



STATE OF NEW YORK DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

Antonia C. Novello, M.D., M.P.H., Dr.P.H.
Commissioner

Dennis P. Whalen
Executive Deputy Commissioner

March 1, 2006

Re: Selling Vent-Free Gas Space Heating Appliances in New York State

Dear Manufacturer of Vent-Free Gas Space Heating Appliances:

On August 12, 1998, a new regulation governing the distribution and sale of vent-free gas space heating appliances (Title 10 [Health] of the Official Compilation of Codes, Rules and Regulations of the State of New York, Part 71) ("10 NYCRR Part 71") became effective in New York State. A copy of this regulation and the enabling legislation is enclosed. This regulation sets forth several requirements with regard to the manufacture and sale of vent-free gas space heating appliances ("appliances"). Manufacturers' responsibilities under 10 NYCRR 71 may be summarized as follows:

1. Manufacturers must produce, and provide to sellers, shipping carton labels for appliances that prominently and clearly display specific cautionary language regarding proper installation, service, selection and use (label language provided in §71.3(a)).
2. Manufacturers must, within four years of the effective date of the regulation, produce shipping carton labels for appliances that prominently and clearly display each appliance's carbon monoxide (CO) and nitrogen dioxide (NO₂) emission rate as a percentage of the respective ANSI standard for emissions of those chemicals (§71.3(b)).
3. Manufacturers must produce sizing guidelines for appliances to be provided at points-of-sale by sellers of the appliances (§71.3(c)).

Please note that the above requirements pertain to manufacturers of the appliances, and not to manufacturers that only produce components of the appliances.

With regard to the second requirement listed above, 10 NYCRR § 71.3(b) states that "the Commissioner of Health must have determined that the methods and procedures used to develop the carbon monoxide and nitrogen dioxide emission rates for the label represent (i) normal operating conditions for the vent-free gas space heating appliance, (ii) a reliable analytical method and (iii) an accurate statistical measure of actual emission rates."

On August 9, 2002, manufacturers were notified of the Department's interim determinations regarding labeling and testing of vent-free gas space heating appliances. Specifically, manufacturers were required to produce shipping carton labels for appliances that prominently and clearly display the appliances' CO emission rates as percentages of the American National Standards Institute (ANSI) voluntary consensus standard ANSI Z21.11.2 for CO. The Department also explained how manufacturers were to address NO₂ emission rates on these labels.

ANSI required compliance with the NO₂ emission standard on March 1, 2005. This letter provides updated guidance regarding the emission rate labels and supercedes the Department's August 9, 2002 letter. This letter also serves as a reminder of your responsibilities under New York State law, if you wish to market your vent-free appliances in New York State.

Updated Guidance - Labeling of Emission Rates

The Department has determined that the methods and procedures set forth in the most recent revision of the ANSI voluntary consensus standard Z21.11.2 for CO and NO₂ will fulfill the requirements set forth in paragraphs (i) and (ii) of §71.3(b). As noted below, the Department has adopted a procedure for statistically estimating the actual CO and NO₂ emission rates from compliance testing results for each appliance. These rates must be displayed on the approved label (see enclosed) as percentages of the recognized industry standards for CO and NO₂ emissions set forth in ANSI Z21.11.2. For any appliance shipped to New York after April 1, 2006, emission rates on the label must be certified and displayed as described in the guidance below.

Updated Guidance - Certification of Emission Rates

The Department has determined that manufacturers that achieve compliance with ANSI Z21.11.2 will fulfill requirement (iii) of §71.3(b). Compliance must be certified by one or more independent testing authorities. Such a certification will demonstrate that a product has achieved at least a "fourth quadrant" emission rate (*i.e.*, 75 to 100% of the industry standard). Therefore, a manufacturer may indicate a fourth quadrant emission rate for any of its certified products. Manufacturers wishing to indicate a lower quadrant emission rate (*i.e.*, less than 75% of the ANSI standard) shall employ a United States Department of Labor Nationally Recognized Testing Laboratory to oversee compliance *and* shall follow the procedures set forth in the enclosed "Statistical Determination of Estimated Emission Rates for Carbon Monoxide and Nitrogen Dioxide from Vent-free Gas Space Heating Appliances" for determining the estimated emission rates for CO and NO₂ for their products.

