

ASSEMBLY BILL NO. 257—ASSEMBLYWOMAN MARTINEZ

MARCH 12, 2021

Referred to Committee on Education

SUMMARY—Establishes provisions governing indoor air quality in public schools. (BDR 34-212)

FISCAL NOTE: Effect on Local Government: May have Fiscal Impact.
Effect on the State: Yes.

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EXPLANATION – Matter in *bolded italics* is new; matter between brackets ~~omitted material~~ is material to be omitted.

AN ACT relating to school property; requiring the board of trustees of a school district or the governing body of a charter school to assess and improve certain ventilation and filtration systems of a school to the extent that money is available; establishing requirements for such assessments and improvements; requiring certain personnel to complete an assessment report; requiring the board of trustees of a school district or the governing body of a charter school to prepare a report; requiring certain local educational agencies to include certain information in an addendum to a plan to return to in-person instruction; and providing other matters properly relating thereto.

Legislative Counsel's Digest:

Section 6 of this bill requires the board of trustees of a school district or governing body of a charter school, to the extent that money is available, to assess the status of and make improvements to the ventilation and filtration systems of a school and ensure that the systems are performing adequately and efficiently. **Sections 7-10** of this bill set forth the requirements for qualified adjusting personnel or qualified testing personnel to assess and perform updates to: (1) a filtration system of a school; (2) the ventilation rates of a school; (3) the heating, ventilation and air-conditioning system of a school; and (4) the carbon dioxide monitors in a school, respectively. **Sections 7-10** generally require such systems, rates and monitors to meet certain standards. **Section 10.5** of this bill sets forth requirements for an assessment of a school with a limited or no ventilation system. **Section 11** of this bill requires qualified adjusting personnel or qualified testing personnel to prepare an assessment report including certain information relating to the assessments conducted pursuant to **sections 7-10.5**. **Section 12** of this bill requires the board of trustees of a school district or the governing body of a charter school to complete a report on the work performed by qualified adjusting personnel



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or qualified testing personnel pursuant to **sections 7-10.5** and make the report available to the Office of Energy and the public upon request. Existing federal law requires a local educational agency that receives certain federal money to develop a plan for the safe return to in-person instruction and continuity of services. (American Rescue Plan Act of 2021, Pub. L. No. 117-2, § 2001(i)) **Section 13.5** of this bill requires a local educational agency to prepare an addendum to such a plan that describes how the local educational agency will ensure a public school is equipped with functional ventilation systems.

THE PEOPLE OF THE STATE OF NEVADA, REPRESENTED IN
SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

Section 1. Chapter 393 of NRS is hereby amended by adding thereto the provisions set forth as sections 2 to 13.5, inclusive, of this act.

Sec. 2. *As used in sections 2 to 13.5, inclusive, of this act, unless the context otherwise requires, the words and terms defined in sections 3 to 5, inclusive, of this act have the meanings ascribed to them in those sections.*

Sec. 3. *“Apprenticeship program” means an apprenticeship program recognized by the State Apprenticeship Council created by NRS 610.030.*

Sec. 3.5. *“Minimum efficiency reporting value” means the minimum efficiency reporting value established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, or its successor organization.*

Sec. 4. *“Qualified adjusting personnel” means a:*

1. Technician certified to test, adjust and balance heating, ventilation and air-conditioning systems through a program accredited by the Associated Air Balance Council, the National Environmental Balancing Bureau or the Testing, Adjusting and Balancing Bureau, or their successor organizations; or

2. Skilled and trained workforce under the supervision of a technician certified to test, adjust and balance heating, ventilation and air-conditioning systems through a program accredited by the Associated Air Balance Council, the National Environmental Balancing Bureau or the Testing, Adjusting and Balancing Bureau, or their successor organizations.

Sec. 4.5. *“Qualified testing personnel” means:*

1. A technician certified to test, adjust and balance heating, ventilation and air-conditioning systems through a program accredited by the Associated Air Balance Council, the National Environmental Balancing Bureau or the Testing, Adjusting and Balancing Bureau, or their successor organizations; or



2. A person certified to perform ventilation assessments of heating, ventilation and air-conditioning systems through a program accredited by the American National Standards Institute.

Sec. 5. "Skilled and trained workforce" means a workforce not less than 60 percent of which is composed of graduates of an apprenticeship program.

