State of Minnesota

HOUSE OF REPRESENTATIVES

NINETY-SECOND SESSION

H. F. No. 4699

03/30/2022 Authored by Carlson, Ecklund, Klevorn, Berg, Nelson, M., and others
The bill was read for the first time and referred to the Committee on Education Policy

A bill for an act

relating to education; establishing the air ventilation program for public school buildings; authorizing grants; appropriating money; proposing coding for new law in Minnesota Statutes, chapter 123B.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. **[123B.661] AIR VENTILATION PROGRAM ACT.**

Sections 123B.661 to 123B.665 may be cited as the "Air Ventilation Program Act."

Sec. 2. **[123B.662] AIR VENTILATION PROGRAM PURPOSE.**

(a) The purpose of the Air Ventilation Program Act is to:

(1) save energy;

(2) improve indoor air quality in schools to protect student and staff health, improve attendance, improve student performance, and reduce the risk of transmission of airborne viruses;

(3) provide direct support to schools and students in communities with high rates of poverty;

(4) create high-quality jobs;

(5) benefit ratepayers by the reduction in system load resulting from the program;

(6) assess, maintain, adjust, and, if necessary, repair existing heating, ventilation, and air conditioning (HVAC) systems to verify proper and efficient operation, as well as compliance with health and safety standards;

(7) ensure that school buildings have temperature controls for a suitable learning environment; and

(8) prepare a heating, ventilation, and air conditioning assessment report documenting the work performed and identifying any additional system testing, adjusting, and balancing requirements; upgrades; replacements; or other measures recommended to improve health and safety; and efficiency of the HVAC system.

(b) A public school with facilities that comply with these requirements must provide the final heating, ventilation, and air conditioning ventilation verification report to students, parents, school personnel, and the public documenting that adequate measures have been taken to ensure the HVAC system is operational and meets all applicable codes and standards.

Sec. 3. **[123B.663] AIR VENTILATION PROGRAM DEFINITIONS.**

Subdivision 1. **General.** For purposes of sections 123B.661 to 123B.665, the terms in this section have the meanings given unless the language or context clearly shows that a different meaning is intended.

Subd. 2. **ANSI.** "ANSI" means American National Standards Institute.

Subd. 3. **ASHRAE.** "ASHRAE" means American Society of Heating Refrigeration Air Conditioning Engineers.

Subd. 4. **Certified TAB technician.** "Certified TAB technician" means a technician certified to perform testing, adjusting, and balancing of HVAC systems by the Associated Air Balance Council, National Environmental Balancing Bureau, or the Testing, Adjusting and Balancing Bureau.

Subd. 5. **HVAC.** "HVAC" means heating, ventilation, and air conditioning.

Subd. 6. **Licensed professional engineer.** "Licensed professional engineer" means a professional engineer licensed under sections 326.02 to 326.15 who holds an active license, is in good standing, and is not subject to any disciplinary or other actions with the Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design.

Subd. 7. **MERV.** "MERV" means minimum efficiency reporting value as established by ASHRAE Standard 52.2-2017 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.

Subd. 8. **Minnesota mechanical code.** "Minnesota mechanical code" means Minnesota Rules, parts 1346.0050 to 1346.1500.

Subd. 9. **PPM.** "Ppm" means parts per million.

Subd. 10. **Program.** "Program" means the air ventilation program.

Subd. 11. **Program administrator.** "Program administrator" means the commissioner of commerce or the commissioner's representative.

Subd. 12. **Qualified adjusting personnel.** "Qualified adjusting personnel" means one of the following:

(1) a certified TAB technician;

(2) a skilled and trained workforce under the supervision of a certified TAB technician; or

(3) a person certified as a testing, adjusting, and balancing technician through a program accredited by ANSI under the International Organization for Standardization ISO/IEC 17024 standard.

Subd. 13. **Qualified testing personnel.** "Qualified testing personnel" means one of the following:

(1) a certified TAB technician; or

(2) a skilled and trained workforce under the supervision of a certified TAB technician.

