

(Reprinted with amendments adopted on June 3, 2023)

SECOND REPRINT

A.B. 281

ASSEMBLY BILL NO. 281—ASSEMBLYMEN GORELOW;
ANDERSON, CARTER, COHEN, DURAN AND NGUYEN

MARCH 14, 2023

Referred to Committee on Health and Human Services

SUMMARY—Revises provisions governing senior living facilities.
(BDR 40-457)

FISCAL NOTE: Effect on Local Government: No.
Effect on the State: No.

~

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

AN ACT relating to health care; requiring the administrators of certain senior living facilities to ensure that such a senior living facility is equipped with a functional ventilation system; establishing requirements governing the detection of carbon dioxide at such a senior living facility; establishing requirements for the assessment of and any repair, upgrade or installation to heating, ventilation and air-conditioning systems at such senior living facilities; requiring certain personnel to complete and review an assessment report on such a ventilation system; requiring the administrators of certain senior living facilities to prepare a report on work performed on such a ventilation system; providing that such a report is a public record; and providing other matters properly relating thereto.

Legislative Counsel’s Digest:

- 1 Existing law sets forth various requirements for certain medical facilities that
- 2 provide care to persons who are aged or infirm, including, without limitation, a
- 3 facility for intermediate care, facility for skilled nursing, a residential facility for
- 4 groups and a home for individual residential care. (Chapter 449 of NRS) This bill
- 5 establishes requirements for the heating, ventilation and air-conditioning systems of
- 6 a senior living facility.
- 7 **Section 7** of this bill defines “senior living facility” as any facility that receives
- 8 any federal funding from Medicare, Medicaid or other federal health care program
- 9 and which provides living assistance and related care to a resident of the facility
- 10 who is an aged or infirm person, including, without limitation, a facility for
- 11 intermediate care, facility for skilled nursing, a residential facility for groups and a



12 home for individual residential care. **Sections 3-8.7** of this bill define other terms
13 related to ventilation systems in senior living facilities.

14 **Section 9** of this bill sets forth a legislative declaration relating to ventilation
15 systems in senior living facilities. **Section 9.2** of this bill limits the applicability of
16 the provisions of this bill to senior living facilities located in a county whose
17 population is 100,000 or more (currently Clark and Washoe Counties). **Section 9.5**
18 of this bill requires the State Board of Health to review each new edition of certain
19 standards incorporated into this bill to determine their suitability for this State.

20 **Section 10** of this bill requires, to the extent money is available, the
21 administrator of a senior living facility to ensure that the senior living facility is
22 equipped with a functional ventilation system and to have periodic assessments of
23 the existing system conducted by qualified adjusting personnel or qualified testing
24 personnel. **Section 10** also authorizes a facility that is certified as an assisted living
25 facility to use certain federal money received to upgrade and maintain the
26 ventilation system of that facility.

27 **Section 14** of this bill prescribes requirements governing carbon dioxide
28 detectors at a senior living facility. **Section 14** also requires the administrator of a
29 senior living facility to cause an adjustment to the ventilation if the concentration of
30 carbon dioxide exceeds a certain amount.

31 **Section 14.5** of this bill sets forth the requirements for qualified testing
32 personnel to assess the heating, ventilation and air-conditioning system of a senior
33 living facility. **Section 14.5** also requires qualified testing personnel to prepare a
34 heating, ventilation and air-conditioning assessment report, including certain
35 information relating to the assessments conducted pursuant to that section.

36 **Section 18** of this bill: (1) requires a heating, ventilation and air-conditioning
37 assessment report to be reviewed by a mechanical engineer; and (2) imposes certain
38 duties on the mechanical engineer to facilitate improvements determined necessary
39 based on the report.

40 **Section 19** of this bill requires a senior living facility to take certain corrective
41 actions in response to a heating, ventilation and air-conditioning assessment report
42 and review by a mechanical engineer. **Section 20** of this bill imposes certain
43 requirements governing the workforce used to perform such corrective actions.