At our request, the Gas Appliance Manufacturers Association (GAMA) has agreed to compile reported label emission rates for each vent-free gas heating appliance sold in New York State by GAMA members. We have requested that the information be provided to us quarterly, with the first report on April 1, 2006.

Noncompliance with any requirement of Part 71 is a misdemeanor (see enclosed New York General Business Law, §322-c). The Department will implement measures to verify compliance with this regulation.

Sincerely,



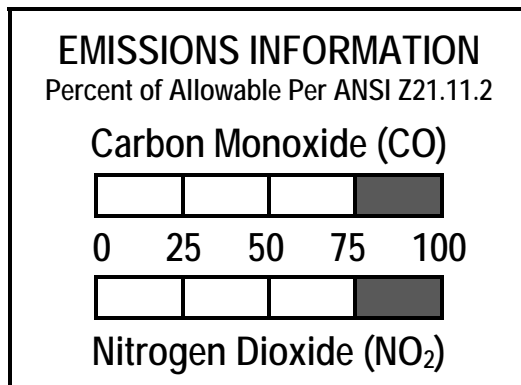
Edward Horn, PhD.
Division of Environmental Health Assessment
New York State Department of Health

Enclosures

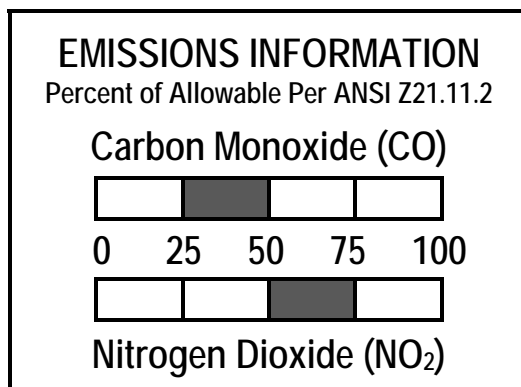
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New York State-Approved Labels for Vent-Free Gas Heating Appliances

required by New York State Department of Health Regulation §71.3(b)



Default label



Example, if emissions are demonstrated by the approved method to be in the shaded quadrants

Specifications

Size.....H 1.875", W 2.5"

Type.....Main Title: Helvetica Condensed Bold, 14 point, All Caps, Centered
Sub Title: Helvetica Condensed Bold, 10 point, U/L Case, Centered
Chart Text: Helvetica Condensed Bold, 14 point, U/L Case

Darkened Boxes.....65% Black Fill

Color.....Black Ink on White Background

Note: Manufacturer may include its own part number on the label.

New York State-Approved Shipping Carton Labels for Vent-Free Gas Space Heating Appliances

required by New York State Department of Health Regulation §71.3(a)

Shipping carton labels for vent-free gas space heating appliances must contain the following language:

Caution: This appliance is a supplemental heat source and should not be the primary heat source. This appliance must be installed and serviced according to the manufacturer's instructions and local and state building codes. Select a model with appropriate heat output using sizing guidelines provided by the manufacturer. Using a heater with greater heat output than recommended may be harmful to your health. As with other fuel burning appliances, local building codes may require installation of a carbon monoxide detector in your home.

Manufacturers Note:

Manufacturers of vent-free gas space heating appliances must produce shipping carton labels for appliances that prominently and clearly display this language in bold type no smaller than 14 point.

Sellers Note:

Sellers of vent-free gas space heating appliances shall ensure that this language is on the outside of each shipping carton and is prominently and clearly displayed, in bold type no smaller than 14 point, on or near each appliance on display at points-of-sale.