Subd. 14. **Registered apprenticeship program.** "Registered apprenticeship program" means an apprenticeship program that is registered under chapter 178 or Code of Federal Regulations, title 29, part 29.

Subd. 15. **Skilled and trained workforce.** "Skilled and trained workforce" means a workforce where at least 80 percent of the construction workers are either graduates of a registered apprenticeship program for the applicable occupation or are registered as apprentices in a registered apprenticeship program for the applicable occupation.

Subd. 16. **TAB.** "TAB" means testing, adjusting, and balancing of an HVAC system.

Sec. 4. **[123B.664] AIR VENTILATION PROGRAM GRANTS AND GUIDELINES.**

Subdivision 1. **Grant program.** The Department of Commerce shall establish and administer the air ventilation program to award grants to school boards to ensure that their schools have functional HVAC systems that are tested, adjusted, repaired, upgraded, or replaced to further the purposes of sections 123B.661 to 123B.665.

Subd. 2. **Grant applications.** A school board may apply for a grant by submitting an application to the program administrator, in a form and manner determined by the program

administrator, for reasonable costs of an HVAC assessment, assessment report, general maintenance, adjustment of ventilation rates, filter replacement, and carbon dioxide monitor installation. The amount requested in the application must be verified by a licensed professional engineer's estimate.

Subd. 3. **Grant awards.** (a) The program administrator shall award a grant if the school board meets the requirements determined by the program administrator to be appropriate to achieve one or more of the following purposes:

(1) improving indoor air quality in schools to protect student and teacher health, improve attendance, improve student performance, and reduce the risk of transmission of airborne viruses;

(2) providing direct support to schools and school children in communities with high rates of poverty as determined by receipt of federal Title I funding;

(3) promoting energy efficiency;

(4) complying with applicable health and safety standards;

(5) ensuring that school buildings have temperature controls for a suitable learning environment; and

(6) assessing, maintaining, adjusting, and, if necessary, repairing existing HVAC systems to ensure proper and efficient operation.

(b) The program administrator shall give priority to grant applications seeking to further any of the purposes in paragraph (a), clauses (1) to (5).

Subd. 4. **Amount of grants.** A grant shall be awarded in the requested amount plus, as contingency funding, an additional amount up to 20 percent of the requested amount for repairs, upgrades, or replacements necessary to make the system functional or more energy efficient as determined by the licensed professional engineer. The 20 percent contingency funding shall be returned to the air ventilation program if not used for the purposes specified.

Subd. 5. **Application for additional funding.** A school board may apply for additional funding if a licensed professional engineer identifies cost-effective energy efficiency upgrades or repairs that exceed the additional 20 percent contingency funding awarded.

Subd. 6. **Grants for work already performed.** The program administrator shall award a grant under this section for reimbursement of work already performed if the work was contracted and performed after ..... and meets the requirements established by the program administrator in subdivision 3 and section 123C.05.

Subd. 7. **Program guidelines and rules.** (a) The program administrator shall:

(1) adopt guidelines for the air ventilation program;

(2) establish the timing of grant funding and may provide some or all funding in advance of the performance of work if required to ensure completion;

(3) adopt guidelines no later than .....; and

(4) ensure the air ventilation program is operating and may receive applications for grants no later than ..... and begin to approve applications no later than ..... subject to the availability of funds.

(b) The technical and reporting requirements of the air ventilation program may be amended by the program administrator as necessary to reflect current COVID-19 guidance or other applicable guidance, to achieve the intent of the air ventilation program, and to ensure consistency with other related requirements and codes.

(c) The program administrator may use no more than five percent, not to exceed $5,000,000 per year, of the program funds for administering the program, including providing technical support to program participants.

(d) The program administrator may establish rules for the air ventilation program.

