



Green & Healthy Homes Initiative®

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February 23, 2022

Delegate Kumar P. Barve, Chair
House Environment and Transportation Committee
Lowe House Office Building, Room 251
Annapolis, Maryland 21401

Delegate Maggie McIntosh, Chair
House Appropriations Committee
Lowe House Office Building, Room 121
Annapolis, Maryland 21401

Re: **FAVORABLE** – HB686 – Public Schools – Carbon Dioxide Monitoring in Classrooms
(Safe School Indoor Air Act)

Dear Chairmans Barve and McIntosh and Members of the Committees:

The Green & Healthy Homes Initiative (GHHI) has a long-standing history of advocating for families and children on the important issues of asthma and lead poisoning prevention and developing and delivering prevention resources to improve health and racial equity outcomes for Maryland's children and families. GHHI is dedicated to addressing the social determinants of health and the advancement of racial and health equity through healthy, safe and energy efficient homes. By delivering a standard of excellence in its work, GHHI aims to eradicate the negative health impacts of unhealthy housing and unjust policies for children, seniors, and families to ensure better health, economic and social outcomes for low-income communities of color. GHHI supports HB686 to reduce carbon dioxide levels and improve indoor air quality in public schools in Maryland to better protect children's health and provide them with the opportunity to thrive.

Carbon Dioxide (CO₂) and the Need for Improved Indoor Air Quality in Schools

Carbon dioxide is a colorless, odorless gas that is a byproduct of the burning of fossil fuels and human expiration. Research has shown the negative effect of elevated carbon dioxide levels in classrooms on school performance including decision making, focus, cognitive performance, and problem resolution.¹ Elevated carbon dioxide levels affect respiratory amplitude and can cause asthma episodes or difficulty breathing. In addition to cognitive impairment and respiratory impacts on the human body, elevated carbon dioxide levels cause fatigue, headaches, dizziness, and physiological changes in circulatory and cardiovascular systems such as elevated blood pressure and increased heart rate.

The proposed remediation trigger levels of 1,200 ppm and 2,000 ppm for carbon dioxide levels in schools are reasonable and fully supported by science. The Centers for Disease Control recommends that indoor carbon dioxide levels in buildings remain below 800 ppm. The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) recommends that carbon dioxide levels remain below 1,000 ppm for classrooms and that ventilation should be improved when carbon dioxide reaches those levels.

Cost effective measures are available to improve ventilation and increase air filtration in schools. Improving standards for carbon dioxide testing and establishing levels at which remediation is required for schools is needed in Maryland to improve indoor air quality. Investments that improve indoor air quality will create a safe environment where children and teachers can be productive and perform at their peak level and where absenteeism is reduced.

Asthma

The burden of asthma, a chronic disease, greatly contributes to inequalities in health and social outcomes and health disparities, which are neither inevitable nor irremediable, especially for children and minorities in Maryland. Determinants of health related to air quality and indoor environments are known to be significant contributing causes of asthma morbidity and exacerbations and disproportionately burden populations, especially children and minorities. Poor indoor air quality caused by carbon dioxide, mold, pests, other allergens and poor ventilation contribute to asthma episodes for Maryland residents.

Asthma is the number one reason that children miss school. 25 million Americans are diagnosed with asthma and 1 in 13 children in the United States have asthma. Asthma has been shown to be the cause of the biggest loss in productivity through school and work absenteeism. Nationally, 14.4 million school days and 14.2 million work days are missed due to asthma episodes. Over 500,000 children and adults in Maryland have been diagnosed with asthma. Poor indoor quality contributes to exacerbation of asthma conditions and results in asthma episodes.

Asthma-related health disparities have disproportionately affected African American residents in Maryland, specifically children. Data available from the Maryland Asthma and Surveillance Reports demonstrates that African American asthmatics in Maryland visit the emergency room 5 times more often than White asthmatics and are hospitalized 2.7 times more often than White asthmatics in Maryland. Many asthma episodes are preventable, yet high rates of asthma related emergency department visits and hospitalizations result in substantial medical costs for the state and its residents – including \$42 million annually for asthma related hospitalizations and \$93 million for emergency department visits.

Maryland students, teachers and administrators need to know that the air they breathe in their school is healthy and is not impairing their ability to perform well at school. COVID-19 has taught us the value of proper ventilation and improved air quality in protecting occupant health. HB686 will modernize indoor air quality standards for our school buildings and address the health impact of elevated levels of carbon dioxide in classrooms. We ask for a Favorable report on HB686.

Respectfully Submitted,



Ruth Ann Norton
President and CEO

¹ Azuma, K. et al, (2018). Effects of low level intervention on Effects of low-level inhalation exposure to carbon dioxide in indoor environments: A short review on human health and psychomotor performance, *Environmental International* 121, 51-56.