>
Shoppers	North York	2550 Finch Ave W	M9M 2G3	(416) 749-5271	<a href="https://stores.shoppersdrugmart.ca/en/store/854/">https://stores.shoppersdrugmart.ca/en/store/854/</a>
Shoppers	Scarborough	2751 Eglinton Ave E	M1J 2C7	(416) 267-8211	<a href="https://stores.shoppersdrugmart.ca/en/store/859/">https://stores.shoppersdrugmart.ca/en/store/859/</a>
Shoppers	Scarborough	629 Markham Rd	M1H 2A4	(416) 439-2121	<a href="https://stores.shoppersdrugmart.ca/en/store/800/">https://stores.shoppersdrugmart.ca/en/store/800/</a>
Shoppers	Scarborough	2301 Kingston Rd	M1N 1V1	(416) 269-2171	<a href="https://stores.shoppersdrugmart.ca/en/store/1382/">https://stores.shoppersdrugmart.ca/en/store/1382/</a>
Shoppers	Scarborough	1780 Markham Rd A	M1B 2W2	(416) 412-1780	<a href="https://stores.shoppersdrugmart.ca/en/store/1381/">https://stores.shoppersdrugmart.ca/en/store/1381/</a>
Retail Banner Group	Toronto	2600 Eglinton Ave W	M6M1T5	(416) 651-6511	<a href="https://www.medicineshoppe.ca/en/ontario/toronto/the-medicine-shoppe-pharmacy-134-7014226?utm_source=Google&amp;utm_medium=maps&amp;utm_campaign=Local_Presence">https://www.medicineshoppe.ca/en/ontario/toronto/the-medicine-shoppe-pharmacy-134-7014226?utm_source=Google&amp;utm_medium=maps&amp;utm_campaign=Local_Presence</a>

## APPENDIX 'A'

Retail Banner Group	Scarborough	2942 Finch Avenue E	M1W2T4	(416) 492-4167	<a href="https://www.guardian-ida-pharmacies.ca/en/ontario/scarborough/village-square-pharmacy-7005106">https://www.guardian-ida-pharmacies.ca/en/ontario/scarborough/village-square-pharmacy-7005106</a>
Independent	Toronto	171 East Liberty Street, Unit 102	M6K 3P6	(416) 984-4147	<a href="http://www.libertymarketpharmacy.com/">http://www.libertymarketpharmacy.com/</a>
Independent	Toronto	17 St Johns Road	M6P 1T7	(647) 748-3784	<a href="https://www.junctionchemist.com/">https://www.junctionchemist.com/</a>
Independent	Etobicoke	290 The West Mall	M9C 1C6	(416) 622-2111	<a href="https://glencadepharmacy.ca/">https://glencadepharmacy.ca/</a>
Shoppers	Etobicoke	2206 Lake Shore Blvd. West	M8V 1A4	416-259-1330	<a href="https://stores.shoppersdrugmart.ca/en/store/1421/">https://stores.shoppersdrugmart.ca/en/store/1421/</a>
Shoppers	Toronto	1090 King St. West	M6K 0C7	416-977-4101	<a href="https://stores.shoppersdrugmart.ca/en/store/1005/">https://stores.shoppersdrugmart.ca/en/store/1005/</a>
Shoppers	Toronto	390 Queen's Quay West, Unit 110	M5V 3A6	416-260-2766	<a href="https://stores.shoppersdrugmart.ca/en/store/1321/">https://stores.shoppersdrugmart.ca/en/store/1321/</a>
Shoppers	Toronto	388 King Street West	M5V 1K2	416-597-6550	<a href="https://stores.shoppersdrugmart.ca/en/store/1320/">https://stores.shoppersdrugmart.ca/en/store/1320/</a>
Shoppers	Toronto	279 Yonge St.	M5B 1N8	416-591-1733	<a href="https://stores.shoppersdrugmart.ca/en/store/1402/">https://stores.shoppersdrugmart.ca/en/store/1402/</a>
Shoppers	Toronto	951 Bay Street, Unit G41	M5S 0E1	416-925-0881	<a href="https://stores.shoppersdrugmart.ca/en/store/1149/">https://stores.shoppersdrugmart.ca/en/store/1149/</a>
Shoppers	Toronto	970 Queen St. East	M4M 1J8	416-462-0062	<a href="https://stores.shoppersdrugmart.ca/en/store/823/">https://stores.shoppersdrugmart.ca/en/store/823/</a>
Shoppers	Toronto	593 Dundas St. East, South Tower	M5A 3H6	416-214-9440	<a href="https://stores.shoppersdrugmart.ca/en/store/1489/">https://stores.shoppersdrugmart.ca/en/store/1489/</a>
Shoppers	Toronto	2345 Yonge St.	M4P 1E4	416-487-5411	<a href="https://stores.shoppersdrugmart.ca/en/store/841/">https://stores.shoppersdrugmart.ca/en/store/841/</a>
Shoppers	Toronto	1084 Wilson Ave.	M3K 1G6	416-633-9884	<a href="https://stores.shoppersdrugmart.ca/en/store/820/">https://stores.shoppersdrugmart.ca/en/store/820/</a>
Shoppers	North York	3975 Jane St.	M3N 2K1	416-630-2553	<a href="https://stores.shoppersdrugmart.ca/en/store/840/">https://stores.shoppersdrugmart.ca/en/store/840/</a>
Shoppers	Toronto	946 Lawrence Avenue East	M3C 1R1	416-444-4445	<a href="https://stores.shoppersdrugmart.ca/en/store/1330/">https://stores.shoppersdrugmart.ca/en/store/1330/</a>
Independent	Toronto	844 Bathurst St	M5R 3G1	416-537-1900	<a href="http://www.metrodrugs.ca">www.metrodrugs.ca</a>

## APPENDIX 'A'

Independent	Toronto	129 Dundas Street East	M5B 2N6	416-363-7300	<a href="http://www.metrodrugs.ca">www.metrodrugs.ca</a>
Independent	Toronto	572 Parliament St.	M4X 1P8	416-921-5700	<a href="http://www.dalespharmacy.ca">www.dalespharmacy.ca</a>
Independent	Toronto	1275 Finch Avenue West	M3J 2G5	647-349-2273	<a href="https://pharmasave.com/store/pharmasave-university-heights-pharmacy/">https://pharmasave.com/store/pharmasave-university-heights-pharmacy/</a>
Independent	Toronto	608 Sherbourne St.	M4X 1X6	416-944-1122	n/a
Independent	Toronto	1333 Sheppard Ave. East	M2J 1V1	647-400-2588	<a href="http://www.maindrugmartcompounding.com">www.maindrugmartcompounding.com</a>
Independent	Toronto	2105 Weston Road	M9N 1X7	416-241-2111	n/a
Independent	Toronto	1901 Weston Road	M9N 3P5	416-241-1115	<a href="https://pharmasave.com/store/pharmasave-eagle-manor/">https://pharmasave.com/store/pharmasave-eagle-manor/</a>
Walmart	Scarborough	799 Milner Ave.	M1B 3C3	416-281-4643	<a href="https://www.walmart.ca/en/stores-near-me/morningside-scarborough-supercentre-3111">https://www.walmart.ca/en/stores-near-me/morningside-scarborough-supercentre-3111</a>
Shoppers	North York	5576 Yonge St.	M2N 5S2	416-225-2321	<a href="https://stores.shoppersdrugmart.ca/en/store/848/">https://stores.shoppersdrugmart.ca/en/store/848/</a>
Shoppers	Scarborough	255 Morningside Ave.	M1E 3E6	416-282-1129	<a href="https://stores.shoppersdrugmart.ca/en/store/1335/">https://stores.shoppersdrugmart.ca/en/store/1335/</a>
Shoppers	Scarborough	91 Rylander Blvd., Unit 1022	M1B 5M5	416-724-5344	<a href="https://stores.shoppersdrugmart.ca/en/store/1399/">https://stores.shoppersdrugmart.ca/en/store/1399/</a>
Shoppers	North York	770 Lawrence Ave. West	M6A 3C6	416-787-0238	<a href="https://stores.shoppersdrugmart.ca/en/store/821/">https://stores.shoppersdrugmart.ca/en/store/821/</a>
Shoppers	Etobicoke	1530 Albion Road	M9V 1B4	416-741-7711	<a href="https://stores.shoppersdrugmart.ca/en/store/925/">https://stores.shoppersdrugmart.ca/en/store/925/</a>



REVISED

# Investigation of Indoor Air Quality

Three School Ventilation Study

Mother Cabrini, St. Jane Francis and St. Raphael

Prepared for:

**Toronto Catholic District  
School Board**

80 Sheppard Avenue East  
Toronto, Ontario, M2N 6E8

February 17, 2021

Pinchin File: 281161



**Investigation of Indoor Air Quality**

Three School Ventilation Study, Mother Cabrini, St. Jane Francis and St. Raphael  
Toronto Catholic District School Board

February 17, 2021

Pinchin File: 281161

REVISED

**Issued to:** Toronto Catholic District School Board  
**Issued on:** February 17, 2021  
**Pinchin File:** 281161  
**Issuing Office:** Mississauga, ON

---

Author: Stephen Booth, CET, LEED AP  
Director  
416.816.5071  
[sbooth@pinchin.com](mailto:sbooth@pinchin.com)

Reviewer: Adam Crawford, B.Sc., DOHS, CIH  
Operations Manager  
416.816.5413  
[acrawford@pinchin.com](mailto:acrawford@pinchin.com)

Reviewer: David Muise, OHST  
National Practice Lead  
902.456.2853  
[dmuise@pinchin.com](mailto:dmuise@pinchin.com)



## EXECUTIVE SUMMARY

Pinchin Ltd. (Pinchin) was retained by the Toronto Catholic District School Board (TCDSB, the Client) to investigate ventilation rates in three schools and to understand how mechanical HVAC systems and window opening time / window style impacted ventilation. The investigation was undertaken at Mother Cabrini, St. Jane Francis and St. Raphael. This project was managed by Stephen Booth.

Window opening as it occurred during the study did not appear to have a significant positive impact on ventilation (carbon dioxide concentrations) in the schools. Carbon dioxide concentrations were relatively well controlled in the buildings equipped with mechanical HVAC systems. Carbon dioxide concentrations were persistently elevated through the afternoon period in the school with no mechanical ventilation even though windows were open at many points during the study period. In the non-mechanically ventilated school, the lack of ventilation was effectively offset by the installation of portable HEPA filter units.

The Board posed five specific questions which this study attempted to answer as follows. Additional detail is present in the body of the report.

**1. Did having windows open in the classrooms lead to improved ventilation?**

No. While opening windows did not help significantly reduce CO<sub>2</sub> concentrations during the study, it is possible that small improvements in ventilation could be obtained through a more systematic pattern of window operation.

**2. Was there indication that awning style or vertical sliding windows resulted in superior ventilation outcomes?**

No. As no clear benefit was evident from either style no advantage was evident for one style over the other.

**3. Did the size of the window openings impact ventilation rates based on the number of open windows and CO<sub>2</sub> concentrations in the classes?**

No. No clear benefit was evident by opening windows.

**4. Was the building effectively flushed via the HVAC system or natural ventilation in the vacant period between school days, over the weekend?**

Yes. Mechanically ventilated schools were flushed nightly. The non mechanically ventilated school was flushed over the weekend period.



**5. Were there classroom occupant densities that lead to better controlled carbon dioxide concentrations?**

In the non-mechanically ventilated school, occupant density was closely correlated with CO<sub>2</sub> concentrations although none of the occupant densities resulted in consistent CO<sub>2</sub> concentrations below the enhanced 800 ppm target set for this study. In mechanically ventilated schools, the association was not present and CO<sub>2</sub> concentrations were more likely related to the ventilation rates in the specific rooms.

Pinchin offers the following recommendations based on the study:

1. Continue to monitor CO<sub>2</sub> / ventilation rates at Mother Cabrini to confirm performance as colder weather arrives.
2. Review the HVAC system at St. Jane Francis and ensure:
  - a. The system is properly balanced.
  - b. The maximum efficiency filters (highest MERV rating) recommended by the manufacturer are installed. Ideally this would be MERV13.
  - c. The humidification system is functioning properly.
  - d. Consider deploying portable air filters in classrooms where ventilation performance is not maintaining CO<sub>2</sub> concentrations consistently below 800 ppm.
3. Operate HVAC systems and portable HEPA filters for a minimum of 2.5 hours before and after occupancy to help flush / filter airborne particulate between school days.
4. Implement the following strategies to maximize natural ventilation in schools not equipped with mechanical ventilation.
  - a. Open all available windows to maximize window opening size. Where classrooms are equipped with windows that open both top and bottom this should include the upper window. Where cold temperatures and draft is an issue, and the classroom is so equipped, open the top section of the window only. Where the upper window is operable but difficult to operate consider having caretaking staff open the upper windows before class and close them after class.
5. Implement window operation changes in select classrooms at a suitable subject school. Monitor CO<sub>2</sub> and temperature over a 15 to 30-day period to determine if changes to window operation can improve ventilation outcomes.