Sec. 5. **[123B.665] AIR VENTILATION TESTING AND MAINTENANCE PROCEDURES.**

Subdivision 1. **Functions of qualified personnel.** (a) Qualified testing personnel or qualified adjusting personnel shall perform the following functions:

(1) qualified testing personnel must install filtration with a MERV of 13 or better in the school's HVAC systems where feasible. Qualified testing personnel shall review system capacity and airflow to determine the highest MERV filtration that can be installed without adversely impacting equipment, replace or upgrade filters where needed, and verify that those filters are installed correctly. For systems that use ultraviolet germicidal irradiation to disinfect the air, qualified testing personnel shall check the lamps for proper operation, replace bulbs as needed, and verify that the ultraviolet light does not shine on filters. Qualified testing personnel shall record in the assessment report recommendations for additional maintenance, replacement, or upgrades to allow for more protective filtration; and

(2) for systems with economizers, qualified testing personnel shall test system economizer damper operation. A skilled and trained workforce shall repair economizer dampers and

controls that are not properly functioning. Qualified testing personnel shall record in the assessment report recommendations for additional maintenance, replacement, or upgrades.

(b) After completing the requirements of clauses (1) and (2), qualified testing personnel shall verify the ventilation rates in the facility classrooms, auditoriums, gymnasiums, nurses' offices, restrooms, and other occupied areas to assess whether they meet the minimum ventilation rate requirements set forth in ANSI/ASHRAE Standard 62.1-2019, Ventilation for Acceptable Indoor Air. The assessment shall include:

(1) calculation of the required minimum outside air ventilation rates for each occupied area based on the anticipated occupancy and the minimum required ventilation rate per occupant. Calculations shall be based on maximum anticipated classroom or other occupied area occupancy rates and determined by the Minnesota mechanical code. Natural ventilation shall be designed in accordance with the Minnesota mechanical code and shall include mechanical ventilation systems designed in accordance with the Minnesota mechanical code;

(2) measurement of outside air and verification of whether the system provides the minimum outside air ventilation rates. If the system does not meet the minimum ventilation rate requirements calculated in clause (1), the licensed professional engineer or qualified adjusting personnel shall review the system airflow and capacity to determine if additional ventilation can be provided without adversely impacting equipment performance and indoor environmental quality. If additional ventilation can be provided, qualified adjusting personnel shall adjust ventilation rates to meet the minimum ventilation rate requirements calculated in clause (1), to the extent feasible. After the adjustment, the measurement of outside air and verification of whether the system provides the minimum outside air ventilation rates shall be repeated. If minimum ventilation rate requirements calculated in clause (1) cannot be met, the qualified testing personnel shall report the deficiency in the assessment report and the verification report and a licensed professional engineer shall address the deficiency as required;

(3) survey of readings of inlets and outlets to verify all ventilation is reaching the served zone and that there is adequate distribution;

(4) verification of whether inlets and outlets are balanced within tolerance of the system design;

(5) documentation of readings of values and deficiencies. If the original system design values are not available, the qualified testing personnel shall document available information and note unavailability of system design values in the assessment report;

(6) verification of building pressure relative to the outdoors to ensure positive pressure differential and to ensure the building is not overpressurized;

(7) verification of coil velocities and coil and unit discharge air temperatures required to maintain desired indoor conditions and to avoid moisture carryover from cooling coils;

(8) verification that separation between outdoor air intakes and exhaust discharge outlets meets the requirements of the Minnesota mechanical code;

(9) confirmation that the air handling unit is bringing in outdoor air and removing exhaust air as intended by the system design;

(10) measurement of all exhaust air volume for exhaust fans, including restrooms, and documentation of any discrepancies from system design;

(11) if installed, a demand control ventilation adjusted to a carbon dioxide set point of 800 ppm or less and tested by qualified testing personnel. If the demand control ventilation system does not maintain average daily maximum carbon dioxide levels below 1,100 ppm, it shall be disabled until such time as the school board determines that the COVID-19 crisis has passed, unless disabling the control would adversely affect operation of the overall system. When disabling a demand control ventilation system, the system must be configured to meet the minimum ventilation rate requirements and tested and adjusted. Qualified testing personnel shall record in the assessment report recommendations for additional maintenance, replacement, or upgrades;