44 **Section 21** of this bill requires the administrator of a senior living facility to
45 prepare a report on the work performed pursuant to a heating, ventilation and air-
46 conditioning assessment report and review by a mechanical engineer and to submit
47 the report to the Division of Public and Behavioral Health of the Department of
48 Health and Human Services.

49 **Section 22** of this bill provides that a heating, ventilation and air-conditioning
50 assessment report and a report created by an administrator of a senior living facility
51 pursuant to **section 21** are public records and available for public inspection.
52 **Sections 22.5 and 23** of this bill provide for the expiration of the provisions of this
53 bill where there is no longer sufficient federal money available to facilitate
54 compliance with its provisions.

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

1 **Section 1.** Chapter 449 of NRS is hereby amended by adding
2 thereto the provisions set forth as sections 2 to 22, inclusive, of this
3 act.

4 **Sec. 2.** *As used in sections 2 to 22, inclusive, of this act,*
5 *unless the context otherwise requires, the words and terms defined*



1 *in sections 3 to 8.7, inclusive, of this act have the meanings*
2 *ascribed to them in those sections.*

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

6 **Sec. 3.1.** *“ASHRAE” means the American Society of*
7 *Heating, Refrigerating and Air-Conditioning Engineers.*

8 **Sec. 3.2.** *“Certified TAB technician” means a technician*
9 *who is certified to perform testing, adjusting and balancing of*
10 *HVAC systems by the Associated Air Balance Council, National*
11 *Environmental Balancing Bureau, Inc. or the Testing, Adjusting*
12 *and Balancing Bureau, or a similar successor organization.*

13 **Sec. 3.3.** *“Functional ventilation system” means a heating,*
14 *ventilation and air-conditioning system that provides the minimum*
15 *acceptable level of ventilation in accordance with the edition of*
16 *ASHRAE Standard 62.1, Ventilation and Acceptable Indoor Air*
17 *Quality most recently approved by the Board pursuant to section*
18 *9.5 of this act.*

19 **Sec. 3.4.** *“HVAC” means heating, ventilation and air-*
20 *conditioning.*

21 **Sec. 3.5.** *“Mechanical engineer” means a professional*
22 *engineer who is licensed in the discipline of mechanical*
23 *engineering by this State and who has professional experience*
24 *with heating, ventilation and air-conditioning systems.*

25 **Sec. 3.6.** *“MERV” means minimum efficiency reporting*
26 *value, as established by ASHRAE Standard 52.2-2017, Method of*
27 *Testing General Ventilation Air-Cleaning Devices for Removal*
28 *Efficiency by Particle Size.*

29 **Sec. 4.** (Deleted by amendment.)

30 **Sec. 5.** *“Qualified adjusting personnel” means either of the*
31 *following:*

- 32 1. *A certified TAB technician; or*
33 2. *A skilled and trained workforce under the supervision of a*
34 *certified TAB technician.*

35 **Sec. 6.** *“Qualified testing personnel” means either of the*
36 *following:*

- 37 1. *A certified TAB technician; or*
38 2. *A person certified to perform assessments of heating,*
39 *ventilation and air-conditioning systems by a certifying body in*
40 *accordance with the edition of standard ISO/IEC 17024,*
41 *Conformity assessment -- General requirements for bodies*
42 *operating certification of persons, of the International*
43 *Organization for Standardization most recently approved by the*
44 *Board pursuant to section 9.5 of this act.*



1 **Sec. 7.** *“Senior living facility” means any facility that*
2 *receives any federal funding from Medicare, Medicaid or other*
3 *federal health care program and which provides living assistance*
4 *and related care to a resident of the facility who is an aged or*
5 *infirm person including, without limitation, a facility for*
6 *intermediate care, facility for skilled nursing, residential facility*
7 *for groups or home for individual residential care.*

8 **Sec. 8.** *“Skilled and trained workforce” means a workforce*
9 *not less than 60 percent of which is composed of graduates of an*
10 *apprenticeship program for the applicable occupation.*