## TABLE OF CONTENTS

1.0	INTRODUCTION AND SCOPE .....	1
1.1	Statement of Understanding .....	1
1.2	Scope of Work .....	1
2.0	METHODOLOGY .....	2
2.1	Test Methods and Criteria .....	3
2.2	IAQ Standards .....	3
3.0	FINDINGS .....	4
3.1	School Overview .....	4
3.1.1	St. Jane Francis .....	4
3.1.2	Mother Cabrini .....	5
3.1.3	St. Raphael .....	5
3.2	IAQ Data Summary .....	6
3.3	Relative Humidity Summary .....	13
4.0	DISCUSSION .....	14
4.1	Proposal Specific Questions .....	15
4.2	Window Ventilation General .....	18
4.3	General .....	19
4.3.1	Mother Cabrini .....	19
4.3.2	St. Jane Francis .....	19
4.3.3	St. Raphael .....	20
4.4	Relative Humidity .....	20
4.5	Filtration .....	20
5.0	RECOMMENDATIONS .....	21
6.0	TERMS AND LIMITATIONS .....	21



## APPENDICES

### APPENDIX I Window Assessment Report

#### LIST OF TABLES

Table I – Test Locations .....	2
Table II – Parameters Tested, Recommended Limits and Instruments or Methods Used .....	3
Table III – Mother Cabrini CO <sub>2</sub> Summary .....	6
Table IV – St. Jane Francis CO <sub>2</sub> Summary .....	8
Table V – St. Raphael CO <sub>2</sub> Summary .....	11
Table VI – Relative Humidity Summary .....	13
Table VII – St. Raphael Occupancy Summary .....	17
Table VIII – St. Jane Francis Occupancy Summary .....	18



## **1.0 INTRODUCTION AND SCOPE**

### **1.1 Statement of Understanding**

Pinchin Ltd. (Pinchin) was retained by the Toronto Catholic District School Board (TCDSB, the Client) to conduct an investigation to evaluate ventilation rates in three schools and to understand how mechanical HVAC systems and window opening time / window style impacted ventilation. The investigation was undertaken at Mother Cabrini, St. Jane Francis and St. Raphael. This project was managed by Stephen Booth.

The project involved the installation of real time sensors for carbon dioxide, temperature, and relative humidity in representative classroom and staff space in each of three schools. The goal of the study was to provide data to help answer the following five questions:

1. Did having windows open in the classrooms lead to improved ventilation?
2. Was there indication that awning style or vertical sliding windows resulted in superior ventilation outcomes?
3. Did the size of the window openings impact ventilation rates based on the number of open windows and carbon dioxide (CO<sub>2</sub>) concentrations in the classes?
4. Was the building effectively flushed via the HVAC system or natural ventilation in the vacant period between school days and over the weekend?
5. Were there classroom occupant densities that lead to better controlled CO<sub>2</sub> concentrations?

### **1.2 Scope of Work**

Pinchin installed real-time CO<sub>2</sub>, temperature, and relative humidity sensors in representative functional areas in three school buildings:

- Mother Cabrini (mechanically ventilated school with awning style windows)
- St. Jane Francis (mechanically ventilated school with a combination of double hung windows (original structure) and awning style windows (new addition))
- St. Raphael (no mechanical ventilation and vertical slider windows).

Pinchin installed door and window sensors on the main entry door and windows in each of the classrooms. The sensors provided a notification when each window or door was opened or closed.

Pinchin manually calculated the total amount of time each window was open in the classrooms through the study period.



In addition to the preparation of this report, Pinchin assisted the TCDSB in the setup of real-time alerts that provided notification of low temperatures ( $<18^{\circ}\text{C}$ ) and  $\text{CO}_2$  concentrations higher than 800 ppm and 1200 ppm.

Sensors were deployed in the following locations at each school based on feedback from TCDSB and site conditions:

**Table I – Test Locations**

<b>Mother Cabrini</b>	<b>St. Jane Francis</b>	<b>St. Raphael</b>
Classroom 203 – Kindergarten	Classroom 222 – Grade 6 – Original Building	Room 202 – Grade 7/8
Classroom 115 – Grade 2/3	Classroom 228 – Grade 4 – New Wing	Room 209 - Grade 2
Classroom 112 – Resource Room	Classroom 106 – Grade 7/8 – New Wing	Workroom 211
Classroom 113 – Grade SK/1	Classroom 221 – Grade 2/3 split – Original Building	Room 103 - Grade 1
Staffroom - Room 206	Classroom 302- Grade 5 – New Wing – No Windows	Room 216 – Grade 3
Workroom 214	Classroom 130 – JK – Original Building	Room 117 – Kindergarten
Principal's Office – Room 222	Admin Office Room 102	Admin Office Room 123
Outdoor	Outdoor	Outdoor

## 2.0 METHODOLOGY

Indoor air quality measurements were collected approximately every 15 minutes, 24 hours / day, seven days a week. Door and window activation data was transmitted at the time of each event.

This report is based on sensor data for the period of November 12, 2020 (00:01) to December 12, 2020 (23:59).

For the purposes of this report, Pinchin looked at three factors the provide answers to the questions posed by the TCDSB as part of this study:

1. Total time in each room in exceedance of 800 ppm  $\text{CO}_2$ .
2. Total time in each room in exceedance of 1200 ppm  $\text{CO}_2$ .
3. Total number of open window hours in each classroom. This was calculated by summing the number of hours each window in a classroom was open for through the study period.

For example, if 3 three windows in Classroom 101 were open for 2 hours each that would total 6 window hours.

To further inform the study, Pinchin gathered the following information through discussions with board staff and an online HVAC survey:

1. Details on HVAC operation and filtration in the two mechanically ventilated schools
2. Details on current and normal / non-COVID occupant loads in each of the schools.
3. Details on the occupancy in each of the rooms equipped with sensors.

## 2.1 Test Methods and Criteria

Pinchin installed the Elsys ERS CO<sub>2</sub> sensor in each of the subject rooms. The sensor has the following accuracy and resolution:

The sensor provides long term measurements:

- Carbon dioxide, 0-10,000 ppm, Accuracy  $\pm 50$ ppm or 3% of reading.<sup>1</sup>
- Temperature, -40 to 120 °C, Resolution 0.1°C, Accuracy  $\pm 0.2$ °C
- Relative Humidity, 1 – 100%, Resolution 0.1%, Accuracy @ 25°C  $\pm 2$ %

The following table presents the parameters measured in this investigation, the instruments and sampling/analytical methods used, the applicable units of measurement, and the criteria selected by Pinchin for the evaluation of the results.

## 2.2 IAQ Standards

**Table II – Parameters Tested, Recommended Limits and Instruments or Methods Used**

Parameter	Unit of Measurement	Recommended Limit	Instrumentation or Test Method
Carbon Dioxide, CO <sub>2</sub>	Parts per million in air (ppm)	< 800 ppm – Good <sup>2</sup> < 1,100 ppm (700 ppm + Outdoor) - Acceptable <sup>3</sup> >1,200 ppm - Investigate	Elsys ERS CO <sub>2</sub>

<sup>1</sup> The carbon dioxide sensor has an internal automatic calibration routine. This routine calibrates the sensor to set 400 ppm to the lowest value that has been read in the last period of approximately 8 days. This means that in an 8-day period, the sensor must be exposed to fresh (well ventilated) air at least once for the calibration to work. The sensor can also be manually calibrated.

<sup>2</sup> Harvard T.H. Chan School for Public Health, Schools for Health Risk Reduction Strategies for Reopening Schools, Updated November 2020

<sup>3</sup> American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE): Ventilation for Acceptable Indoor Air Quality [ANSI/ASHRAE Standard 62.1-2013]. Atlanta, GA: ASHRAE, 2013.

**Table II – Parameters Tested, Recommended Limits and Instruments or Methods Used**

Parameter	Unit of Measurement	Recommended Limit	Instrumentation or Test Method
Temperature, T	°C	21 to 25 °C, winter clothing <sup>4</sup> 24 to 27 °C, summer clothing	
Relative Humidity, RH	%RH	Winter 40%-50% <sup>5</sup> Summer 50%-60% <sup>6</sup>	

### 3.0 FINDINGS

#### 3.1 School Overview

##### 3.1.1 St. Jane Francis

St. Jane Francis consists of a two-storey original school structure with a three-storey addition. The original building is equipped with double hung metal windows in the classrooms. The double hung windows open both at the top and bottom although because of difficult access, opening the upper windows may be difficult. The double hung windows are equipped with a stopper to restrict the opening to 4". Most of the classrooms in the new addition are equipped with a combination of fixed windows and awning windows. In most classrooms, two awning windows are present on either end of the classroom. In some classrooms, there are no operable windows.

The building is equipped with HVAC systems consisting of a combination of main AHUs and perimeter fan coil units. The system is equipped with a building automation system and whole building humidification. The MERV rating of the filters is not known. The system is currently being operated with outdoor air dampers open to maximize ventilation. The HVAC system is also being operated one hour prior to school opening and one hour after closing to provide a building flush. It is not known when the system was last balanced.

During the pandemic, the school is operating at approximately 50% of it's normal daily occupant load (400 currently vs 750 normal).

4 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE): *Thermal Environmental Conditions for Human Occupancy* [ANSI/ASHRAE Standard 55-2013]. Atlanta, GA: ASHRAE, 2013.

5 <https://www.ashrae.org/technical-resources/reopening-of-schools-and-universities>

6 <https://www.ashrae.org/technical-resources/reopening-of-schools-and-universities>



### 3.1.2 *Mother Cabrini*

Mother Cabrini is a two-storey school structure. The building is equipped with new awning style windows in the classrooms. There are two styles of awning window present. One set of windows open outward and the other opens inwards. Due to the window construction, sensors could only be installed on the inward opening windows. The top set of windows in each of the tested classrooms was not currently operable as the rolling shade blocked the window opening.

The building is equipped with a central AHU. The building is not equipped with a humidification system or a building automation system. The unit is being operated with outdoor air dampers in their fully opened position to maximize ventilation. Individual classrooms have also been equipped with stand-alone portable air cleaners. The HVAC unit is equipped with MERV13 filters.

During the pandemic, the school is operating at approximately 72% of it's normal daily occupant load (144 currently vs 198 normal).

### 3.1.3 *St. Raphael*

St. Raphael is a two-storey school structure. The building is equipped with vertical slider windows in the classrooms. Only the bottom portion of the window opens. The majority of windows are equipped with a stopper to restrict the opening to 4". One window in each classroom has been modified to allow a window opening of 12" in an effort to allow increased ventilation.

The building is not equipped with an HVAC system. Individual classrooms have also been equipped with stand alone portable air cleaners (Austin Air Systems Model HM400/410).

During the pandemic, the school is operating at approximately 75% of it's normal daily occupant load (425 currently vs 570 normal).

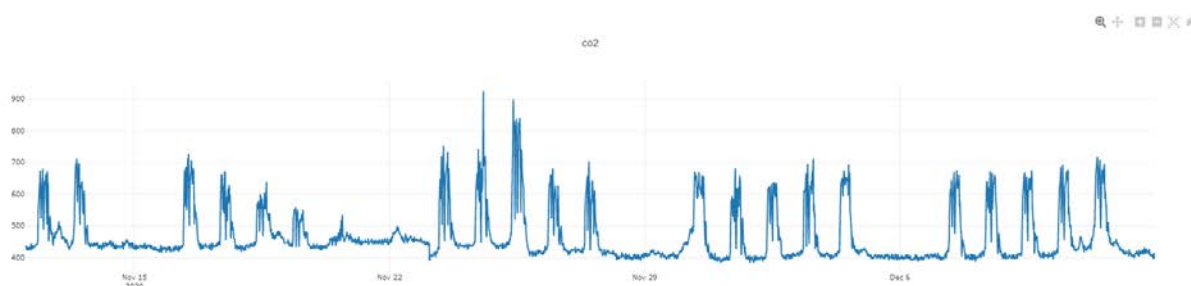


### 3.2 IAQ Data Summary

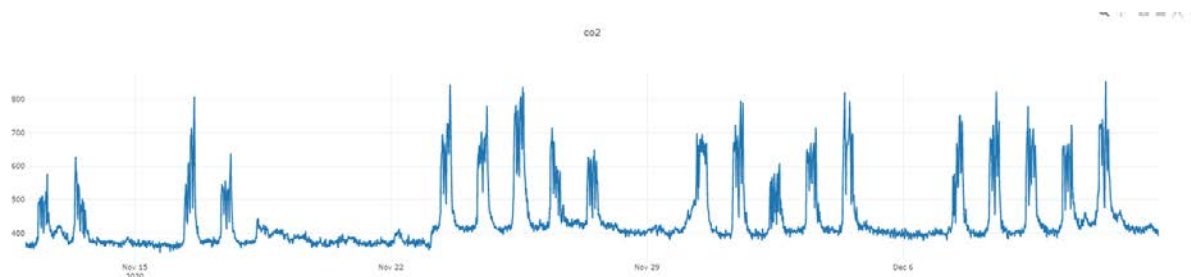
IAQ data is summarized for the period of 00:01 November 12, 2020 to 23:59 December 12, 2020.