Statistical Determination of Estimated Emission Rates for Carbon Monoxide and Nitrogen Dioxide from Vent-Free Gas Space Heating Appliances

for New York State Department of Health Regulation §71.3(b)(iii)

If a manufacturer wishes to claim a lower quadrant emission rate (*i.e.*, less than 75% of the industry standard) for carbon monoxide or nitrogen dioxide from a vent-free gas space heating appliance, then the estimated emission rate shall be the higher of (a) the *mean* of the emission rate measured for multiple units or (b) the *adjusted mean* [defined as the upper 90 percent confidence limit for the *mean* with 10 percent tolerance]. The following procedure shall be followed to compare *means* and *adjusted means*.

STEP 1 - Test n units, obtaining one emission rate observation for each unit. For example, if two units are tested ($n = 2$), then two observations are obtained.

STEP 2 - Compute the *mean* and standard deviation (*SD*) for the sample.

$$\text{mean} = \left[\frac{\sum_{i=1}^n X_i}{n} \right]$$

$$SD = \sqrt{\frac{\sum_{i=1}^n (X_i - \text{mean})^2}{n - 1}}$$

where

Σ means “sum of”

X is the measured emission rate for each unit.

STEP 3 - Calculate the *adjusted mean* (upper 90 percent confidence limit for the *mean* with 10 percent tolerance) as follows:

$$\text{adjusted mean} = \left[\frac{\left(\text{mean} + \frac{t_{90} \times SD}{\sqrt{n}} \right)}{1.10} \right]$$

where t_{90} is the critical value (one-sided, $p = 0.10$) of t from a t -table such as that accompanying this document.

STEP 4 - If the *adjusted mean* is less than the *mean*, then the estimated emission rate for purposes of identifying an appropriate label quadrant is the *mean*. No further sampling is required. If the *adjusted mean* is greater than the *mean*, then choose 1 or 2 below.

1. The estimated emission rate for the unit is the *adjusted mean*.
2. Test an additional unit (or units) and recalculate the *mean* and *adjusted mean*.

Note: If the manufacturer considers the *adjusted mean* to be an unacceptable measure of the actual emission rate, it is probable that a lower value will be obtained by testing an additional unit (or units) and resuming the process at Step 2 (see example below).

EXAMPLE OF EMISSION RATE CALCULATIONS

STEP 1 - A manufacturer tests two units and obtains emission rates for carbon monoxide of 98 and 105 parts-per-million (ppm) air-free as indicated in Table 1 (below).

Table 1. Results of analysis.

Unit	Rate (ppm air-free)
<i>a</i>	98
<i>b</i>	105

STEP 2 - The manufacturer calculates a *mean emission rate* of 101.5 ppm and a *SD* of 4.95 ppm for the samples.

$$\text{mean} = \left[\frac{98 + 105}{2} \right] = 101.5 \text{ ppm}$$

$$\text{SD} = \sqrt{\frac{(98 - 101.5)^2 + (105 - 101.5)^2}{2 - 1}} = 4.95 \text{ ppm}$$

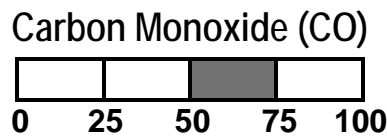
STEP 3 - The manufacturer calculates an *adjusted mean emission rate* for the samples as follows:

$$\text{adjusted mean} = \left[\frac{\left(101.5 + \frac{3.078 \times 4.95}{\sqrt{2}} \right)}{1.10} \right] = 102.1 \text{ ppm}$$

STEP 4 - The *adjusted mean* (102.1 ppm) is greater than the *mean* (101.5 ppm), so the estimated emission rate for the unit is the *adjusted mean*. The fraction of the CO standard (200 ppm air-free) is then calculated:

$$102.1 \text{ ppm} / 200 \text{ ppm} = 0.51$$

As the estimated emission rate for the unit is 51 percent of the standard, the manufacturer may darken the third label quadrant for CO (50% to 75%) as indicated below.