11 **Sec. 8.3.** *“Ventilation verification assessment” means an*
12 *assessment to determine the status of a ventilation system*
13 *performed in accordance with section 14 of this act.*

14 **Sec. 8.7.** *“Zone” means an area of a senior living facility*
15 *where the temperature is controlled by one thermostat.*

16 **Sec. 9.** *The Legislature finds and declares that:*

17 1. *Studies have found:*

18 (a) *Most ventilation systems are improperly installed; and*

19 (b) *Many of the problems with ventilation systems are linked to*
20 *the use of inadequately trained personnel to install, test, adjust*
21 *and balance ventilation systems.*

22 2. *Ventilation systems should operate as efficiently as*
23 *possible and inspections and repairs should be performed by*
24 *qualified personnel.*

25 3. *In addition to increasing the risk of infectious, airborne*
26 *diseases, inadequate ventilation systems in senior living facilities*
27 *negatively impact the health of residents and staff in senior living*
28 *facilities.*

29 4. *Improving indoor air quality in senior living facilities may*
30 *protect the health of residents and staff, reduce the risk of*
31 *infectious, airborne diseases and save energy.*

32 5. *Senior living facilities should have functioning ventilation*
33 *systems that meet or exceed recommended health and safety*
34 *standards.*

35 6. *Consistent statewide standards for senior living facilities*
36 *are necessary to protect the health and safety of residents and*
37 *staff.*

38 **Sec. 9.2.** *The provisions of sections 2 to 22, inclusive, of this*
39 *act apply only to senior living facilities located in a county whose*
40 *population is 100,000 or more.*

41 **Sec. 9.5.** *The Board shall review the editions of ASHRAE*
42 *Standard 62.1, Ventilation and Acceptable Indoor Air Quality,*
43 *Standard ISO/IEC 17024, Conformity assessment -- General*
44 *requirements for bodies operating certification of persons, of the*
45 *International Organization for Standardization, and the Uniform*



1 *Mechanical Code of the International Association of Plumbing*
2 *and Mechanical Officials in effect on the effective date of this act*
3 *to ensure the suitability of the new edition for this State. Each new*
4 *edition of those standards shall be deemed approved by the Board*
5 *unless the edition is disapproved by the Board within 60 days after*
6 *the date of publication of the new edition.*

7 **Sec. 10.** *1. To the extent that money is available, the*
8 *administrator of a senior living facility shall ensure that the senior*
9 *living facility is equipped with a functional ventilation system that*
10 *is tested, adjusted and, if necessary or cost-effective, repaired,*
11 *upgraded or replaced to increase efficiency and performance in*
12 *accordance with the provisions of sections 2 to 22, inclusive, of*
13 *this act. Money shall be considered available if the senior living*
14 *facility:*

15 *(a) Receives federal or state money and allocates such money*
16 *to equip the senior living facility with a functional ventilation*
17 *system or improve the ventilation system or indoor air quality in*
18 *the senior living facility; or*

19 *(b) As a condition of receiving federal or state money is*
20 *required to ensure the senior living facility is equipped with a*
21 *functional ventilation system or improve the ventilation system or*
22 *indoor air quality in the senior living facility.*

23 **2.** *Not later than July 1, 2025, and at least once every 5 years*
24 *thereafter, the administrator of a senior living facility or any other*
25 *person that ensures a senior living facility is equipped with a*
26 *functional ventilation system pursuant to this section shall employ*
27 *qualified adjusting personnel or qualified testing personnel, or*
28 *cause such persons to be contracted, to perform a ventilation*
29 *verification assessment in accordance with section 14.5 of this act*
30 *to determine the status of and make any necessary improvements*
31 *to the heating, ventilation and air-conditioning system of the*
32 *senior living facility.*

33 **3.** *A senior living facility that is an assisted living facility*
34 *certified by the Housing Division of the Department of Business*
35 *and Industry pursuant to NRS 319.147 may use federal money*
36 *received pursuant to paragraph (a) of subsection 1 to upgrade and*
37 *maintain the ventilation system of that facility.*

38 **Sec. 11.** (Deleted by amendment.)