**Table III – Mother Cabrini CO<sub>2</sub> Summary**

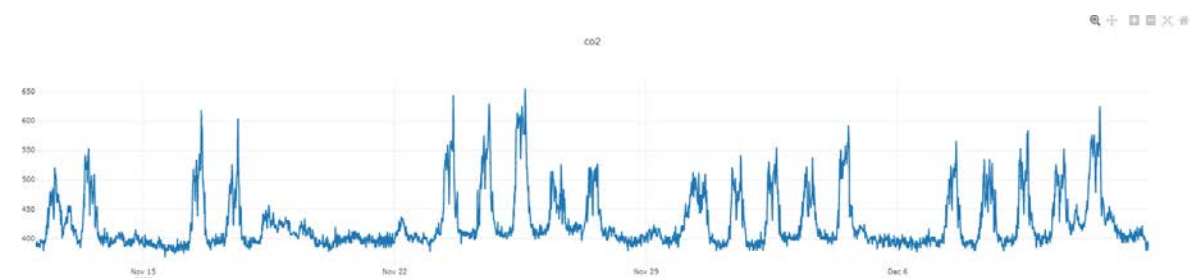
Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Classroom 203 – Kindergarten	24+ECE+Teacher	8 min	0 min	194 hours



Classroom 115 – Grade 2/3	18+Teacher	10 min	0 min	138 hours
---------------------------	------------	--------	-------	-----------



Classroom 112 – Resource Room	Infrequent Occupancy – 2-3 students + teacher when in use.	0 min	0 min	235 hours
-------------------------------	--	-------	-------	-----------





## Investigation of Indoor Air Quality

Three School Ventilation Study, Mother Cabrini, St. Jane Francis and St. Raphael  
Toronto Catholic District School Board

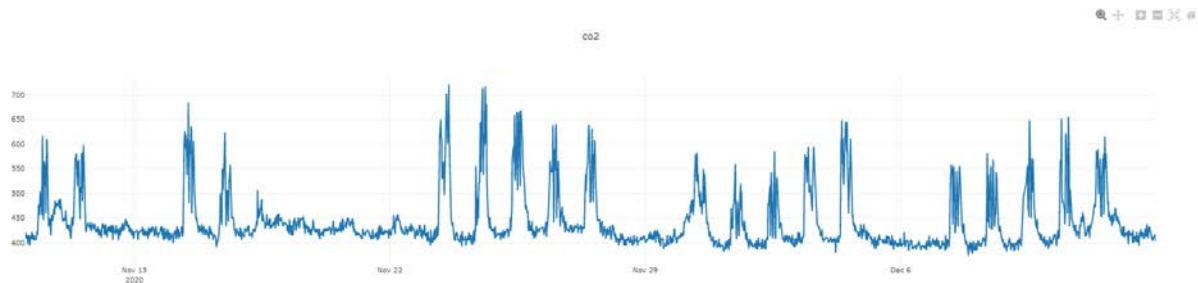
February 17, 2021

Pinchin File: 281161

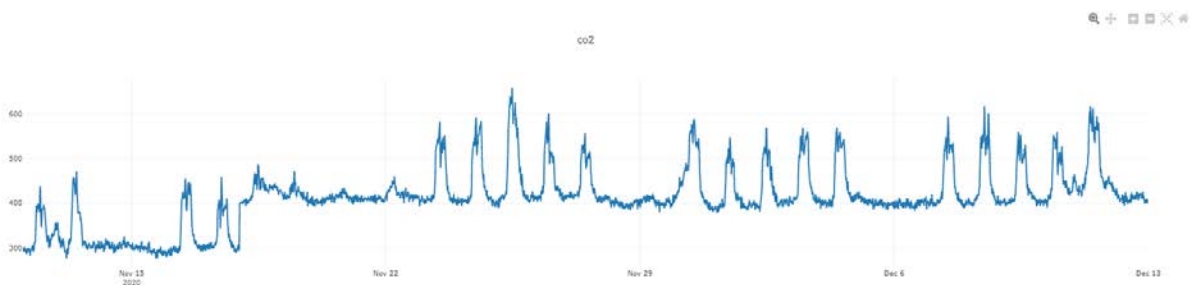
REVISED

Table III – Mother Cabrini CO<sub>2</sub> Summary

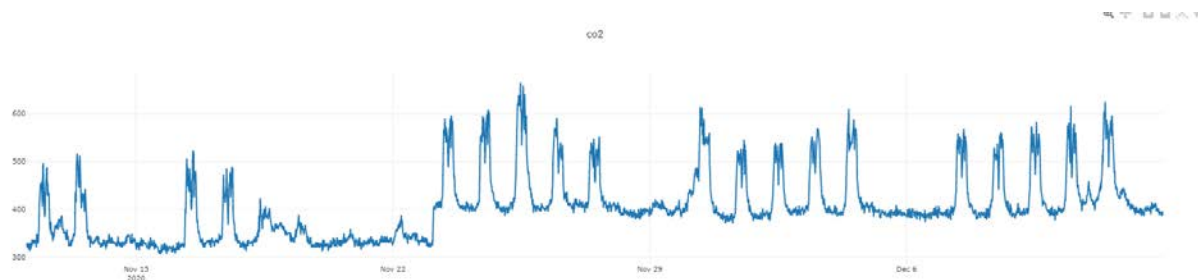
Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Classroom 113 – Grade SK/1	17+T+CYW	0 min	0 min	690 hours



Staffroom Room - 206	3-4 Staff During Break	0 min	0 min	102 hours
----------------------	------------------------	-------	-------	-----------



Workroom 214	Up to 3+Teacher	0 min	0 min	-
--------------	-----------------	-------	-------	---





## Investigation of Indoor Air Quality

Three School Ventilation Study, Mother Cabrini, St. Jane Francis and St. Raphael  
Toronto Catholic District School Board

February 17, 2021

Pinchin File: 281161

REVISED

Table III – Mother Cabrini CO<sub>2</sub> Summary

Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Principal's Office Room 222		0 min	0 min	-

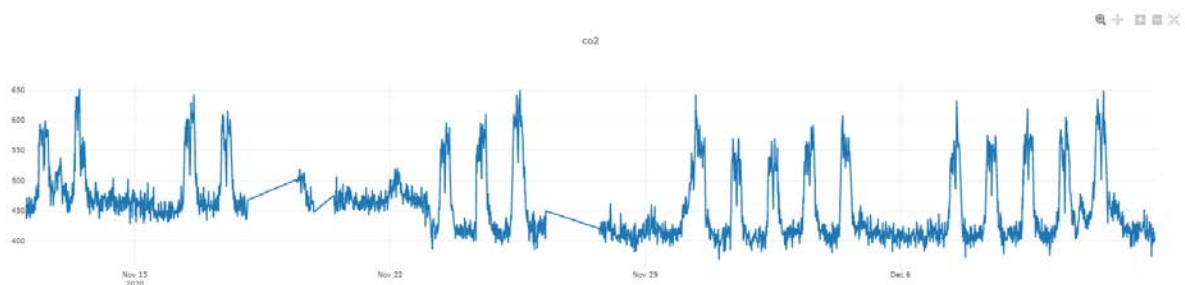
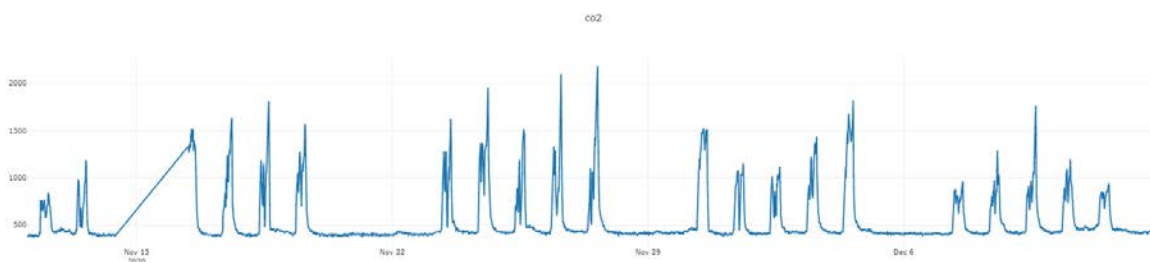


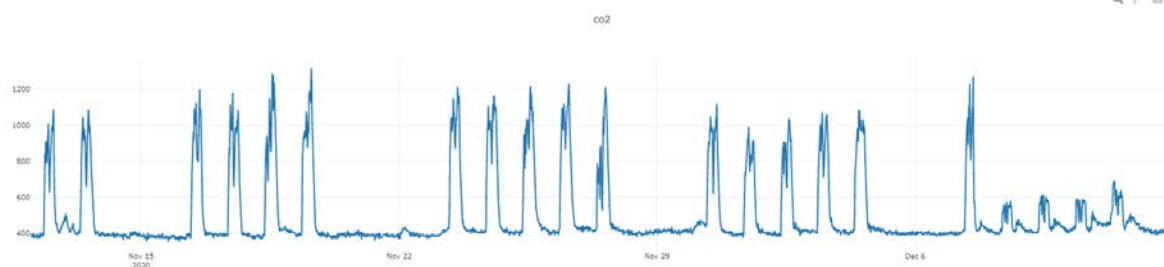
Table IV – St. Jane Francis CO<sub>2</sub> Summary

Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Classroom 228 – Grade 4 – New Wing	15+EA+Teacher	396 min	155 min	182 hours

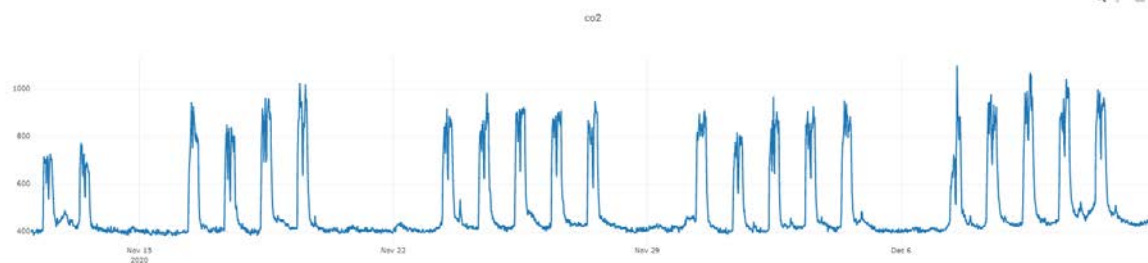


**Table IV – St. Jane Francis CO<sub>2</sub> Summary**

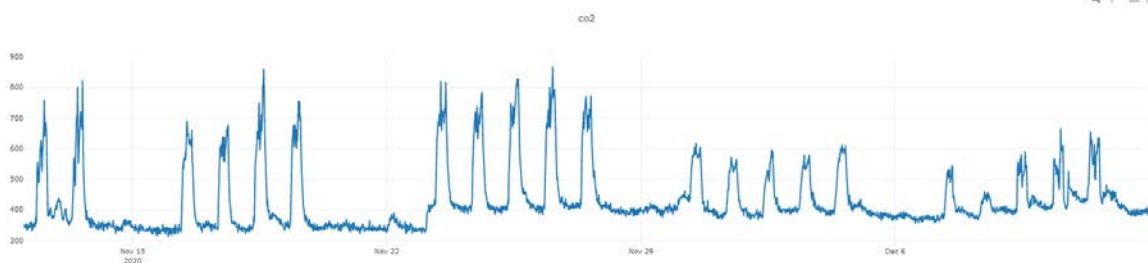
Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Classroom 222 – Grade 6 – Original Building	20+Teacher	391 min	15 min	25 hours



Classroom 106 – Grade 7/8 – New Wing	20+Teacher	328 min	0 min	3 hours
--------------------------------------	------------	---------	-------	---------



Classroom 221 – Grade 2/3 split – Original Building	13 students + Teacher + 1	17 min	0 min	13 hours
---	---------------------------	--------	-------	----------





## Investigation of Indoor Air Quality

Three School Ventilation Study, Mother Cabrini, St. Jane Francis and St. Raphael  
Toronto Catholic District School Board