Sec. 5.5. The Legislature hereby finds and declares that:

1. Studies have found that:

(a) Approximately 41 percent of the school districts in the United States need to update or replace the heating, ventilation and air-conditioning systems in at least half of their schools;

(b) Most heating, ventilation and air-conditioning systems are improperly installed;

(c) Most classrooms fail to meet minimum standards for ventilation rates;

(d) Many of the problems with heating, ventilation and air-conditioning systems are linked to the use of inadequately trained personnel to install, test, adjust and balance heating, ventilation and air-conditioning systems; and

(e) Improved rates of ventilation and reduced carbon dioxide concentrations can increase pupil performance.

2. Ventilation systems that are not properly installed, inadequate, inefficient or poorly maintained can significantly increase costs to a public school.

3. Ventilation systems should operate as efficiently as possible and inspections and repairs should be performed by qualified personnel.

4. In addition to increasing the risk of infectious, airborne diseases, inadequate ventilation systems in public schools negatively impact the health and learning of pupils.

5. Improving indoor air quality in public schools may protect the health of pupils and school staff, improve attendance, improve pupil performance, reduce the risk of infectious, airborne diseases and save energy.

6. Public schools should have functioning ventilation systems that meet or exceed recommended health and safety standards for classrooms.

7. Consistent, statewide standards are necessary to protect the health and safety of pupils, the ability of pupils to learn effectively and the health and safety of school staff in this State.

Sec. 6. 1. To the extent that money is available, the board of trustees of a school district or the governing body of a charter school shall ensure that each school in the school district or the charter school, as applicable, is equipped with functional ventilation systems that are tested, adjusted and, if necessary or



1 *cost-effective, repaired, upgraded or replaced to increase*
2 *efficiency and performance. Money shall be considered available*
3 *if the board of trustees of a school district or the governing body of*
4 *a charter school:*

5 *(a) Receives state or federal money and allocates such money*
6 *to equip a public school with functional ventilation systems or*
7 *improve ventilation systems or indoor air quality in a public*
8 *school; or*

9 *(b) As a condition of receiving state or federal money, is*
10 *required to ensure a public school is equipped with functional*
11 *ventilation systems or improve ventilation systems or indoor air*
12 *quality in a public school.*

13 *2. The board of trustees of a school district or the governing*
14 *body of a charter school that ensures a public school is equipped*
15 *with functional ventilation systems pursuant to this section shall*
16 *employ qualified adjusting personnel or qualified testing*
17 *personnel to assess the status of and make any necessary*
18 *improvements to the:*

19 *(a) Filtration system of the school in accordance with the*
20 *provisions of section 7 of this act;*

21 *(b) Ventilation rates of the school in accordance with the*
22 *provisions of section 8 of this act;*

23 *(c) Heating, ventilation and air-conditioning system of the*
24 *school in accordance with the provisions of section 9 of this act;*
25 *and*

26 *(d) Carbon dioxide monitors at the school in accordance with*
27 *the provisions of section 10 of this act.*

28 *3. The board of trustees of a school district or the governing*
29 *body of a charter school that ensures a public school is equipped*
30 *with functional ventilation systems pursuant to this section shall*
31 *perform any work required to meet the minimum requirements for*
32 *ventilation and filtration established by sections 2 to 13.5,*
33 *inclusive, of this act, up to an estimated cost of not more than*
34 *\$200,000. The board of trustees of a school district or the*
35 *governing body of a charter school may perform any additional*
36 *recommended work that exceeds an estimated cost of \$200,000.*

37 **Sec. 7.** *In assessing a filtration system of a school pursuant*
38 *to section 6 of this act, qualified adjusting personnel or qualified*
39 *testing personnel, as applicable, shall:*

40 *1. Review the capacity and airflow of the filtration system to*
41 *determine the type of filters with the best minimum efficiency*
42 *reporting value based on industry standards that can be installed*
43 *without adversely impacting the filtration system;*



2. Ensure that the filters used in the filtration system are of the type determined pursuant to subsection 1 with the best possible minimum efficiency reporting value;

3. Ensure that the filters are properly installed and replace or upgrade the filters as needed;

4. If a filtration system uses ultraviolet germicidal irradiation to disinfect air, ensure that the ultraviolet bulb is operating properly and does not shine on the filters, and replace the ultraviolet bulbs as needed;

5. If a filtration system uses an economizer, test and repair the economizer dampers; and

6. Recommend any additional maintenance, replacements or upgrades to improve the overall performance of the filtration system.