39 **Sec. 12.** (Deleted by amendment.)

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

41 **Sec. 14.** *1. Except as otherwise provided in subsection 2,*
42 *each zone in a senior living facility must be equipped with a*
43 *carbon dioxide monitor and at least one carbon dioxide monitor*
44 *for each 10,000 square feet of floor space. Such a carbon dioxide*
45 *monitor must:*



1 (a) *Be hardwired, plugged in or battery-operated and mounted*
2 *to the wall at least 3 feet but not more than 6 feet above the floor*
3 *and at least 5 feet away from any door or operable window;*

4 (b) *Display readings of the concentration of carbon dioxide to*
5 *appropriate personnel through a display on the monitor or*
6 *through an application on an Internet website or a cellular*
7 *telephone;*

8 (c) *Provide a visual notification, including, without limitation,*
9 *through an indicator light, electronic mail, text message or an*
10 *application on a cellular telephone, when the concentration of*
11 *carbon dioxide in the room reaches 1,100 parts per million or*
12 *more;*

13 (d) *Maintain a record of previous data that includes, without*
14 *limitation, the maximum carbon dioxide concentration measured;*

15 (e) *Have a range of 400 parts per million to 5,000 parts per*
16 *million or more; and*

17 (f) *Be certified by the manufacturer of the carbon dioxide*
18 *monitor to:*

19 (1) *Be accurate within 75 parts per million at a carbon*
20 *dioxide concentration of 1,000 parts per million; and*

21 (2) *Require calibration not more than once every 5 years.*

22 2. *The technical specifications for carbon dioxide monitors*
23 *set forth in subsection 1 may be amended by regulation of the*
24 *Board as necessary to reflect available technology and to achieve*
25 *the intent of that subsection.*

26 3. *If appropriate personnel observe a concentration of carbon*
27 *dioxide exceeding 1,100 parts per million more than once in any*
28 *7-day period in any zone, the administrator of the senior living*
29 *facility shall cause qualified adjusting personnel to adjust the*
30 *ventilation of the zone as necessary to ensure that the*
31 *concentration of carbon dioxide in the zone remains below 1,100*
32 *parts per million.*

33 **Sec. 14.5. 1. In a ventilation verification assessment of a**
34 **senior living facility performed pursuant to section 10 of this act,**
35 **qualified testing personnel must:**

36 (a) *Record information from HVAC equipment and the motor*
37 *nameplate.*

38 (b) *Conduct such testing as necessary to determine that filters*
39 *are performing at maximum efficiency.*

40 (c) *Obtain physical measurements of the outside air rates at*
41 *minimum and maximum load conditions.*

42 (d) *For each zone, estimate the number of occupants and*
43 *determine the current occupancy categories, as listed in Table*
44 *402.1 of ASHRAE Standard 62.1-2022, Ventilation and*
45 *Acceptable Indoor Air Quality.*



1 (e) *Verify the operation of components of the ventilation*
2 *system.*

3 (f) *Measure all inlets and outlets for air distribution.*

4 (g) *Verify the proper operation of each unit of the HVAC*
5 *system.*

6 (h) *Verify that maintenance has been performed in accordance*
7 *with section 8 and table 8.1 of ASHRAE Standard 62.1-2022,*
8 *Ventilation and Acceptable Indoor Air Quality.*

9 (i) *Verify that control sequences are organized in a manner*
10 *that facilitates proper operation of the HVAC system.*

11 (j) *Verify the installation of carbon dioxide monitors as*
12 *required by section 14 of this act and the accuracy of all carbon*
13 *dioxide monitors within 75 parts per million at a carbon dioxide*
14 *concentration of 1,000 parts per million.*

15 (k) *If the facility is not currently equipped with mechanical*
16 *ventilation, collect field data to determine the feasibility of*
17 *installing such ventilation.*