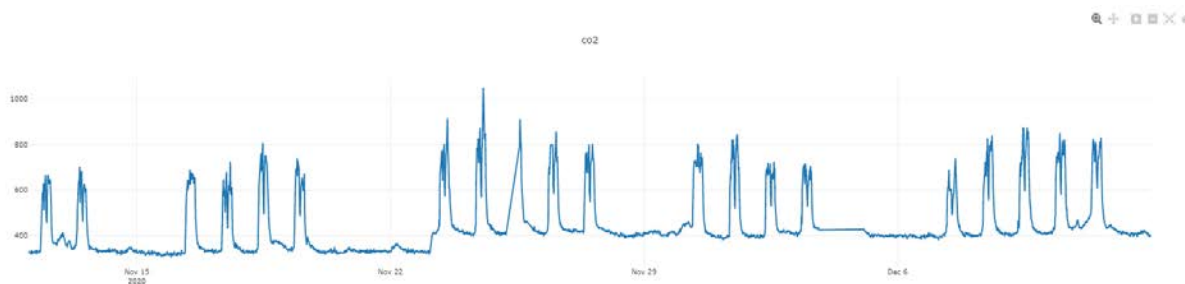
February 17, 2021

Pinchin File: 281161

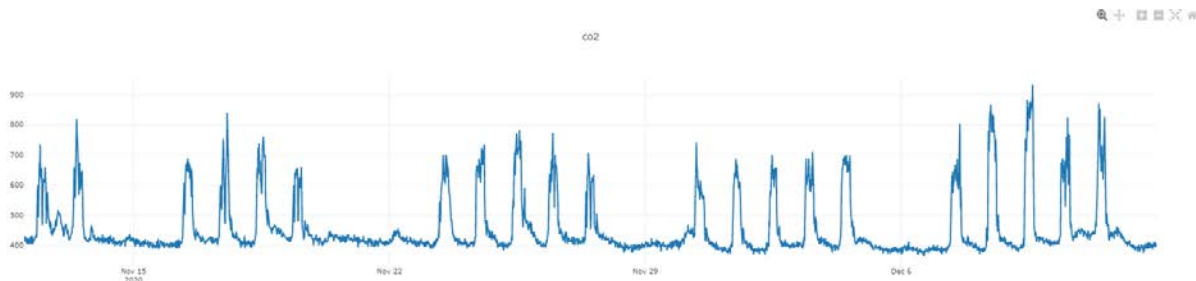
REVISED

Table IV – St. Jane Francis CO<sub>2</sub> Summary

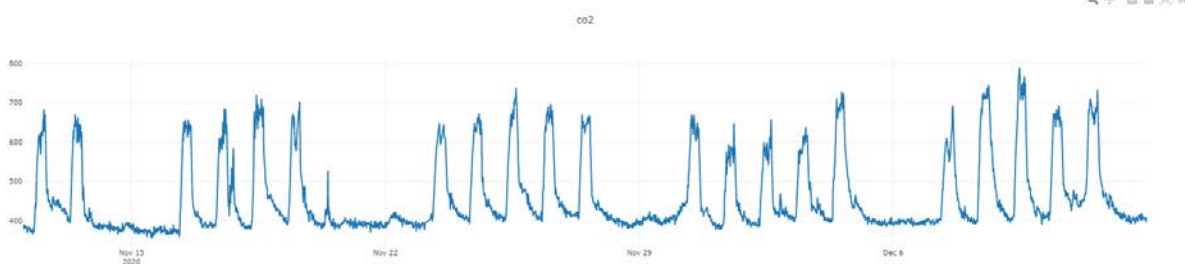
Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Classroom 302- Grade 5 – New Wing – No Windows	20+EA+Teacher	54 min	0 min	0



Classroom 130 – JK – Original Building	15+DEC+EA+Teacher	29 min	0 min	198 hours
---	-------------------	--------	-------	-----------



Admin Office Room 102		0 min	0 min	-
-----------------------	--	-------	-------	---





## Investigation of Indoor Air Quality

Three School Ventilation Study, Mother Cabrini, St. Jane Francis and St. Raphael  
Toronto Catholic District School Board

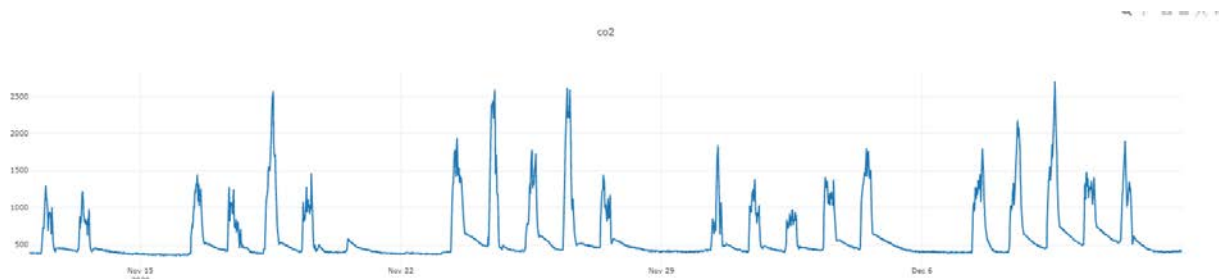
February 17, 2021

Pinchin File: 281161

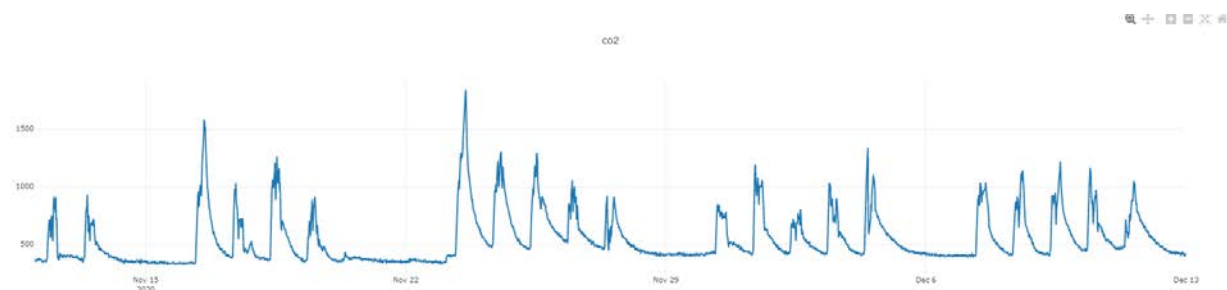
REVISED

Table V – St. Raphael CO<sub>2</sub> Summary

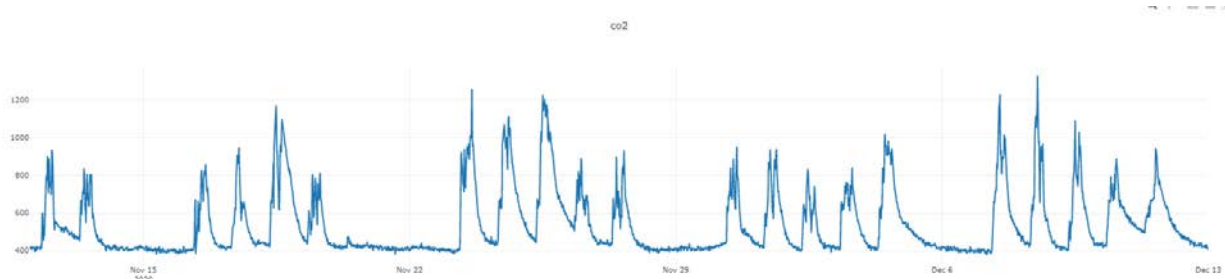
Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Room 202 – Grade 7/8	19 + Teacher	535 min	270 min	950 hours <sup>1</sup>



Room 209 - Grade 2	15+Teacher	380 min	41 min	355 hours
--------------------	------------	---------	--------	-----------



Workroom 211	5 staff max.	295 min	6 min	87 hours
--------------	--------------	---------	-------	----------





## Investigation of Indoor Air Quality

Three School Ventilation Study, Mother Cabrini, St. Jane Francis and St. Raphael  
Toronto Catholic District School Board

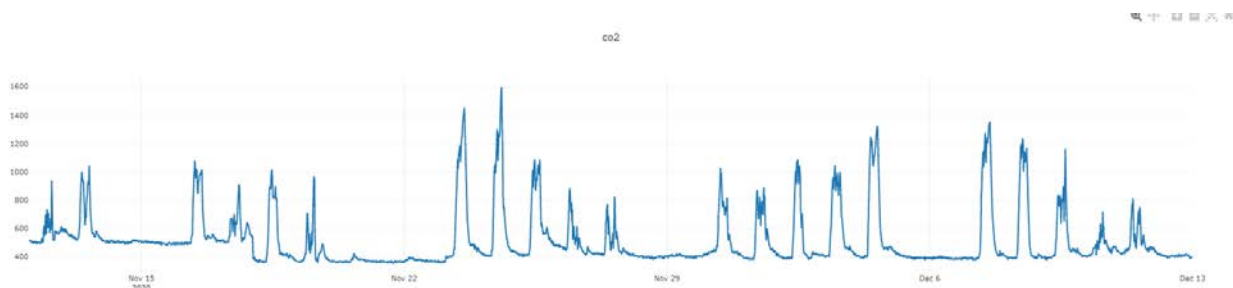
February 17, 2021

Pinchin File: 281161

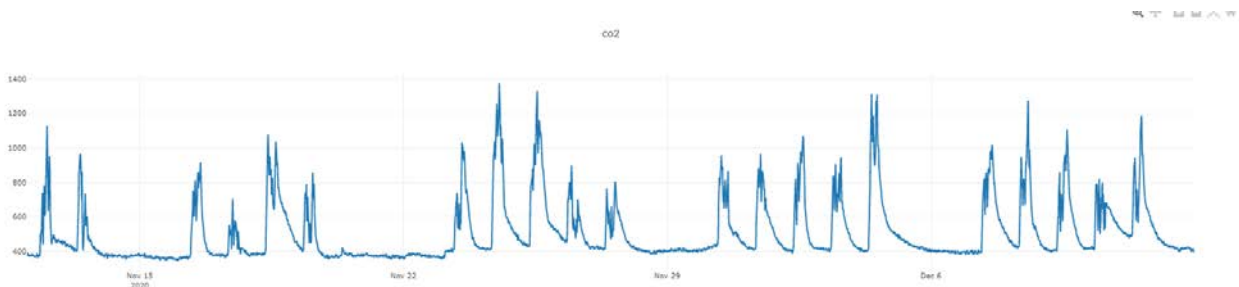
REVISED

Table V – St. Raphael CO<sub>2</sub> Summary

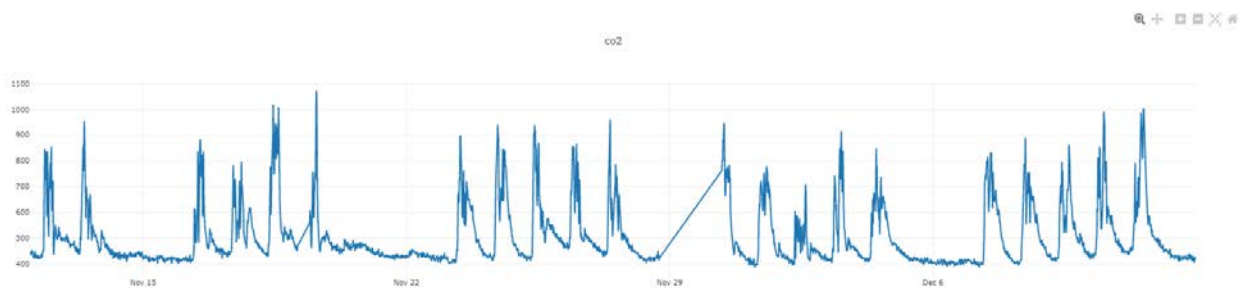
Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Room 103, Grade 1	13 + 1	297 min	47 min	326 hours



Room 216 – Grade 3	14+Teacher	260 min	15 min	432 hours
--------------------	------------	---------	--------	-----------



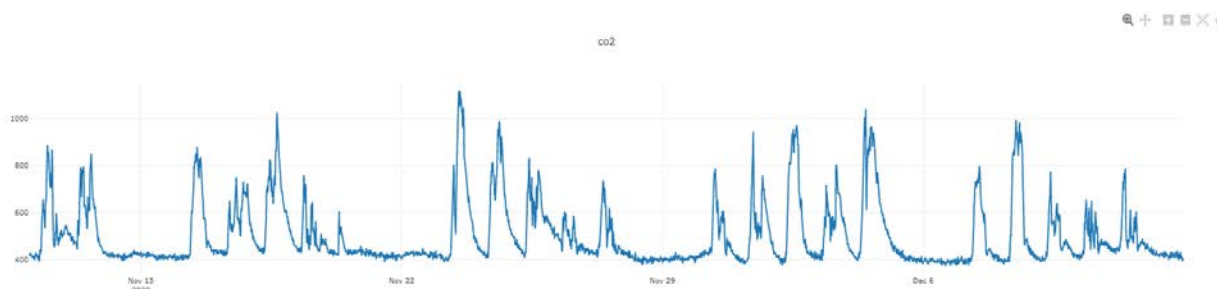
Room 117 – Kindergarten	15 + 5	107 min	0 min	626 hours
-------------------------	--------	---------	-------	-----------





**Table V – St. Raphael CO<sub>2</sub> Summary**

Location / Grade	Occupancy	Total Time with CO <sub>2</sub> greater than 800 ppm	Total Time with CO <sub>2</sub> greater than 1200 ppm	Total Window Open Time
Admin Office Room 123		163 min	0 min	-



Note 1 – Window Sensors 3 & 4 in Classroom 202 came off their mounting following the installation.