Sec. 8. 1. In assessing the ventilation rates of a school pursuant to section 6 of this act, qualified adjusting personnel or qualified testing personnel, as applicable, shall:

(a) Ensure that the ventilation rates in each room of the facility that is routinely occupied meet the minimum requirements for ventilation rates set forth in the Uniform Mechanical Code;

(b) Calculate the required minimum outside air ventilation rates for each room of the facility that is routinely occupied based on the maximum anticipated rate of occupancy and the minimum required ventilation rate per occupant in accordance with the Uniform Mechanical Code;

(c) Ensure that the minimum outside air ventilation rates meet the required minimum rate calculated pursuant to paragraph (b);

(d) If the minimum outside air ventilation rates do not meet the required minimum rate calculated pursuant to paragraph (b):

(1) Determine whether additional ventilation can be provided without adversely impacting the performance of the filtration system or the environmental quality of the building; and

(2) If additional ventilation can be provided, adjust the ventilation rates to meet the required minimum rate;

(e) If the minimum outside air ventilation rate cannot be met after adjusting the ventilation rates pursuant to paragraph (d), explain why the rate cannot be met;

(f) Conduct survey readings of the inlets and outlets to:

(1) Ensure that ventilation is reaching the served zone and is adequately distributed;

(2) Ensure that the inlets and outlets are balanced to be tolerated by the design of the filtration system;

(3) Document read values and deficiencies; and

(4) If the original values of the design of the filtration system for inlets and outlets of the filtration system are not



1 available, document the available information and note the
2 unavailability of the original values;

3 (g) Ensure that there is a positive pressure differential between
4 the building and the outdoors, that the building is not overly
5 pressurized and that rooms designated for temporary occupation
6 by sick pupils or staff maintain a negative pressure differential or
7 a pressure differential otherwise set forth by the applicable
8 industry standards;

9 (h) Ensure that the coil velocities and the coil and unit
10 discharge air temperatures maintain the desired indoor conditions
11 and avoid moisture carryover from the cooling coils;

12 (i) Ensure that the separation between the outdoor air intakes
13 and the exhaust discharge outlets is in accordance with the
14 Uniform Mechanical Code;

15 (j) Verify that the air handling unit is bringing in outdoor air
16 and removing exhaust air as intended by the design of the
17 filtration system;

18 (k) Measure the air volume for the exhaust fans and document
19 any discrepancies in volume between the measurements and the
20 original volume of the design of the filtration system;

21 (l) Verify that the coil condition, condensate drainage, air
22 temperature differentials of the cooling coils, operation of the heat
23 exchangers and drive assembly meet applicable industry
24 standards;

25 (m) Review the control sequences to verify that the systems will
26 maintain the intended ventilation, temperature and humidity
27 during school operation;

28 (n) Verify that daily flushes are scheduled in accordance with
29 the standards set forth by the American National Standards
30 Institute and the American Society of Heating, Refrigerating and
31 Air-Conditioning Engineers and any applicable local or state
32 guidance; and

33 (o) Ensure that the operation times and set points of the
34 heating, ventilation and air-conditioning system and exhaust fans
35 are in accordance with any applicable guidance set forth by the
36 American National Standards Institute and the American Society
37 of Heating, Refrigerating and Air-Conditioning Engineers and
38 any applicable local or state guidance.

39 2. Except as otherwise provided in subsection 3, if a demand
40 control ventilation system is installed at a school, qualified
41 adjusting personnel or qualified testing personnel, as applicable,
42 shall ensure that the set point for carbon dioxide is set to 800 parts
43 per million or less.

44 3. Qualified adjusting personnel, qualified testing personnel
45 or a licensed professional engineer shall disable a demand control



1 ventilation system installed at a school and configure the overall
2 ventilation system to meet the minimum requirements of sections 2
3 to 13.5, inclusive, of this act if:

4 (a) The demand control ventilation system does not maintain
5 an average daily maximum carbon dioxide concentration of less
6 than 1,100 parts per million;

7 (b) The board of trustees of the school district or governing
8 body of the charter school, as applicable, determines that a public
9 health crisis caused by an airborne illness is in effect; and

10 (c) Disabling the demand control ventilation system would not
11 adversely affect the operation of the overall ventilation system,
12 ↪ until the board of trustees or governing body determines that a
13 public health crisis caused by an airborne illness is no longer in
14 effect.

15 **Sec. 9.** In assessing the heating, ventilation and air-
16 conditioning system of a school pursuant to section 6 of this act,
17 qualified adjusting personnel or qualified testing personnel, as
18 applicable, shall assess the overall performance of the heating,
19 ventilation and air-conditioning system. If a heating, ventilation
20 and air-conditioning system is broken, fails to meet the minimum
21 requirements for ventilation established by sections 2 to 13.5,
22 inclusive, of this act or is otherwise unable to operate at the level
23 intended by the original design of the system, qualified adjusting
24 personnel or qualified testing personnel, as applicable, shall
25 recommend any necessary repairs or maintenance. Any repairs or
26 maintenance to the heating, ventilation and air-conditioning
27 system must be performed by a skilled and trained workforce.