Additional Testing Option - If the manufacturer considers the estimated emission rate (51%) unacceptable, it may elect to test additional units. If it tests three additional units and obtains emission rates of 101, 97 and 90 ppm air-free, then repeating Step 2 with the new data set ($n=5$) yields a *mean* of 98.2 ppm and a *SD* of 5.54 ppm. A new *adjusted mean* is then calculated:

$$\text{adjusted mean} = \left[\frac{\left(98.2 + \frac{1.533 \times 5.54}{\sqrt{5}} \right)}{1.10} \right] = 92.7 \text{ ppm}$$

The *adjusted mean* (92.7 ppm air-free) is now less than the *mean* (98.2 ppm air-free), so the estimated emission rate for the unit is now the *mean*. As $98.2 \text{ ppm} / 200 \text{ ppm} = 0.49$, the estimated emission rate for the unit is 49 percent of the standard, and the manufacturer may darken the second label quadrant for CO (25% to 50%) as indicated below.

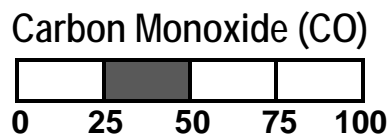


Table of t_{90} - Critical values for t (one-sided, $p = 0.10$)

Units Tested	t_{90}
2	3.078
3	1.886
4	1.638
5	1.533
6	1.476
7	1.440
8	1.415
9	1.397
10	1.383
11	1.372
12	1.363
13	1.356
14	1.350
15	1.345
16	1.341
17	1.337
18	1.333
19	1.330
20	1.328
21	1.325
22	1.323
23	1.321
24	1.319
25	1.318

Note: When the number of units tested exceeds 25, consult published t -tables for critical values for a one-sided test and $p = 0.10$. When using t -tables indicating only degrees of freedom, the “degrees of freedom” (df) are the number of units tested minus one (*i.e.*, $df = n - 1$).

Vent-Free Gas Space Heating Appliances Relevant New York State Laws

General Business Law Article 20

§ 322-c. Gas space heating appliances to be equipped with back draft diverters and automatic shutoff devices. On and after July first, nineteen hundred sixty-five it shall be unlawful to manufacture or assemble, or to sell or offer for sale, or to install, use or maintain in any building used or occupied as a residence, any space heating appliance using natural and/or manufactured gas fuel unless such appliance is equipped with (a) a back draft diverter with vents of sufficient capacity to permit the discharge of combustion gases away from the burning gas, except where such appliance (i) is provided with a sealed combustion chamber directly vented to the outside, or (ii) is listed by an accredited third party agency as an unvented appliance in compliance with American National Standard Z21.11.2 and meets or exceeds standards established by rules and regulations promulgated, and which may be periodically amended, by the department of health and approved by the state fire prevention and building code council, and (b) an automatic shutoff device to prevent the flow of gas if the flame or pilot light, thereof is extinguished; provided, however, that nothing contained herein shall be construed as repealing or in any manner limiting, restricting or diminishing any power conferred by any provision of law upon any city having a population of one million or more, or any body, agency or officer thereof, to enact or adopt local laws, ordinances, other local enactments or rules or regulations relating in any manner to gas space heating appliances, so long as such local laws, ordinances, enactments, rules or regulations in so far as the same relate to the subject matter of this section, are not less restrictive than the provisions of this section. A violation of the provisions of this section shall constitute a misdemeanor.

Public Health Law Article 2, Title 1

§ 206. Commissioner; general powers and duties.

1. The commissioner shall:

(f) by rule and regulation, establish standards necessary and appropriate for the implementation of item (ii) of clause (a) of section three hundred twenty-two-c of the general business law. Such rules and regulations shall be approved by the New York state fire prevention and building code council.