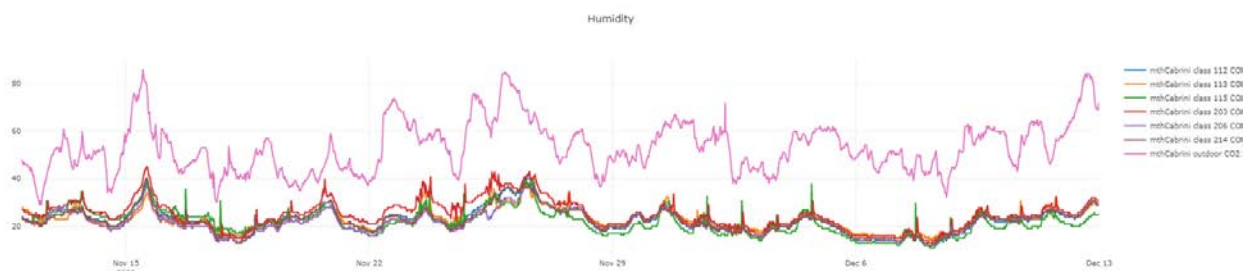
These sensors were reinstalled on November 25. The window time in Classroom 202 takes the average daily window open time from November 26 to December 12 and applies it to the full 31-day period.

Window 2 was assumed closed from December 8 to 12 due to a sensor issue.

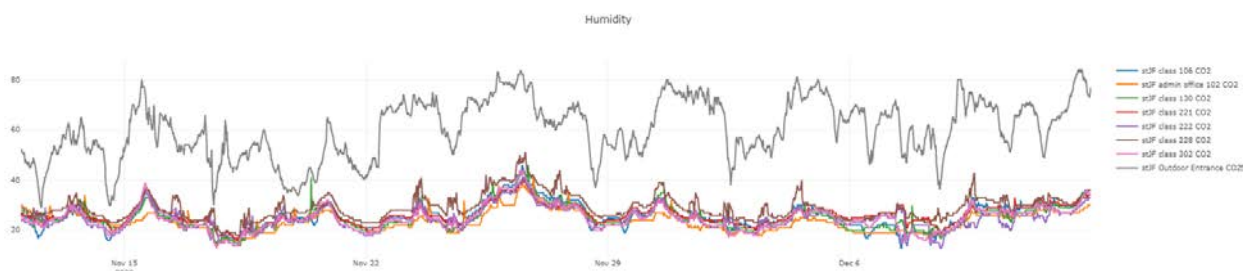
### 3.3 Relative Humidity Summary

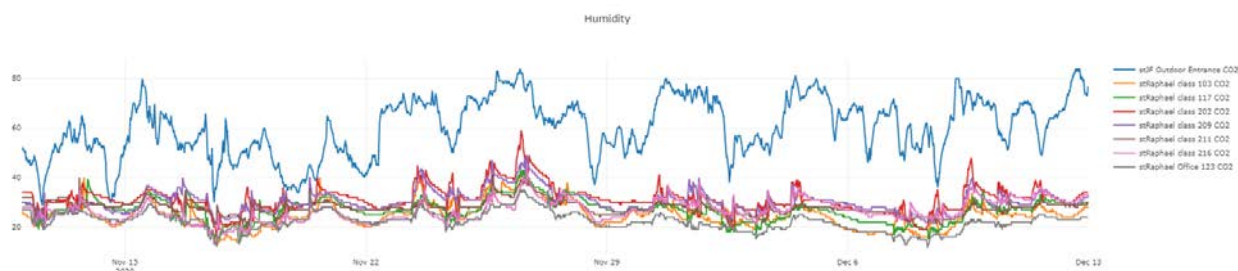
**Table VI – Relative Humidity Summary**

Mother Cabrini



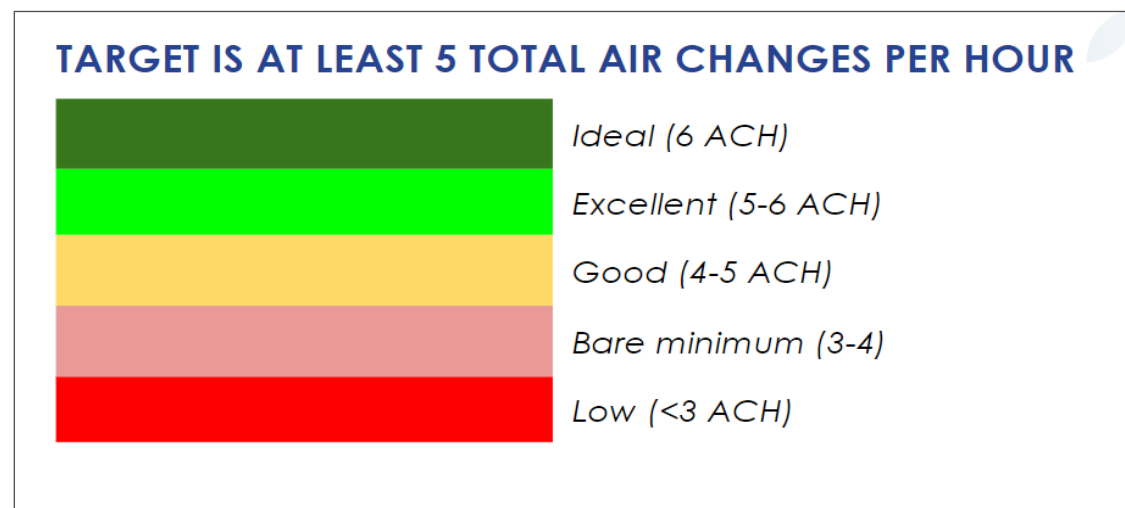
St. Jane Francis



**Table VI – Relative Humidity Summary**
**St. Raphael**


## 4.0 DISCUSSION

Carbon dioxide is an ideal indicator of ventilation in occupied buildings. Indoor carbon dioxide concentrations rise with occupant load and respiration rates and are reduced based on the amount of outdoor air being introduced. In typical indoor air quality investigations, a steady state concentration of approximately between 1,000 ppm and 1,150 ppm is indicative of adequate ventilation for occupant comfort. In a typical classroom with 20 occupants this indicates approximately 2 air changes per hour. With ASHRAE's current recommendation to maximize ventilation and avoid recirculation to help minimize transmission of the SARS-CoV-2 virus, indoor carbon dioxide concentrations should ideally be considerably lower. The Harvard T.H. Chan School of Public Health has recommended classrooms maintain a bare minimum of 3-4 air changes per hour with 4-6 air changes per hour preferred. In a typical classroom an air change rate between 4 and 5 per hour results in a steady state CO<sub>2</sub> concentration of approximately 800 ppm.


<https://schools.forhealth.org/covid-19-tools/>



#### **4.1 Proposal Specific Questions**

##### **1. Did having windows open in the classrooms lead to improved ventilation?**

Windows did not play a significant role in improving ventilation rates. At St. Raphael where windows are the primary ventilation strategy, the amount of time with windows open did not result in improved ventilation. Room 222 consistently had the worst ventilation despite having windows open more frequently than any other room in the school. In both St. Raphael and St. Jane Francis, the classrooms with the highest CO<sub>2</sub> concentrations were also the classrooms with open windows for the longest time. It may be possible to provide some limited improvement in window ventilation by utilizing the windows in a more systematic way.

##### **2. Was there indication that awning style or vertical sliding windows resulted in superior ventilation outcomes?**

Awning windows were installed at Mother Cabrini and in the new addition at St. Jane Francis. Double hung windows were installed in the original wing at St. Jane Francis. Vertical sliders were installed at St. Raphael. The double hung windows and vertical sliders were fitted with a locking mechanism to prevent the window from opening more than 4". Awning windows opened either inward or outward. The opening at the awning window was approximately 4" at the open edge but the awning action exposes the full face of the screen for ventilation.

As indicated above, windows did not play a significant role in improving ventilation rates. With that in mind, there was no evidence that either style of window was superior to the other. At St. Jane Francis where both styles of windows were installed the occupant load and HVAC function outweigh any window related impact. Classroom 302 with 22 occupants and no windows performed better with respect to ventilation than Classroom 106 with 21 occupants and awning style windows, and Classroom 228 with 17 occupants and double hung windows, despite the windows in Classroom 228 being open for a total of 182 hours during the study period.

##### **3. Did the size of the window openings impact ventilation rates based on the number of open windows and CO<sub>2</sub> concentrations in the classes?**

Windows did not play a significant role in improving ventilation rates.

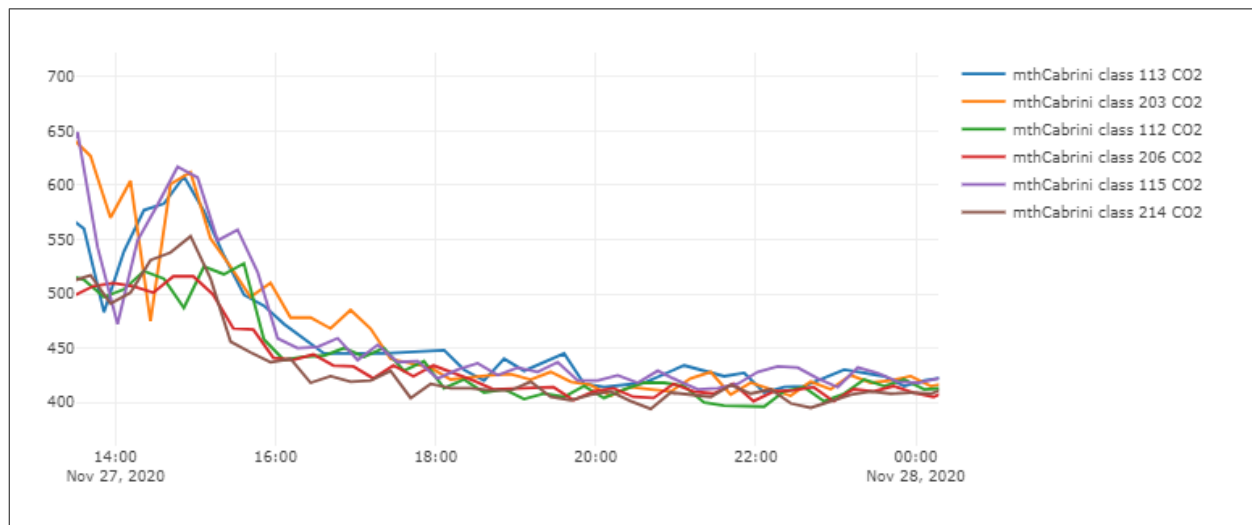
##### **4. Was the building effectively flushed via the HVAC system or natural ventilation in the vacant period between school days, over the weekend?**

In all cases the carbon dioxide concentrations returned to base line conditions through the weekend period suggesting adequate ventilation (mechanical or natural) to flush the building. For both Mother

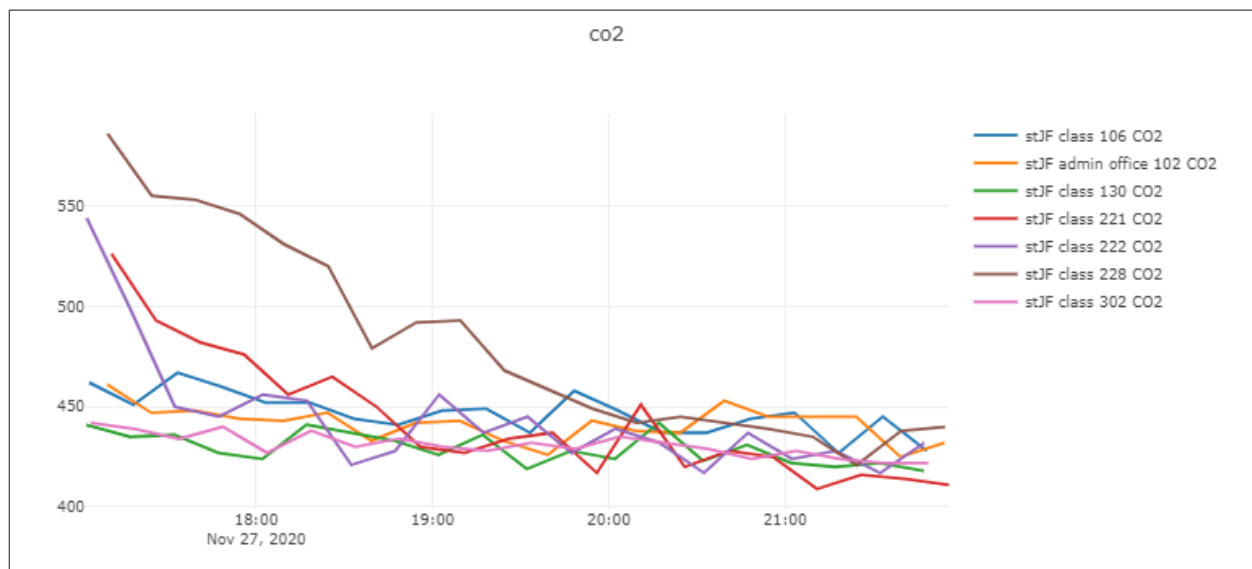
Cabrini and St. Jane Francis, CO<sub>2</sub> concentrations returned to baseline conditions each evening. CO<sub>2</sub> concentrations at St Raphael did not however fully flush in each of the classrooms each weeknight.