28 **Sec. 10.** In assessing the carbon dioxide monitors of a school
29 pursuant to section 6 of this act, qualified adjusting personnel or
30 qualified testing personnel, as applicable, shall ensure that each
31 classroom in the school is equipped with a carbon dioxide monitor
32 that:

33 1. Is hardwired or plugged in and mounted to the wall at least
34 3 feet but not more than 6 feet above the floor and at least 5 feet
35 away from any door or operable window;

36 2. Displays readings to appropriate personnel through a
37 display on the monitor or through an application on an Internet
38 website or a cellular phone;

39 3. Provides a visual notification, including, without
40 limitation, through an indicator light, electronic mail, text
41 message or an application on a cellular phone, when the
42 concentration of carbon dioxide in the room reaches 1,100 parts
43 per million or more;

44 4. Maintains a record of previous data that includes, without
45 limitation, the maximum carbon dioxide concentration measured;



5. *Has a range of 400 parts per million to 2,000 parts per million or more; and*

6. *Is certified by the manufacturer of the carbon dioxide monitor to be accurate within 75 parts per million at a carbon dioxide concentration of 1,000 parts per million and requires calibration not more than once every 5 years.*

Sec. 10.5. *1. If a public school has a limited or no ventilation system, qualified adjusting personnel or qualified testing personnel, as applicable, shall document existing conditions and provide a licensed professional engineer with any information necessary for the licensed professional engineer to make recommendations for upgrading or installing a ventilation system.*

2. Qualified adjusting personnel or qualified testing personnel that conduct an assessment of a public school with a limited or no ventilation system shall determine whether carbon dioxide monitors that meet the requirements of section 10 of this act are installed in each classroom of the school.

Sec. 11. *1. Qualified adjusting personnel or qualified testing personnel, as applicable, shall prepare an assessment report of any assessment performed in a school pursuant to section 6 of this act. A licensed professional engineer shall:*

(a) Review the assessment report and determine if any:

(1) Additional adjustments or repairs are necessary to meet the minimum requirements for ventilation and filtration established by sections 2 to 13.5, inclusive, of this act; and

(2) Cost-effective upgrades for energy efficiency are warranted; and

(b) Provide an estimated cost of any work required to meet the minimum requirements for ventilation and filtration established by sections 2 to 13.5, inclusive, of this act, up to an estimated cost of not more than \$200,000 and an estimated cost of any additional recommended work up to an estimated cost of not more than \$200,000.

2. The assessment report must include, without limitation:

(a) The name and address of the person preparing the report and the school where the assessments required pursuant to section 6 of this act were performed;

(b) For each piece of equipment assessed, the model number, serial number, general condition and any additional information that could be used to assess options for replacements, repairs or upgrades;

(c) Verification that the filters meet the best possible minimum efficiency reporting values pursuant to subsection 2 of section 7 of this act or, if a filter does not meet the best possible minimum



1 *efficiency reporting value, documentation of the current minimum*
2 *efficiency reporting value of the filter;*

3 *(d) Verification that the ventilation rates meet the*
4 *requirements set forth in section 8 of this act or, if the ventilation*
5 *rates do not meet the requirements, an explanation of why the*
6 *ventilation rates do not meet the requirements;*

7 *(e) The measurements of air volume for the exhaust fans and*
8 *the documentation of any discrepancies in volume between the*
9 *measurements and the original volume of the design of the*
10 *filtration system prepared pursuant to paragraph (k) of subsection*
11 *1 of section 8 of this act;*

12 *(f) Verification that each assessment conducted pursuant to*
13 *sections 7 to 10.5, inclusive, of this act meets the requirements of*
14 *the applicable section;*

15 *(g) If the minimum outside air ventilation rate of a filtration*
16 *system cannot be met, the explanation of why the rate cannot be*
17 *met prepared pursuant to paragraph (e) of subsection 1 of section*
18 *8 of this act.*

19 *(h) If the original values of the design of the filtration system*
20 *for the inlets and outlets of the filtration system are not available*
21 *pursuant to paragraph (f) of subsection 1 of section 8 of this act,*
22 *documentation of the available information and a notation of the*
23 *unavailability of the original values;*

24 *(i) Documentation of any deficiencies within any system*
25 *assessed pursuant to section 6 of this act;*