18 (l) *Identify such adjustments, repairs, upgrades or*
19 *replacements described in section 19 of this act as are necessary to*
20 *meet:*

21 (1) *The minimum requirements concerning ventilation and*
22 *filtration prescribed by any applicable local building code; and*

23 (2) *The criteria of the edition of ASHRAE Standard 62.1,*
24 *Ventilation and Acceptable Indoor Air Quality, most recently*
25 *approved by the Board pursuant to section 9.5 of this act.*

26 (m) *Document the performance of each task performed*
27 *pursuant to paragraphs (a) to (l), inclusive.*

28 2. *Based on the documentation described in paragraph (m) of*
29 *subsection 1, the qualified testing personnel who perform a*
30 *ventilation verification assessment pursuant to section 10 of this*
31 *act must prepare an HVAC assessment report and provide the*
32 *report to a mechanical engineer for review in accordance with*
33 *section 18 of this act.*

34 **Sec. 15.** (Deleted by amendment.)

35 **Sec. 16.** (Deleted by amendment.)

36 **Sec. 17.** (Deleted by amendment.)

37 **Sec. 18.** *The mechanical engineer who reviews an HVAC*
38 *assessment report pursuant to subsection 2 of section 14.5 of this*
39 *act must:*

40 1. *Verify or adjust the estimated minimum outside air*
41 *ventilation rates.*

42 2. *Determine what, if any, additional adjustments, repairs,*
43 *upgrades or replacements described in section 19 of this act are*
44 *necessary to meet:*



1 (a) *The minimum ventilation and filtration requirements of the*
2 *local building code; and*

3 (b) *The criteria of the edition of ASHRAE Standard 62.1,*
4 *Ventilation and Acceptable Indoor Air Quality most recently*
5 *approved by the Board pursuant to section 9.5 of this act.*

6 3. *Provide the senior living facility with an estimate of costs*
7 *for all recommended work.*

8 **Sec. 19.** 1. *A senior living facility shall take any corrective*
9 *actions:*

10 (a) *Identified in an HVAC assessment report created pursuant*
11 *to subsection 2 of section 14.5 of this act and reviewed by a*
12 *mechanical engineer pursuant to section 18 of this act; or*

13 (b) *Identified by a mechanical engineer pursuant to section 18*
14 *of this act.*

15 2. *Corrective actions identified in an HVAC assessment*
16 *report or by a mechanical engineer must include, where*
17 *necessary:*

18 (a) *Testing, adjusting and balancing the mechanical*
19 *ventilation system of the senior living facility, if any; and*

20 (b) *If necessary or cost effective, repairs, upgrades or*
21 *replacement of the HVAC system or installation of a stand-alone*
22 *mechanical ventilation system.*

23 3. *Corrective actions identified in an HVAC assessment*
24 *report or by a mechanical engineer may additionally include,*
25 *without limitation:*

26 (a) *General maintenance.*

27 (b) *Reading and adjustment of ventilation rates.*

28 (c) *Replacement of filters to meet a MERV of at least 13 if*
29 *equipment allows, while ensuring that the pressure drop is less*
30 *than the capability of the fan.*

31 (d) *Direct outside airflow intake measurement.*

32 4. *A senior living facility may only use portable filtration and*
33 *air cleaners:*

34 (a) *If the infrastructure of the existing HVAC system is not*
35 *able to meet the requirements for filtration and ventilation*
36 *prescribed by sections 2 to 22, inclusive, of this act.*

37 (b) *As recommended by a mechanical engineer as a*
38 *supplemental enhancement to the permanent infrastructure of the*
39 *HVAC system:*

40 (1) *When the desired indoor air quality cannot be*
41 *maintained with the mechanical ventilation system; or*

42 (2) *There exist concerns relating to outdoor air*
43 *contaminants such as those created by wildfires and air pollution.*

44 5. *All adjustments to an HVAC system at a senior living*
45 *facility must be performed by qualified adjusting personnel.*