(12) verification of coil condition, condensate drainage, cooling coil air temperature differentials (entering and leaving dry bulb), heat exchanger operation, and drive assembly. If a repair, replacement, or upgrade is necessary, the qualified testing personnel shall report the deficiency in the assessment report and the verification report and a licensed professional engineer shall address the deficiency as required;

(13) review of control sequences to verify systems will maintain intended ventilation, temperature, and humidity conditions during school operation. Qualified testing personnel shall reopen previously unoccupied buildings and perform the recommended practices covered in the ASHRAE Building Readiness document - Restarting a Building;

(14) verification that a daily flush is scheduled for two hours before and after scheduled occupancy or demonstration of calculation of flush times per ASHRAE Guidance for Reopening and Operating Schools and Buildings or otherwise applicable local or state guidance; and

(15) verification that HVAC system operation times, exhaust fans operation times, setpoints, and enabled features meet ASHRAE Guidance for Reopening and Operating Schools and Buildings or otherwise applicable local or state guidance.

Subd. 2. **Modifications by program administrator.** Requirements for filtration levels, ventilation rates, and ventilation schedules may be modified by the program administrator based on the latest COVID-19 or other applicable guidance.

Subd. 3. **Corrective measures.** If installed HVAC systems or system components are broken, fail to meet minimum ventilation requirements, or are unable to operate to the original design and intent, the qualified testing personnel shall report this information in the assessment report and provide the assessment report to a licensed professional engineer for determination of appropriate corrective measures. A skilled and trained workforce shall perform repairs, upgrades, or replacements.

Subd. 4. **Limited or no existing mechanical ventilation.** In facilities where there is limited or no existing mechanical ventilation, the assessment shall include documentation of existing conditions and shall provide the licensed professional engineer with the information needed to provide mechanical ventilation upgrade recommendations to ensure proper mechanical ventilation consistent with the Minnesota mechanical code.

Subd. 5. **Carbon dioxide monitors.** To ensure proper ventilation is maintained throughout the school year, all classrooms shall be equipped with a carbon dioxide monitor that meets the following requirements:

(1) is hardwired or plugged in and mounted to the wall between three and six feet above the floor and at least five feet away from the door and operable windows;

(2) displays the carbon dioxide readings to the teacher through a display on the device or other means such as a web-based application or cellular phone application;

(3) provides a notification through a visual indicator on the monitor, such as an indicator light, or other alert system, such as an e-mail, text, or cellular telephone application, when the carbon dioxide levels in the classroom have exceeded 1,100 ppm;

(4) maintains a record of previous data that includes at least the maximum carbon dioxide concentration measured;

(5) has a range of 400 ppm to 2,000 ppm or greater; and

(6) is certified by the manufacturer to be accurate within 75 ppm at 1,000 ppm carbon dioxide concentration and is certified by the manufacturer to require calibration no more frequently than once every five years.

Subd. 6. **Adjustment by qualified personnel.** If a classroom carbon dioxide concentration exceeds 1,100 ppm more than once a week as observed by the teacher or the facility's staff, qualified personnel shall adjust the classroom ventilation rates to ensure peak carbon dioxide concentrations in the classroom remain below the maximum allowable carbon dioxide ppm setpoint. Qualified testing personnel shall include in the assessment report verification of the installation of carbon dioxide monitors in all classrooms.

Subd. 7. **Modifications by program administrator; carbon dioxide monitors.** The requirements of subdivision 5, clauses (1) to (6), may be modified by the program administrator as necessary to reflect available technology and to achieve the intent of this section.