In order to evaluate the flushing, Pinchin examined the data from Friday November 27, 2020. Pinchin examined the data after school hours on the Friday to determine when all sensors had returned to baseline concentrations (all sensors <450ppm). Friday was picked as a worst case in that if flushing had not been completed earlier in the week, the overall Friday concentrations could be higher than other days.

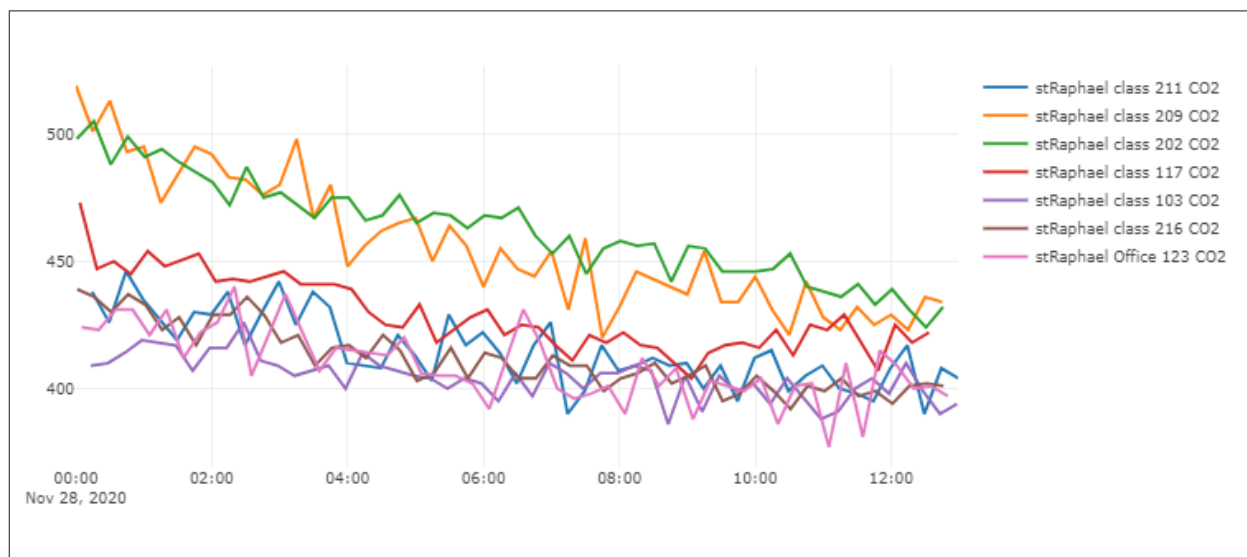
Mother Cabrini – CO<sub>2</sub> concentrations returned to baseline by approximately 18:00 Friday evening.



St. Jane Francis - CO<sub>2</sub> concentration returned to baseline by approximately 21:00 Friday evening



St. Raphael – CO<sub>2</sub> concentrations returned to baseline by approximately 11:00 on Saturday.



### 5. Were there classroom occupant densities that lead to better controlled carbon dioxide concentrations?

Occupant density plays a role in indoor CO<sub>2</sub> concentrations where ventilation does not compensate. At St. Raphael, occupant density and CO<sub>2</sub> concentrations have a high correlation with very similar rank orders of minutes over 800 ppm and occupant density. At St. Jane Francis there was not a strong correlation between occupant density and CO<sub>2</sub> concentrations. The HVAC system at St. Jane Francis plays a mitigating role in CO<sub>2</sub> concentrations.

At St. Raphael, even the lowest levels of occupancy (Classroom 103 with 14 occupants) regularly exceeded both the 800 ppm and 1200 ppm limits.

**Table VII – St. Raphael Occupancy Summary**

Location / Grade	Occupant Load	Approximate Room Size sf	Occupant Density Persons / 10sf	Minutes over 800 ppm	Minutes over 1200 ppm
Room 202 – Grade 7/8	21	815	0.26	535	270
Room 209 - Grade 2	16	760	0.21	380	41
Room 103 - Grade 1	14	760	0.18	297	47
Workroom 211	5	264	0.19	295	6
Room 216 – Grade 3	15	815	0.18	260	15
Room 117 – Kindergarten	20	760	0.26	107	0

**Table VIII – St. Jane Francis Occupancy Summary**

<b>Location / Grade</b>	<b>Occupant Load</b>	<b>Approximate Room Size sf</b>	<b>Occupant Density Persons / 10sf</b>	<b>Minutes over 800 ppm</b>	<b>Minutes over 1200 ppm</b>
Classroom 228 – Grade 4 – New Wing	17	825	0.21	396	155
Classroom 222 – Grade 6 – Original Building	21	816	0.26	391	15
Classroom 106 – Grade 7/8 – New Wing	21	825	0.25	328	0
Classroom 302- Grade 5 – New Wing – No Windows	22	825	0.27	54	0
Classroom 130 – JK – Original Building	18	912	0.20	29	0
Classroom 221 – Grade 2/3 split – Original Building	15	816	0.18	17	0

#### **4.2 Window Ventilation General**

The Chartered Institution of Building Services Engineers (CIBSE) recommend opening both the top and bottom windows simultaneously when possible and in cold weather opening the upper window to minimize draft / thermal comfort complaints. At Mother Cabrini the upper awning windows in the subject classrooms were prevented from opening due to window shade installation. The upper portion of the double hung windows at St Jane Francis were too high to be readily opened and are likely rarely used. The upper portion of the windows at St. Raphael are not openable operational.

During the study we rarely saw all the windows in a classroom open at the same time which would increase the overall window opening size. Further the 4" opening restriction on the vertical sliders and double hung windows, and the fact that the upper windows were very difficult to open further impacted the potential size of the window opening. The 4" window restrictors are a code requirement to prevent falls and cannot be changed without installation of safety cages on the building exterior. Where equipped operation of both the upper and lower windows should be considered when temperatures allow. In cold weather the upper window, where equipped, could be utilized to encourage ventilation and minimize temperature complaints. See attached report in Appendix 1 for additional information.

The CIBSE also suggest that window ventilation is most effective in rooms where the room width is less than twice the ceiling height. The CIBSE suggest that air circulation with fans may be required in these



rooms to avoid dead spots. The existing HEPA filtration units should help with air circulation within the classrooms where this ratio is not met.

Although window opening did not appear to significantly improve ventilation outcomes during this study it may be possible to provide some improvement as follows:

1. Make better use of the existing windows. Open all available windows to maximize window opening size. Where classrooms are equipped with windows that open both top and bottom this should include the upper window. Where cold temperatures and draft is an issue, and the classroom is so equipped, open the top section of the window only. Where top opening windows are available but difficult to operate consider having caretaking staff open the upper windows before class and close them after class.
2. Continue to use HEPA filtered portable air filters in conjunction with the window ventilation to provide mixing in the rooms and to address the potential impact of the introduction of increased volumes of unfiltered outdoor air in the classrooms.

The amount of improvement possible with these changes is not clear. The changes above should be implemented in suitable subject school. The subject school should be a non-mechanically ventilated school equipped with windows that open both top and bottom. These rooms can be equipped with CO<sub>2</sub> sensors for a two-week to four-week period to determine if acceptable ventilation levels are achieved.

### 4.3 General

#### 4.3.1 Mother Cabrini

Overall, the HVAC system at Mother Cabrini is providing excellent ventilation. CO<sub>2</sub> exceedances above 1200 ppm did not occur at the school and exceedances over 800 ppm were very rare. This is likely related primarily to HVAC operation which is currently allowing for maximum ventilation with outdoor air dampers open 100%. It will be important to review performance as colder weather arrives which may prevent that level of ventilation in order to maintain thermal comfort.

#### 4.3.2 St. Jane Francis

Overall, the HVAC system at St. Jane Francis is providing acceptable ventilation. While exceedances above 800 ppm occurred, exceedances over 1200 ppm were rare only occurring in two of the subject rooms. The variation in ventilation at St. Jane Francis may suggest that the system is not properly balanced and therefore providing differing levels of ventilation to different rooms. It might be prudent to review the current operation of the system and undertake a balancing to ensure the design level air volumes are being delivered to all Classrooms.





Given the variation in the system and the exceedances observed in the data, installation of portable HEPA filtration units in the classrooms would be a reasonable precautionary measure.

#### **4.3.3 St. Raphael**

No mechanical ventilation is in place at St. Raphael and as a result, this school performed poorly with respect to CO<sub>2</sub> concentrations. At the occupancy levels during the study period, none of the classrooms were able to consistently maintain CO<sub>2</sub> concentrations below the 800 ppm threshold.

Austin Air Systems Model HM400/410 portable air filters were installed in each of the subject classrooms. The units operate on low (75 CFM), medium (200 CFM) and high (400 CFM) settings. Assuming a room volume of (850 sf and 9' ceilings) 7650 cubic feet, these units can provide 0.6 air changes per hour (ACH), 1.6 ACH, and 3.1 ACH on each of the respective settings. The peak CO<sub>2</sub> concentrations suggest approximately 1 ACH by natural ventilation. The combined natural ventilation and filtration provide in total approximately the equivalent on 4.1 ACH.

Operating high speed, one unit can result in 99.9% of particulate removal in approximately 132 minutes. The units should be left to run on high at least this long before and after class.

## **4.4 Relative Humidity**

ASHRAE has recommended maintaining indoor relative humidity in classrooms between 40-50% during winter months as a COVID-19 control. Relative humidity across the three schools was maintained between roughly 15% and 50% and was primarily influenced by outdoor conditions. St. Jane Francis is equipped with a humidification system. As colder weather approaches, maintaining indoor relative humidity above 30% will become more difficult. The humidification system at St. Jane Francis should be reviewed and adjusted to ensure adequate humidification as colder weather approaches. Ensure any adjustments consider the potential for condensation and microbial growth on cold surfaces.

## **4.5 Filtration**

Staff at Mother Cabrini report that the HVAC system is currently equipped with MERV13 filters. This meets ASHRAE's recommendation with respect to filtration of recirculated air. Staff at St. Jane Francis were not aware of the MERV rating of the current filter there. The HVAC equipment should be reviewed at St. Jane Francis and the maximum efficiency filters (highest MERV rating) recommended by the manufacturer should be installed.

As discussed above, classrooms at St. Raphael are equipped with portable HEPA filtration units.



## 5.0 RECOMMENDATIONS

Pinchin offers the following recommendations:

1. Continue to monitor CO<sub>2</sub> / ventilation rates at Mother Cabrini to confirm performance as colder weather arrives.
2. Review the HVAC system at St. Jane Francis and ensure:
  - a. The system is properly balanced.
  - b. The maximum efficiency filters (highest MERV rating) recommended by the manufacturer are installed. Ideally this would be MERV13.
  - c. The humidification system is functioning properly.
  - d. Consider deploying portable air filters in classrooms where ventilation performance is not maintaining CO<sub>2</sub> concentrations consistently below 800 ppm.
3. Operate HVAC systems and portable HEPA filters for a minimum of 2.5 hours before and after occupancy to help flush / filter airborne particulate between school days.
4. Implement the following strategies to maximize natural ventilation in schools not equipped with mechanical ventilation.
  - a. Open all available windows to maximize window opening size. Where classrooms are equipped with windows that open both top and bottom this should include the upper window. Where cold temperatures and draft is an issue, and the classroom is so equipped, open the top section of the window only. Where the upper window is operable but difficult to operate consider having caretaking staff open the upper windows before class and close them after class.
5. Implement window operation changes in select classrooms at a suitable subject school. Monitor CO<sub>2</sub> and temperature over a 15-30 day period to determine if changes to window operation can improve ventilation outcomes.