1 **Sec. 20. 1.** *The administrator of a senior living facility*
2 *shall ensure that all work required by section 19 of this act*
3 *including, without limitation, repairs, upgrades and replacements*
4 *of an HVAC system, is performed by a skilled and trained*
5 *workforce of the construction industry and in compliance with*
6 *applicable regulations of the Board.*

7 **2.** *The Division and the Board shall work in consultation*
8 *with the Labor Commissioner, as necessary, to ensure that*
9 *assessments and construction required pursuant to sections 2 to*
10 *22, inclusive, of this act satisfy any applicable standards and*
11 *requirements of the edition of the Uniform Mechanical Code of*
12 *the International Association of Plumbing and Mechanical*
13 *Officials, most recently approved by the Board pursuant to section*
14 *9.5 of this act.*

15 **Sec. 21.** *Upon the completion of work required by section 19*
16 *of this act, the administrator of a senior living facility shall submit*
17 *a report to the Division. The report must include:*

18 **1.** *The name and address of:*

19 **(a)** *The senior living facility;*

20 **(b)** *The person preparing and certifying the report; and*

21 **(c)** *The qualified testing personnel, qualified adjusting*
22 *personnel, mechanical engineers, contractors and the members of*
23 *the skilled and trained workforce of the construction industry who*
24 *performed assessments, adjustments or construction relating to the*
25 *work.*

26 **2.** *Copies of the certification and license, if applicable, of*
27 *each person identified in paragraph (c) of subsection 1.*

28 **3.** *A copy of all procurement documents relating to the work.*

29 **4.** *Documentation of:*

30 **(a)** *Verifications of initial operating ventilation rates.*

31 **(b)** *Adjustments, repairs, upgrades and replacements*
32 *performed pursuant to section 19 of this act.*

33 **(c)** *The final operating conditions of the HVAC system,*
34 *including, without limitation, the MERV of the filtration system*
35 *and verified ventilation and exhaust rates for classrooms,*
36 *auditoriums, gymnasiums, restrooms, offices and other occupied*
37 *spaces.*

38 **(d)** *Verification that all work has been tested by qualified*
39 *testing personnel and adjusted by qualified adjusting personnel.*

40 **(e)** *Verification that all repairs, upgrades and replacements*
41 *were performed by a contractor who uses a skilled and trained*
42 *workforce of the construction industry and who is in compliance*
43 *with any applicable standards of the United States Department of*
44 *Labor.*



1 (f) *Compliance with section 19 of this act, including, without*
2 *limitation, the make and model of each carbon dioxide monitor*
3 *installed in the senior living facility.*

4 **Sec. 22.** *An HVAC assessment report created pursuant to*
5 *section 14.5 of this act and reviewed by a mechanical engineer*
6 *pursuant to section 18 of this act and a report submitted to the*
7 *Division by the administrator of a senior living facility pursuant to*
8 *section 21 of this act are public records and are available for*
9 *public inspection.*

10 **Sec. 22.5.** 1. The Administrator of the Division of Public and
11 Behavioral Health of the Department of Health and Human Services
12 shall regularly monitor the amount of federal money available to
13 facilitate the compliance of senior living facilities with the
14 provisions of sections 2 to 22, inclusive, of this act. On the date on
15 which the Administrator determines that there is insufficient federal
16 money available for that purpose, the Administrator shall transmit
17 notice of that determination to the Governor and the Director of the
18 Legislative Counsel Bureau.

19 2. As used in this section, "senior living facility" has the
20 meaning ascribed to it in section 7 of this act.

21 **Sec. 23.** This act becomes effective upon passage and
22 approval, and expires by limitation on the date on which the
23 Director of the Legislative Counsel Bureau receives notice of a
24 determination by the Administrator of the Division of Public and
25 Behavioral Health of the Department of Health and Human Services
26 pursuant to section 22.5 of this act that there is insufficient federal
27 money available to facilitate the compliance of senior living
28 facilities with the provisions of sections 2 to 22, inclusive, of this
29 act.

