



Shaping Tomorrow's Global Built Environment Today

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April 24, 2025

The Honorable Bill Rabon
Senate Rules and Operations Committee
North Carolina State Capitol
1 E Edenton St.
Raleigh, NC 27601

RE: NC SB 644 "Green Schools Save Money."

Dear Chair Rabon and Committee Members:

I am writing on behalf of ASHRAE, the American Society of Heating, Refrigerating, and Air Conditioning Engineers. We are a professional and technical society of more than 54,000 members dedicated to energy efficiency, indoor air quality, resiliency, and sustainability in the built environment. Through our Society's research, standards writing, publishing, certification, and continuing education, ASHRAE shapes tomorrow's global built environment today. As one of the premier subject matter experts on the built environment, and on behalf of more than 1,150 ASHRAE members in North Carolina, I wish to share our support for the goals of SB 644 and the buildings-related provisions in Section 1.1 of the legislation that would make needed improvements to school buildings for energy efficiency and HVAC upgrades.

The use of modern, energy efficient HVAC systems will reduce energy bills and save money. HVAC systems consume the most power out of any system in a building, so replacing old, inefficient systems with modern systems will save energy and lower utility bills for North Carolina's taxpayers. In addition to the financial savings through reduced bills, these HVAC upgrades would make North Carolina's students and educators healthier, more comfortable, and more successful.

There are substantial academic and health benefits to be gained from updating school HVAC systems. A growing body of evidence suggests that student health and student learning outcomes

are directly linked to indoor air quality, temperature, and humidity.¹ Poor indoor air quality causes and aggravates asthma and other respiratory conditions and leads to greater absenteeism among students. This in turn leads to worse academic performance and lost learning time. Schools that are too hot and/or too humid for comfort consistently have lower test scores than schools that are comfortable for their occupants.^{2,3}

We also want you to be aware of two important ASHRAE standards that could guide this effort. The use of these standards in implementing this program would guide the HVAC systems updates to be in-line with the industry's latest technology and would ensure safer, healthier schools for North Carolina's children. The consensus-based standards we recommend that schools comply with are:

- ANSI/ASHRAE Standard 62.1-2022, [*Ventilation and Acceptable Indoor Air Quality*](#), which specifies minimum ventilation rates and measures intended to provide indoor air quality that is acceptable to occupants and minimizes adverse health effects, such as breathing difficulties.
- ASHRAE Standard 241-2023, [*Control of Infectious Aerosols*](#): This standard for buildings focuses on airborne infection risk mitigation. It establishes minimum requirements for building owners, operators and professionals to improve IAQ by reducing the risk of airborne disease transmission by infectious aerosols.
- ANSI/ASHRAE Standard 55-2023, [*Thermal Environmental Conditions for Human Occupancy*](#), which specifies the comprehensive analytical methods to determine thermal environmental conditions, such as temperature, humidity, and air speed in buildings that will be acceptable to signification portion of the occupants. The latest edition of this standard includes new addenda with a focus on the application of the standard in clear, enforceable language.

On behalf of more than 1,150 ASHRAE members in North Carolina, thank you for your consideration of these comments in support of the goals of Senate Bill 644. If you have any questions, please do not hesitate to contact me or have your staff email GovAffairs@ashrae.org.

Sincerely,

M. Dennis Knight
2024-2025 ASHRAE President

¹ U.S. Environmental Protection Agency. "Indoor Air Quality in High-Performance Schools." Accessed April 4, 2025. <https://www.epa.gov/iaq-schools/indoor-air-quality-high-performance-schools>.

² Haverinen-Shaughnessy U, Shaughnessy RJ (2015) Effects of Classroom Ventilation Rate and Temperature on Students' Test Scores. PLoS ONE 10(8): e0136165. <https://doi.org/10.1371/journal.pone.0136165>

³ U.S. Environmental Protection Agency. "How Does Indoor Air Quality in Schools Affect Asthma?" Accessed April 4, 2025. <https://www.epa.gov/iaq-schools/how-does-indoor-air-quality-schools-affect-asthma>.