

The Camden Clean Air Initiative

INDOOR AIR QUALITY AT SCHOOLS



August 2021

CAMDEN CLEAN AIR

The Camden Clean Air Initiative is a not-for-profit action group aiming to improve the air quality in the Borough of Camden. We work with households, workplaces, schools, and hospitality businesses to offer resources and support in their journey to reduce air pollution. We also work on Borough-wide projects including:

- Community Coffee Project
- A network of air quality monitors
- Parklets
- Camden Eco Champion Awards
- Community Air Pollution Sensor (CAPS) Project
- The Future of Greentech event series

Why is Indoor Air Quality (IAQ) so important?



Indoor air quality is reportedly between two and five times worse than outdoor air but is often forgotten about. Poor indoor air quality has been proven to increase the risk of many health problems, from headaches, lung and brain development, fatigue, respiratory illnesses, and compromised mental health.

Children are particularly vulnerable to poor Indoor Air Quality. In research conducted by [AirRated](#), around 42% of all pupils attend schools in areas that breach PM2.5 limits. Exposure to air pollution during the school day also leads to a significant reduction in cognitive performance and can potentially lead to sleeping difficulties.

Improving air quality can have a huge impact on both the health and productivity of pupils.

ST. PAULS CASE STUDY

Our aim was to create a case study to show how small and low-cost changes can be made to drastically improve indoor air quality. To demonstrate this, four IAQ monitors were installed at St. Paul's Church of England Primary School by AirRated on Friday 14th May 2021 in three classrooms and the arts and crafts room. This study consists of three parts; 'before' from 17th - 4th June, and 'after' between 7th - 25th June. Once the 'before' monitoring had taken place, we recommended changes to be made to improve the IAQ. These primarily included an increase of airflow through the school from opening doors and windows, and swapping all cleaning products for environmentally friendly ones that contained no VOCs (Volatile Organic Compounds).

You can see the results below:



100

readers appreciate
accurate information

100

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In the research conducted by AirRated, the sensors showed that the average VOC concentrations in the 4 classrooms ranged from 181ppb to 506ppb. For a healthy and productive space, TVOCs should be maintained below 333ppb. The graph shows that as soon as the recommended changes were implemented there was an overall decrease in TVOCs concentration, with the averages ranging from 135ppb to 244ppb. All four averages fell below the best practice threshold of 333ppb. These figures below show a 15% to 57% decrease in TVOCs.



Quantifying the benefit of better air at St Paul's

Increased brain function

According to a study conducted by Harvard in 2016, which aimed to assess the impact of varying levels of TVOCs and CO₂ on cognitive function, an increase of 500 µg/m³ (333ppb) in TVOCs was associated with a 13% decrease in cognitive performance. In the case of St. Paul's primary school, the most significant change observed was a 288ppb decline in the average TVOC concentration, which may be associated with 10-11% increase in cognitive performance.

Respiratory benefits

Children and staff with pre-existing respiratory conditions such as asthma or chronic obstructive pulmonary disease are at risk of potentially harmful effects from elevated levels of TVOCs in their indoor environments. Asthmatics have hyper-reactive airways making them more susceptible to the effects of airborne contaminants. They are at risk of developing symptoms such as airways irritation, throat or chest tightness, shortness of breath, or coughing. Making the switch to eco-friendly products which have far fewer VOCs is a great way to improve respiratory health for everyone.

Skin health

Contact dermatitis is a common issue triggered by cleaning products; skin irritation. It mostly affects the hands, because these are the parts of the skin most likely to be in contact with possible causes of inflammation. There are two main types of contact dermatitis.

1. Irritant contact dermatitis, which can affect anyone, occurs when the skin is in contact with harsh products. Cleaning products like bleach, washing up liquid, soap and widely-used cleaning sprays can all be to blame.
2. Allergic contact dermatitis, caused by your immune system becoming increasingly sensitive to something and is more common for people with other allergies such as asthma or eczema. Some people, particularly children, can develop allergic contact dermatitis from contact with cleaning products.

Other health benefits

Even for non-sensitive children and staff, irritation of the eyes, nose, and/or throat are common symptoms of elevated TVOC concentrations. Other less common side effects are nausea, headaches, migraines, dizziness, skin issues, and allergic reactions. The study showed that using eco-friendly cleaning products leads to significant reductions in levels of TVOCs which will minimise the adverse effects of exposure to VOCs dramatically.

100%

*Insert quote from AirRated
recommending the use of
environmentally friendly products*

CAMDEN CLEAN AIR RECOMMENDS

Following the St Pauls case study, we would like to recommend to all schools in Camden that they start using environmentally-friendly cleaning products with no VOCs. By making this simple change, we have shown that there will be an improvement to indoor air quality which can result in increased brain function, respiratory health, and skin health. Importantly, this change should be at no extra cost to schools.

Why Janitorial Express?



No. 01 – Probiotic Detergents

Probiotic Cleaning Detergents use food-safe friendly bacteria to clean at a microscopic level. The products are non-harmful and non-toxic with no VOCs. The detergents are also biodegradable meaning they cause minimal impact on aquatic life.



No. 02 – Cradle to Cradle Product Accreditation

The probiotic cleaners have Cradle to Cradle Gold Accreditation which is publicly recognised as a core concept for driving the Circular Economy. Here are the Pillars that the C2C are based on: Material Health, Material, Reutilization, Renewable Energy, Water Stewardship, and Social Fairness.



No. 03 – Collection of Used Plastic Bottles by iRecycle

Janitorial Express collects all the C2C plastic bottles that the detergents are delivered in when making their next delivery and then have them transported by iRecycle. They are then taken along Regent's Canal by barge to a specialist plastic recycling centre, thus completing the circle. Furthermore, the highly concentrated detergents generate over 20% less packaging waste than average.



MORE RECOMMENDATIONS

There are many other ways to improve IAQ, from the simple and low-cost to the larger and more expensive.

01 Open windows and doors

Sounds simple because it is! Let fresh air in and stale air out. The fresh air will rotate the indoor air around the building and disperse pollutants. This is especially important in classroom settings where CO2 levels can easily build up over the course of the day.

02 Buy Air Purifying Plants

Another easy way to improve IAQ. Plants are natural purifiers, absorbing toxins from the air. Use our [Guide to Air Purifying Plants](#) to know which to buy. You can download this [here](#).

03 Change Air Filters

Clogged air filters can interrupt airflow and increase the speed of pollutant buildup. Changing your air filters regularly prevents dust and other pollutants from circulating back to your indoor air. Air filters should be replaced every 6-12 months.

04 Humidity

Maintain a healthy level of humidity. Humidity between 30 and 50 percent helps keep dust mites, mold and other allergens under control. Use dehumidifiers and air conditioners to control the humidity level in your office.

05 Invest in an Air Purification System

Air purifiers suck in air, capture pollutants, and circulate cleaner air. Choose between small, low-cost purifiers, to whole purification systems for top results.

06 Conduct an Air Test

To make your IAQ improvement plan more directed and efficient, air tests check humidity levels, airflow, ventilation, mould growth, odours and water damage and provide you with key insights into your target areas for improving your workplace air quality. Contact [AirRated](#) to learn more.

CONTACT

To make the switch to Janitorial Express or to find out more about anything mentioned in this document, please get in touch.



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