## 6.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties.



**Investigation of Indoor Air Quality**

Three School Ventilation Study, Mother Cabrini, St. Jane Francis and St. Raphael  
Toronto Catholic District School Board

February 17, 2021

Pinchin File: 281161

REVISED

Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

J:\281000s\0281161.000 TCDSB,VarLoc,Tor,Active\IAQ\Installation\Deliverables\Revised\281161 Final IAQ Report Three School Ventilation Study TCDSB Revised Feb 17, 2021.docx

Template: Master Report for Investigation of Mould Growth and IAQ, IEQ, August 22, 2019

**APPENDIX I**  
**Window Assessment Report**



February 12, 2021

PRIVATE & CONFIDENTIAL

St. Raphael Catholic School  
3 Gade Drive  
North York, ON M3M 2K2

**Re: Window Assessment**  
3 Gade Drive, North York, Ontario  
Pinchin File: 287111.000

At the request of Toronto Catholic District School Board (TCDSB) (Client), Pinchin Ltd. (Pinchin), conducted a review of the windows at St. Raphael Catholic School located at 3 Gade Drive, North York, Ontario, (Site). A general condition assessment of the windows was conducted for the purpose of making recommendations for improving the amount natural ventilation in response to the COVID-19 pandemic.

This investigation was requested in response to potential issues regarding the amount of natural ventilation provided by the existing window of the Site building. A visual review of the Site building was carried out on January 26, 2021.

## **1.0 BUILDING DESCRIPTION**

The Site consists of a two-storey institutional building with brick masonry cladding, a flat roof, concrete masonry unit (CMU) backup walls and metal-framed windows and doors. The windows consist of aluminum frames with a combination of fixed and operable (i.e., vertical slider) Insulated Glass (IG) units. The windows also feature spandrel panels at the top sections of the windows that feature a cork board finish on the interior and a metal salmon-colored finish on the exterior.

## **2.0 OBJECTIVE**

The purpose of the condition assessment was to assess and provide recommendations relating to the potential for increasing the amount of natural ventilation that could be achieved through windows, existing or new, while meeting application standards and minimizing the risk for pinching and fall hazards.

A visual assessment of the interior side of the windows was carried throughout both floors of the Site building. The assessment was conducted in order to document current opening capabilities, restrictors used, ease of operation, and general condition of the windows, all of which were used to determine the best option (i.e. refurbishment or replacement).

Furthermore, a visual assessment of the exterior side of the windows was carried out from the ground level to assess overall condition. The visual survey was conducted in order to document condition of

sealants, staining, corrosion and other evidence of deterioration on the windows as well as the condition of interface joints between components.

### **3.0 OBSERVATIONS**

#### **3.1 General Window Observations**

The windows of the Site building consist of a combination of fixed and operable (i.e., vertical slider) aluminum framed IG units with spandrel panels as the top sections of the windows. The majority of the windows were found to have been manufactured in 2004 (i.e. approximately 17 years old), with a few units having been manufactured in 2014 (i.e. approximately 7 years old). The windows were noted to feature stone sills on the interior and precast concrete sills on the exterior (refer to Photographs 1 to 4).

#### **3.2 Interior Review**

1. Pinchin noted that the typical opening for the vertical slider windows were found to open to a height of approximately 4 inches (") on the interior side of the frame. While it was noted that at least one window assembly per classroom were noted to have been modified with the restrictors moved upwards to allow for a window opening of approximately 13" on the interior side (Refer to Photographs 5 and 6).
2. All of the operable units tested were generally found to be relatively easy to open, however, they were generally very hard to close.
3. Washroom windows were observed to not have any restrictors at the time of the Site review; it is presumably due to their height above floor level and access.

#### **3.3 Exterior Review**

1. The windows on the ground floor on the east elevation of the building were noted to have protective cages / screens covering the window assemblies. The protective cages / screens were noted to generally be in good condition with the exception of minor corrosion (Refer to Photograph 7).
2. The exterior face of the frames and spandrel panels were noted to be generally in good condition with no significant signs of discoloration or deterioration that could be observed during the Site review.

#### 4.0 PHOTOGRAPHIC DOCUMENTATION

The following photographs were taken during our cursory review of the Site building.



Photograph No. 1

Interior view of typical classroom window assembly.



Photograph No. 2

Exterior view of typical classroom window assembly.



Photograph No. 3

Interior view of typical office window assembly.



Photograph No. 4

Interior view of typical staircase window assembly.



Photograph No. 5  
View of regular opening restrictor.



Photograph No. 6  
View of modified opening restrictor.



Photograph No. 7  
Exterior view of typical window protection on the ground floor window assembly with minor corrosion.

## 5.0 DISCUSSION

Overall, the windows of the Site Building were noted to generally be in fair to good condition with the exception of the aforementioned deficiencies. Aluminum-framed window assemblies of the type employed throughout the Site Building typically have a Projected Useful Life (PUL) of 30 to 35 years provided that routine maintenance, including cleaning of the drained window tracks and replacement of handles, etc., is performed on an as-required basis. The majority of the window assemblies appeared to be from circa 2004 (i.e. approximately 17 years old) and are anticipated to have approximately 13 or more years of useful life remaining. However, the PUL of exterior grade sealant is approximately 12 to 15 years, based on Pinchin's observations, it appears that the perimeter sealants and exterior sealants at the window frames have reached their PUL and are recommended for replacement in the short term.





Pinchin reviewed the potential for increasing the opening sizes of the operable windows (i.e. the vertical sliders) for the purpose of ventilation and found that the options are limited. The Ontario Building Code (OBC) 2012 restricts the window openings to 4" (100mm) if the window opening is located at a height less than 42" (1070mm) high from floor level and if there is more than 24" (600mm) of difference in the level between the window (i.e. window sill height) and the exterior ground level (i.e. at grade) (Refer to OBC 3.3.1.17 (1)(c) and 3.3.1.17 (2)). This entails that all second floor windows and first floor windows with climbable access (i.e. millwork or radiators) have a greater than 24" (600mm) distance to grade and would need to have their openings limited to 4" (100mm). Overall, Pinchin found that most of the windows at the Site Building meet the requirement for the restriction of the openings to 4" (100mm).

As well, considering the *"Investigation of Indoor Air Quality"* report prepared by Pinchin for TCDSB concluded that increasing the window opening did not result in better ventilation, Pinchin recommends the continued limit of the window openings to 4" (100mm) at all the windows of the Site Building. If there is still a desire to open the window beyond the recommended 4" (100mm), despite it not increasing the air movement, Pinchin noted that a protective cage or screen would need to be installed at the windows to create the required guard to protect from fall hazards. However, Pinchin does not recommend this course of action as the cost related to installing protective cages is greater than any benefit from doing so. In addition, structural design of the protective cages is required to ensure code compliance and adequate anchorage to the existing window frames and walls.

Moreover, as the windows reach their PUL, Pinchin recommends that the windows be replaced with an awning, casement, or hopper style opening in order to better address any safety concerns related to fall hazards and risk of pinching. Pinchin also recommends incorporating more operable sections located higher up within the new window assemblies to further reduce the fall hazards and risk of pinching. Finally, another benefit of replacing the slider windows with awning/casement/hopper style windows would be energy efficiency. Awning/casement/ hopper style windows are generally considered to be more energy efficient than sliders due to the compression of the window seals necessary to properly close the windows, which reduces the air leakage, and therefore increases energy efficiency.

## **6.0 OPTIONS**

The following recommendations are intended to provide direction regarding repairs/replacement that, in Pinchin's opinion, are required to rectify the reported ventilation and safety concerns, as well as the water infiltration and other problems identified at the Site building during our review. As this report is of a cursory nature, further investigation may be necessary to fully identify all repair requirements. Pinchin would be pleased to assist St. Raphael Catholic School in the remediation of the identified problems found at 3 Gade Drive, North York, Ontario. Specification development may be required to provide a



Contractor with a fully developed Scope of Work including specified materials and repair / installation methods.

#### **6.1 Exterior Window Protective Cage Installation**

1. Conduct a Structural Review of the current window assemblies to determine the requirements for the protective cages and their installment.
2. Remove all existing exterior window protective caging, without damaging adjacent finishes or causing damage to the window assembly.
3. Supply and install protective cages on the exterior of the window assemblies to act as fall protection or as a guard. Colour of window assemblies protective cage to be chosen by Owner.

#### **6.2 Window Replacement (Awning/Casement/Hopper Style)**

1. Supply and install one (1) mock-up assembly for each of the windows. Colour of window assemblies to be chosen by Owner.
2. Remove and dispose of existing windows (glass, frames and sill flashings), including all associated sealants.
3. Clean and prime all surfaces to receive membrane as per the membrane manufacturer's written specifications.
4. Install aluminum upstand angle on interior side of rough opening.
5. Install new sub-sill flashing membrane onto sill rough opening.
6. Install new windows in existing openings with frames plumb, true, level, with frames square, free from warp, twist and superimposed loads.
7. Cap exterior sill with new prefinished metal flashing.
8. Completely fill void around frame perimeters with spray foam.
9. Apply sealant using equipment in accordance with manufacturer's written instructions.
10. Remove sealant smears and droppings on completion of sealant installation in affected areas. Clean out sill track and drainage paths.

Should you wish to proceed with the recommended actions, do not hesitate to contact our office to discuss the appropriate steps for full remediation of the building related problems discussed in this report.



## 7.0 REPAIR COST ESTIMATES

The following tables represent Pinchin's estimated construction costs for the repair work options recommended in Section 6.0 for the Site building located at 3 Gade Drive, North York, Ontario.

SECTION	DESCRIPTION OF WORK	ESTIMATED COST (excluding taxes)
6.1	Structural Review	\$10,000
	Exterior Window Protective Cages	\$140,000
<b>Additional Items</b>		
Mobilization & Overhead		\$10,000
Contingency Allowance (10%)		\$16,000
<b>Subtotal</b>		\$176,000
<b>Tender Variance (+/- 10%)</b>		\$17,600
<b>Total Estimated Construction Costs</b>		\$158,400 to \$193,600

The noted repair costs above exclude the following:

1. Harmonized Sales Tax (HST).
2. Consulting fees.

SECTION	DESCRIPTION OF WORK	ESTIMATED COST (excluding taxes)
6.2	Window Replacement (Including Sealant Replacement)	\$475,000
<b>Additional Items</b>		
Mobilization & Overhead		\$35,000
Contingency Allowance (10%)		\$50,500
<b>Subtotal</b>		\$560,500
<b>Tender Variance (+/- 10%)</b>		\$56,050
<b>Total Estimated Construction Costs</b>		\$504,450 to \$616,550

The noted repair costs above exclude the following:

1. Harmonized Sales Tax (HST).
2. Engineering and Consulting fees



The above estimated costs are Class D estimates only. Quotes should be obtained from qualified contractors based on technical specifications and drawings prepared by Pinchin Ltd., to obtain accurate project pricing.

## **8.0 TERMS AND LIMITATIONS**

This work was performed subject to the contractual and technical Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

The assessment is based, in part, on information provided by others. Unless specifically noted, Pinchin has assumed that this information was correct and has relied on it in developing the conclusions. Environmental audits, or the identification of designated substances, hazardous materials and mould are excluded from this report.

The intent of Pinchin's comments on water infiltration inspection is for the sole purpose of identifying areas where Pinchin has observed a noteworthy condition.

Unexpected conditions may be encountered at the Site that has not been explored within the scope of this report. Should such an event occur, Pinchin should be notified in order to determine if modifications to the conclusions are necessary.



## 9.0 CLOSURE

Pinchin trusts that the aforementioned report addresses your requirements. Should you require clarification or information regarding this report, please contact the undersigned.

Sincerely,

### Pinchin Ltd.

Prepared by:

Raven Cote, B.Eng.  
Project Coordinator, Building Science and  
Sustainability  
289.971.5940

[rcote@pinchin.com](mailto:rcote@pinchin.com)

\\pinchin.com\Miss\Job\287000s\0287111.000 TCDSB, StRaphael, 3GadeDr, BSS, BECA\Deliverables\287111 FINAL Window Assessment, St. Raphael, 3 Gade Dr North York, TCDSB Feb. 12, 2021.docx

Template: Building Envelope Condition Assessment, Short Report, BSS, March 11, 2020

Reviewed by:

Ahmed Alyousif, PhD, P.Eng.