26 *(j) Verification of the installation of carbon dioxide monitors*
27 *pursuant to section 10 of this act, including, without limitation,*
28 *the make and model of the carbon dioxide monitors;*

29 *(k) If applicable, documentation of the information prepared*
30 *pursuant to section 10.5 of this act for a school with a limited or*
31 *no ventilation system; and*

32 *(l) Recommendations for additional maintenance,*
33 *replacements or upgrades to improve the energy efficiency, safety*
34 *or performance of any system assessed pursuant to section 6 of*
35 *this act.*

36 **Sec. 12. 1. The board of trustees of a school district or the**
37 **governing body of a charter school that ensures a public school is**
38 **equipped with functional ventilation systems pursuant to section 6**
39 **of this act shall prepare a report on the status of the assessments**
40 **performed pursuant to section 6 of this act and any maintenance,**
41 **repairs or upgrades performed as a result of those assessments.**
42 **The report must include, without limitation:**

43 *(a) The name and address of the person preparing the report*
44 *and the school where the assessments required pursuant to section*
45 *6 of this act were performed;*



(b) A description of the assessments performed pursuant to section 6 of this act and any maintenance, repairs or upgrades performed as a result of those assessments;

(c) Verification that the board of trustees of the school district or governing body of the charter school, as applicable, has complied with the requirements of section 2 to 13.5, inclusive, of this act;

(d) Verification that the filters meet the best possible minimum efficiency reporting values pursuant to subsection 2 of section 7 of this act or, if a filter does not meet the best possible minimum efficiency reporting value, documentation of the current minimum efficiency reporting value of the filter;

(e) Verification that the ventilation rates meet the requirements set forth in section 8 of this act or, if the ventilation rates do not meet the requirements, an explanation of why the ventilation rates do not meet the requirements;

(f) The measurements of air volume for the exhaust fans and the documentation of any discrepancies in volume between the measurements and the original volume of the design of the filtration system prepared pursuant to paragraph (k) of subsection 1 of section 8 of this act;

(g) Documentation of any deficiencies within any system assessed pursuant to section 6 of this act;

(h) Documentation of the initial operating verifications and adjustments, the final operating verifications and adjustments and any adjustments or repairs performed;

(i) Verification of the installation of carbon dioxide monitors pursuant to section 10 of this act, including, without limitation, the make and model of the carbon dioxide monitors;

(j) If applicable, documentation of the information prepared pursuant to section 10.5 of this act for a school with a limited or no ventilation system;

(k) Verification that all work has been performed by qualified adjusting personnel or qualified testing personnel or a skilled and trained workforce, as appropriate, which may include, without limitation, the provision of the name and, if applicable, certification number of any contractor, qualified adjusting personnel or qualified testing personnel who performed such work.

2. The board of trustees of a school district or the governing body of a charter school shall maintain the report prepared pursuant to subsection 1 for at least 5 years and make a copy of the report available to the Office of Energy or any member of the public upon request during the time in which the report is maintained.



1 **Sec. 13.** (Deleted by amendment.)

2 **Sec. 13.5.** *1. A local educational agency, as defined in 20*
3 *U.S.C. § 7801(30)(A), that develops a plan for the safe return to*
4 *in-person instruction and continuity of services pursuant to*
5 *section 2001(i) of the American Rescue Plan Act of 2021, Public*
6 *Law 117-2, and that will ensure a public school is equipped with*
7 *functional ventilation systems pursuant to sections 6 to 13.5,*
8 *inclusive, of this act shall, on or before September 1, 2021,*
9 *prepare an addendum to the plan that describes how the local*
10 *educational agency will ensure that a public school is equipped*
11 *with functional ventilation systems pursuant to sections 6 to 13.5,*
12 *inclusive, of this act. The plan must include, without limitation, a*
13 *timeline for a public school to perform any actions recommended*
14 *to ensure a public school is equipped with functional ventilation*
15 *systems pursuant to sections 6 to 13.5, inclusive, of this act.*

16 *2. The addendum prepared pursuant to subsection 1 must be*
17 *made publicly available in the same manner as the plan for the*
18 *safe return to in-person instruction and continuity of services in*
19 *accordance with the provisions of section 2001(i) of the American*
20 *Rescue Plan Act of 2021, Public Law 117-2.*

21 *3. Compliance with an addendum prepared pursuant to this*
22 *section shall not be construed as a prerequisite for a return to in-*
23 *person instruction.*

24 **Sec. 14.** This act becomes effective on July 1, 2021, and
25 expires by limitation on June 30, 2023.