Pursuant to the authority vested in the Commissioner of Health by section 206.1(r) of the Public Health Law, a new Part 71 is added to Title 10 (Health) of the New York Codes, Rules and Regulations, to be effective upon publication of a Notice of Adoption in the State Register, to read as follows:

Part 71
REQUIREMENTS FOR VENT-FREE GAS SPACE HEATING APPLIANCES
(Statutory Authority: Public Health Law, Section 206.1(r))

SEC.

71.1 Purpose

71.2 Definitions

71.3 Requirements

71.4 Effective Date

Section 71.1 Purpose

The purpose of this rule is to protect public health, safety and welfare by specifying requirements for vent-free gas space heating appliances offered for sale or sold in New York State.

71.2 Definitions

(a) Sizing guidelines means printed instructions provided by the manufacturer that contain information on selecting a vent-free gas space heating appliance with appropriate heat output.

(b) Vent-free gas space heating appliance, also known as a gas-fired unvented room heater, means an unvented, self-contained, gas-burning appliance for connection to the house fuel supply system and for furnishing heat to the space in which installed, directly from the appliance without duct connection. These appliances may be free-standing, wall mounted or for insertion in a noncombustible fireplace.

71.3 Requirements

(a) Manufacturers of vent-free gas space heating appliances shall produce shipping carton labels for vent-free gas space heating appliances that prominently and clearly display, in bold type no smaller than 14 point, the following language:

Caution: This appliance is a supplemental heat source and should not be the primary heat source. This appliance must be installed and serviced according to the manufacturer's instructions and local and state building codes. Select a model with appropriate heat output using sizing guidelines provided by the manufacturer. Using a heater with greater heat output than recommended may be harmful to your health. As with other fuel burning appliances, local building codes may require installation of a carbon monoxide detector in your home.

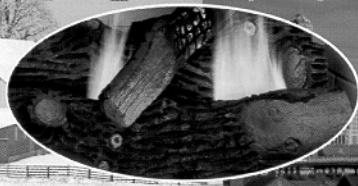
Sellers of vent-free gas space heating appliances shall ensure that this label is on the outside of each vent-free gas heating appliance shipping carton and is prominently and clearly displayed, in bold type no smaller than 14 point, on or near each vent-free gas space heating appliance on display at a point-of-sale.

(b) Within four years of the effective date of this regulation, manufacturers of vent-free gas space heating appliances shall produce shipping carton labels for vent-free gas space heating appliances that prominently and clearly display, in bold type no smaller than 14 point, information on the vent-free gas space heating appliance's measured carbon monoxide and nitrogen dioxide emission rates as a percentage of the carbon monoxide and nitrogen dioxide emission rate standards referenced in a recognized industry standard for vent-free gas space heating appliances. Sellers of vent-free gas space heating appliances shall ensure that this label is on the outside of each vent-free gas space heating appliance shipping carton and is prominently and clearly displayed, in bold type no smaller than 14 point, on or near each vent-free gas space heating appliance on display at a point-of-sale. The Commissioner of Health must have determined that the methods and procedures used to develop the carbon monoxide and nitrogen dioxide emission rates for the label represent (i) normal operating conditions for the vent-free gas space heating appliance, (ii) a reliable analytical method and (iii) an accurate statistical measure of actual emission rates.

(c) Sizing guidelines prepared by manufacturers of vent-free gas space heating appliances shall be provided at the point-of-sale by sellers of vent-free gas space heating appliance. The sizing guidelines shall be easy to understand, concise and include sample calculations illustrating the method used to select a properly-sized vent-free gas space heating appliance.

71.4 Effective Date

This regulation shall be effective on the date of publication.