Subd. 8. **Assessment report.** Qualified testing personnel or qualified adjusting personnel shall prepare an assessment report for review by a licensed professional engineer. The licensed professional engineer shall review the assessment report and determine what, if any, additional adjustments or repairs are necessary to meet the minimum ventilation and filtration requirements, determine whether any cost-effective energy efficiency upgrades or replacements are warranted or recommended, and provide an estimated cost for the work. If the cost of recommended repairs, upgrades, or replacements is greater than the contingency amount provided in the grant, the licensed professional engineer and the school board shall submit an application for additional funding pursuant to this chapter. Additional grants awarded for repairs, upgrades, or replacements shall be conditioned on the applicant ensuring that all construction work funded, in whole or in part, by the additional grant is performed by a skilled and trained workforce. The assessment report shall include:

(1) name and address of school facility and person or contractor preparing and certifying the assessment report;

(2) documentation of HVAC equipment model number, serial number, general condition of the unit, and any additional information that could be used to assess replacement and repair options given the potential for increased energy efficiency benefits;

(3) either verification that MERV 13 filters have been installed or verification that the maximum MERV-rated filter that the system is able to effectively handle has been installed and what that MERV rating is;

(4) the verified ventilation rates for facility classrooms, auditoriums, gymnasiums, nurses' offices, restrooms, offices, and other occupied areas, and whether those rates meet the requirements set forth in ANSI/ASHRAE Standard 62.1-2019. An explanation is required

for any ventilation rates that do not meet applicable requirements documenting why the current system is unable to meet requirements;

(5) the verified exhaust for facility classrooms, auditoriums, gymnasiums, nurses' offices, restrooms, and other occupied areas and whether those rates meet the requirements set forth in the system design intent; and

(6) documentation of system deficiencies and recommendations for additional maintenance, replacement, or upgrades to improve energy efficiency, safety, or performance.

Subd. 9. **HVAC verification report.** Upon completion of all work funded by a grant pursuant to this article, the school board shall prepare an HVAC verification report. The HVAC verification report shall include:

(1) name and address of the school facility and the person or contractor preparing and certifying the report;

(2) description of assessment, maintenance, adjustment, repair, upgrade, and replacement activities and outcomes;

(3) verification that the school board has complied with all requirements;

(4) verification that either MERV 13 filters have been installed or verification that the maximum MERV-rated filter that the system is able to effectively handle has been installed and what that MERV rating is;

(5) the verified ventilation rates for facility classrooms, auditoriums, gymnasiums, nurses' offices, restrooms, offices, and other occupied areas and whether those rates meet the requirements set forth in ANSI/ASHRAE Standard 62.1-2019. An explanation is required for any ventilation rates that do not meet applicable requirements documenting why the current system is unable to meet requirements;

(6) the verified exhaust for facility classrooms, auditoriums, gymnasiums, nurses' offices, restrooms, and other occupied areas and whether those rates meet the requirements set forth in the system design intent;

(7) documentation of system deficiencies and recommendations for additional maintenance, replacement, or upgrades to improve energy efficiency, safety, or performance;

(8) documentation of initial operating verifications, adjustments, and final operating verifications, and documentation of any adjustments or repairs performed;

(9) verification of installation of carbon dioxide monitors, including make and model of monitors; and

(10) verification that all work has been performed by qualified personnel, including the provision of the contractor's name, certified TAB technician name and certification number, and verification that all construction work has been performed by a skilled and trained workforce.

Subd. 10. **Record keeping.** The school board shall maintain a copy of the HVAC verification report and make it available to students, parents, school personnel, and to any member of the public or the program administrator upon request.

EFFECTIVE DATE. This section is effective the day following final enactment.

Sec. 6. **PUBLIC SCHOOL HVAC SYSTEM GRANTS; APPROPRIATION.**

(a) $..... in fiscal year 2023 is appropriated from the general fund to the commissioner of commerce for Air Ventilation Program HVAC system grants for public school buildings under Minnesota Statutes, chapter 123C.

(b) The fiscal year 2024 base budget for this program is $.....