Director, Building Science and Sustainability  
905.363.1459

[aalyousif@pinchin.com](mailto:aalyousif@pinchin.com)



REPORT TO

REGULAR BOARD

## STAFFING AT ST. ANNE CATHOLIC ACADEMY, SCHOOL OF VIRTUAL LEARNING

*Where there is no guidance, a nation falls, but in an abundance of counselors there is safety. Proverbs 11:14*

Created, Draft	First Tabling	Review
February 15, 2021	February 18, 2021	<a href="#">Click here to enter a date.</a>

Michael Caccamo, Superintendent of Nurturing Our Catholic Community; Continuing Education; Safe Schools; St. Anne Catholic Academy, School of Virtual Learning  
 Adrian Della Mora, Executive Superintendent of Human Resources and Employee Relations  
 Lori DiMarco, Superintendent of Curriculum Leadership & Innovation; Academic ICT; St. Anne Catholic Academy, School of Virtual Learning  
 Maria Meehan, Superintendent of Special Services

### RECOMMENDATION REPORT

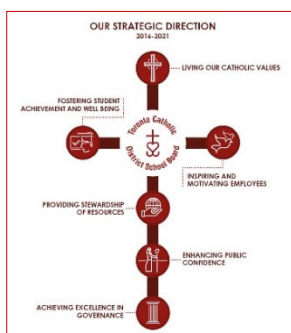
#### Vision:

*At Toronto Catholic we transform the world through witness, faith, innovation and action.*

#### Mission:

*The Toronto Catholic District School Board is an inclusive learning community uniting home, parish and school and rooted in the love of Christ.*

*We educate students to grow in grace and knowledge to lead lives of faith, hope and charity.*



Brendan Browne, PhD  
Director of Education

D. Koenig  
Associate Director  
of Academic Affairs

S. Camacho  
Acting Associate Director  
Facilities, Business and  
Community Development

## **A. EXECUTIVE SUMMARY**

This report provides information relating to the design and ongoing refinement of St. Anne Catholic Academy during the COVID pandemic. It speaks to the various supports in place at St. Anne to address student needs as the TCDSB simultaneously plans for an eventual full return to brick-and-mortar instruction.

*The cumulative staff time required to prepare this report was 43 hours.*

## **B. PURPOSE**

This report is offered in response to a motion at the February 3, 2021 Student Achievement and Well-Being, Catholic Education and Human Resources Committee.

## **C. BACKGROUND**

1. At the February 4, 2021 committee meeting, the following motion was passed in response to the Return to School Update (item 17a).

WHEREAS: There are 64 guidance counsellors at the secondary level of our Board and there is a disparity in the distribution between virtual and in person.

WHEREAS: Administrators were reallocated to address an imbalance in the number of students enrolled in virtual learning in the past.

BE IT RESOLVED THAT: The guidance department focused solely on St. Anne's academy virtual students be supplemented with an additional 4FTE.

2. This motion arose from inquiries related to the supports in place for the mental health and well-being of the students at St. Anne Catholic Academy.
3. St. Anne Catholic Academy was designed as a temporary solution in response to the pandemic and parent and student needs. The goal was to ensure system staffing requirements were in place to meet the needs of all

students with the contingency of being ready for an uncertain but eventual full return to a brick-and-mortar school delivery model. As such, the TCDSB elected to leave Guidance Counsellors and other employee group allocations status quo in the brick-and-mortar schools and have them carry out their services to their assigned students in both brick-and-mortar and remote (St. Anne) settings.

4. Ongoing challenges associated with this pandemic have required Board staff to implement additional strategic supports to address evolving student needs.

## **D. EVIDENCE/RESEARCH/ANALYSIS**

1. In addition to the classroom staffing, St. Anne was assigned these additional allocations, dedicated solely to supporting the students in the school:
  - 4 Secondary Guidance Counsellors
  - 1 Autism Support Teacher
  - 1 Secondary Special Education Teacher
  - 1.5 K-12 Social Workers
  - 1.5 K-12 Speech & Language Pathologist
  - 1 Elementary Assessment & Programming teacher
  - 1 K-12 Assistive Technology teacher
  - 1 K-12 Psychologist
2. Key brick-and-mortar staff who are also supporting St. Anne, include all:
  - Elementary Guidance Counsellors
  - Secondary Guidance Counsellors
  - Central Guidance Resource Teachers
  - K-12 Special Education Resource Teachers
  - K-12 ESL Teachers
  - Secondary Chaplaincy Team Members
  - Secondary Program & Assessment teachers
  - Elementary Assessment & Programming teachers
  - Social Workers
  - Mental Health Practitioners
3. All staff continue to be provided with School Mental Health Ontario (SMHO) resources supported by regular check-ins with SMHO by the TCDSB Mental Health Lead. Education Assistants, Child and Youth



Workers, elementary and secondary teachers have received system in-services on mental health and well-being.

4. Plan of Care for St. Anne Students:
  - designed by the Special Services Department;
  - shared by St. Anne administrators with St. Anne Staff;
  - shared with brick-and-mortar school administrators so that they are aware of their role in supporting students;
  - includes “ONE-CALL” approach for educators to support meeting student needs (Observe, Notice, Explore, Connect, Ask, Listen, Link);
  - elaborates on the “Link” component of the “ONE –CALL” approach and provides staff with next steps when dealing with an emergency involving a student in crisis;
  - included educators receiving clear direction on the process of linking students to home-school support staff such as Guidance Counsellors, Social Workers and Psychologists.
  - includes services that are provided remotely, with parental permission where required.
5. Through Chaplaincy, we continue to provide students with the ongoing availability of resources and supports (liturgies, prayers, reflections, and chaplaincy) to promote pastoral care, faith formation, and faith animation.
6. Through Catholic Student Leadership, we continue to engage students in Catholic social justice issues, faith formation and animation, wellness and leadership development opportunities during various student-led virtual experiences (i.e. CSLIT, ECSLIT).
7. Based on a review of quadmasters 1 and 2 service levels at St. Anne, Senior Staff initiated planning to add 4 additional staff: 2 guidance counsellors and 2 credit recovery teachers.
8. Respectful of budgetary pressures and as a result of deliberate additional supports, Senior Staff are confident that the current staffing plan at St. Anne meets student needs.

## **D. METRICS AND ACCOUNTABILITY**

Key central departments align their work to monitor and respond to St. Anne student and staff needs. The Director of Education and Associate Director of Academic Affairs provide oversight to the process and offer regular updates to trustees via a return to school report.

## **E. STAFF RECOMMENDATION**

Staff recommend that plans already in progress continue for the addition of the following staff to St. Anne Catholic Academy, School of Virtual Learning, to address additional needs:

- 2 Secondary Guidance Counsellors, and
- 2 Secondary Credit Recovery Teachers

## **OUR MISSION**

*The Toronto Catholic District School Board is an inclusive learning community uniting home, parish and school and rooted in the love of Christ.  
We educate students to grow in grace and knowledge to lead lives of faith, hope and charity.*

## **OUR VISION**

*At Toronto Catholic we transform the world  
through witness, faith, innovation and action.*



# **MINUTES OF THE REGULAR VIRTUAL MEETING OF THE SPECIAL EDUCATION ADVISORY COMMITTEE PUBLIC SESSION**

**HELD WEDNESDAY JANUARY 20, 2021**

## **PRESENT:**

**Trustees:** N. Crawford  
A. Kennedy

**Student Trustees:** K. Baybayon  
K. Nguyen

**External Members:** George Wedge, Chair  
Geoffrey Feldman  
Lisa McMahon  
Tyler Munro  
Deborah Nightingale  
Mary Pugh  
Wendy Layton

**Staff:** D. Koenig  
M. Meehan  
N. Adragna  
M. Caccamo  
C. Cifelli  
V. Cocco  
M. Consul  
J. Corbett  
D. Fahlenbock  
S. Flood  
M. Gendron  
J. Mirabella

D. Reid  
P. Stachiw

S. Pellegrini, Acting Recording Secretary

**3. Roll Call & Apologies**

An apology was extended on behalf of Melanie Battaglia, Lori Mastrogiuseppe and Glenn Webster.

Trustee Di Giorgio was absent.

**4. Approval of the Agenda**

MOVED by Trustee Crawford, seconded by Deborah Nightingale, that the Agenda, be approved.

On the Vote being taken, the Motion was declared

CARRIED

**6. Declarations of Interest**

Trustee Kennedy declared an interest in Item 9c) Priority Budget Setting Discussion as she has family members who are employees of the Board. Trustee Kennedy indicated that she would neither participate in discussions nor vote on the Item.

## **7. Approval and Signing of the Minutes**

MOVED by Geoffrey Feldman, seconded by Trustee Crawford, that the Minutes of the Regular Meeting held December 2, 2020 be approved.

On the Vote being taken, the Motion was declared

CARRIED

## **9. Annual Calendar Items**

MOVED by Deborah Nightingale, seconded by Tyler Munro, that Item 9a) be adopted as follows:

- 9a) Special Education Advisory Committee (SEAC) Annual Calendar (Draft) as of January 20, 2021** received.

On the Vote being taken, the Motion was declared

CARRIED

MOVED by Trustee Crawford, seconded by Tyler Munro, that Item 9b) be adopted as follows:

- 9b) Special Education Plan Review – Input from SEAC Informal Working Group** that the Item be deferred to the February 17, 2021 Special Education Advisory Committee Meeting.

On the Vote being taken, the Motion was declared

CARRIED

Trustee Kennedy recused herself from the virtual room at 7:18 p.m. due to a Declaration of Interest in Item 9c), as previously indicated.

Wendy Layton joined the meeting at 7:21 p.m.

MOVED by Lisa McMahon, seconded by Trustee Crawford, that Item 9c) be adopted as follows:

- 9c) Priority Budget Setting Discussion** received.

On the Vote being taken, the Motion was declared

CARRIED

Trustee Kennedy returned to the virtual meeting room at 7:25 p.m.

## **10) Presentations**

MOVED by Trustee Crawford, seconded by Trustee Kennedy, that Item 10a) be adopted as follows:

- 10a) Student Trustees Voices that Challenge – Student Trustees Kathy Nguyen and Keith Baybayon and Michael Consul, Catholic Student Leadership Resource Teacher (Refer to Item 12b)** received.

On the Vote being taken, the Motion was declared

CARRIED

MOVED by Trustee Crawford, seconded by Deborah Nightingale, that Item 10b) be adopted as follows:

- 10b) Safe Schools Annual Report – Michael Caccamo, Superintendent of Nurturing our Catholic Community, Safe Schools, Continuing Education (Refer to Item 12c) received.**

On the Vote being taken, the Motion was declared

CARRIED

- 12) Reports of Officials for Information by the Board/Other Committees**

MOVED by Mary Pugh, seconded by Tyler Munro, that Item 12a) be adopted as follows:

- 12a) Voices that Challenge 2020 Catholic Student Leadership Impact Team (CSLIT) – Inspiring Active Citizenship in Catholic Education (Refer to Item 10a) received.**

On the Vote being taken, the Motion was declared

CARRIED

MOVED by Tyler Munro, seconded by Deborah Nightingale, that Item 12b) be adopted as follows:

**12b) Safe Schools Annual Report 2019-2020 (Refer to Item 10b)** received.

On the Vote being taken, the Motion was declared

CARRIED

MOVED by Mary Pugh, seconded by Deborah Nightingale, that Item 12c) be adopted as follows:

**12c) Annual Report on the Accessibility Standards Policy (A.35)** received.

On the Vote being taken, the Motion was declared

CARRIED

MOVED by Mary Pugh, seconded by Trustee Crawford, that Item 12d) be adopted as follows:

**12d) Mental Health and Well-Being Annual Report 2019-2020** received.

On the Vote being taken, the Motion was declared

CARRIED



MOVED by Deborah Nightingale, seconded by Trustee Kennedy, that Item 12e) be adopted as follows:

- 12e) Special Education Superintendent Update - January** received.

On the Vote being taken, the Motion was declared

CARRIED

**14. Consent and Review**

The Chair reviewed the Order Paper and the following Item was held:

20a) Pending List as at January 20, 2021 – Mary Pugh

**20) Pending List**

MOVED by Trustee Crawford, seconded by Deborah Nightingale, that Item 20a) be adopted as follows:

- 20a) Pending List as at January 20, 2021** received.

On the Vote being taken, the Motion was declared

CARRIED

**21. Adjournment**

MOVED by Tyler Munro, seconded by Geoffrey Feldman, that the meeting be adjourned.

On the Vote being taken, the Motion was declared

CARRIED

---

SECRETARY

---

CHAIR