HOW TO SELECT AN APPROPRIATELY-SIZED VENT-FREE GAS HEATING PRODUCT



- STEP 1** Determine if your house construction is *loose*, *average* or *tight*.
- ♦ Houses with *loose construction* typically have no storm doors or storm windows, no vapor barrier, no weather stripping and if fireplaces are present they are undampened.
 - ♦ Houses with *average construction* typically have loose fitting storm doors and storm windows, a vapor barrier, weather stripping and if fireplaces are present they are dampened.
 - ♦ Houses with *tight construction* typically have tight fitting storm doors and storm windows, a vapor barrier, weather stripping and if fireplaces are present they are dampened.
- STEP 2** Determine if you will install the vent-free gas heating product in an *isolated space* or a *freely-communicating space*.
- ♦ An *isolated space* is a room that does not have openings into other rooms and has one or more doors to other rooms that can be closed.
 - ♦ A *freely-communicating space* connects to other rooms in the house through openings not equipped with doors - for example, archways, doorways without doors, hallways and stairways.
- STEP 3** Determine the *size of your space* for which supplemental heating is desired.
- ♦ In feet, measure the *length* of the space, the *width* of the space and the *height* of the space from floor to ceiling. Round each measurement to the nearest foot. Multiply these three numbers (length x width x height). This will tell you the size of the space in cubic feet (ft³). The space may be a single room or adjoining rooms and other areas such as hallways and stairwells. Exception: If the space is a single room that can be isolated from the rest of the house by closing the door(s), then calculate only the space of that single room.
- STEP 4** Determine if you want a vent-free gas heating product that cycles on and off by means of a *thermostat control* or one that you must turn on and off with a *manual control*.
- STEP 5** Determine the *vent-free gas heating product's input* by referencing the charts on the back.

- ♦ If you will install the vent-free gas heating product in a *freely-communicating space*, use *Chart A*. Find the column that matches your house construction (loose, average, or tight) and the type of control you selected (thermostat or manual control). In that column, find the number that is closest to the size of the space you calculated. In the far right-hand column of the chart will be the input of the product you need. You should purchase a vent-free gas heating product of approximately this input.
- ♦ If you will install the vent-free gas heating product in an *isolated space*, use *Chart B*. Find the column that matches your house construction (loose, average, or tight) and the type of control you selected (thermostat or manual control). In that column, find the number that is closest to the size of the space you calculated. In the far right-hand column of the chart will be the input of the product you need. You should purchase a vent-free gas heating product of this input or less.

VENT-FREE GAS HEATING PRODUCT INPUT FOR A FREELY-COMMUNICATING SPACE

CHART A

House Construction							Input (Btu/Hour)
Loose		Average		Tight			
Thermostat Control	Manual Control	Thermostat Control	Manual Control	Thermostat Control	Manual Control		
Space Size in Cubic Feet (ft³ = Length x Width x Height)							
690	787	1,053	1,471	1,316	2,000	5,000	
1,379	1,575	2,105	2,941	2,632	4,000	10,000	
2,069	2,362	3,158	4,412	3,947	6,000	15,000	
2,759	3,150	4,211	5,882	5,263	8,000	20,000	
3,448	3,937	5,263	7,353	6,579	10,000	25,000	
4,138	4,724	6,316	8,824	7,895	12,000	30,000	
4,828	5,512	7,368	10,294	9,211	14,000	35,000	
5,517	6,299	8,421	11,765	10,525	16,000	40,000	

VENT-FREE GAS HEATING PRODUCT INPUT FOR AN ISOLATED SPACE

CHART B

House Construction							Input (Btu/Hour)
Loose		Average		Tight			
Thermostat Control	Manual Control	Thermostat Control	Manual Control	Thermostat Control	Manual Control		
Space Size in Cubic Feet (ft³ = Length x Width x Height)							
901	1,111	1,235	1,961	1,351	2,564	5,000	
1,802	2,222	2,469	3,922	2,703	5,128	10,000	
2,703	3,333	3,704	5,882	4,054	7,692	15,000	
3,604	4,444	4,938	7,843	5,405	10,256	20,000	
4,505	5,556	6,173	9,804	6,757	12,821	25,000	
5,405	6,667	7,407	11,765	8,108	15,385	30,000	
6,306	7,778	8,642	13,725	9,459	17,949	35,000	
7,207	8,889	9,877	15,686	10,811	20,513	40,000	