HB

543

- HB543 -

Mel - person who sells unvented

373-6561 -

- Dale Baker - * selling unvented heaters in Wasilla

373-6561

$100 - $10 per month

Alaska Contractor - Spring 1994

Official Business

COMMITTEE:
SENATE COMMUNITY & REGIONAL AFFAIRS

DATE: 4/21/94

Subject of meeting:
HB 543 UNVENTED GAS HEATERS IN RESIDENTIAL HOMES

SIGN-IN

PLEASE PRINT!

NAME	ADDRESS (MAILING) & (ZIP)	PHONE	REPRESENTING	DO YOU WANT TO TESTIFY?
KEN LEO	FOB 111203 JUNEAU 99811	465-4331	DPS, FIRE PREV	NO
Richard Barnes	P.O. Box 92009 Anchorage 99509	2643681	ENSTAR	yes
DAVE SINCLAIR	6840 SEQUOIA C ANCHORAGE	345-0854	ENSTAR	yes
Jim Murphy	~~2FF~~ 555 W Northern Lights Anch 99503	2x-5864	Lung Assoc	yes
Joseph Easley	Capitol Rm 102.	465-3719.	Rep Vezey	Yes.

7 7 7 7

State of Alaska

House State Affairs Committee

Session
Rm. 102
State Capitol
Juneau, AK 99801
(907) 465-3719

Interim
119 N. Cushman St.
Suite 211
Fairbanks, AK 99701
(907) 456-3081

April 18, 1994

From: Joseph Easaw Jr.
Office of Al Vezey, Representative

To: Shirley Armstrong, Committee Aide
Senate Community & Regional Affairs

Subject: Documentation addressing opposition

This additional information may be very useful to the members of the committee at today's hearing on HB 543. GAMA (Gas Appliances Manufacturers Association) has taken a sampling of the letters written in opposition to HB 543 and directly addressed some of those comments and assertion.

Please add this information to the packet for the committee members. If you need additional copies please call me at 6822 and I will provide them for you. Thank you for your help.

APR 13 1993

Alaska State Legislature

While in Session:
State Capitol Building
Juneau, Alaska 99801-1182
907-465-3719

Interim:
119 N. Cushman
Suite 211
Fairbanks, Alaska 99701
907-456-5081

Representative Al Vezey

April 12, 1994

From: Representative Al Vezey, Chairman AV
House State Affairs Commmittee

To: Senator Randy Phillips, Chairman
Senate Community & Regional Affairs

Subject: Request for hearing on

We respectfully request a hearing before the Senate Community and Regional Affairs Committee or HB 543, **"An Act relating to gas space heaters in residential buildings."** . We request a hearing at the committee's earliest convenience. Included with this request is a sponsor's statement along with supporting documents. Please call me or Joseph Easaw in my office if there is anything additional we may do or provide with regards to this request.

Thank you for your favorable response to this request.

State of Alaska

House State Affairs Committee

Session
Rm. 102
State Capitol
Juneau, AK 99801
(907) 465-3719

Interim
119 N. Cushman St.
Suite 211
Fairbanks, AK 99701
(907) 456-3081

March 31, 1994

SPONSOR STATEMENT HB 543

The intent of House Bill 543 is to allow the usage of unvented gas fired room heaters to be installed in residential dwelling in the state of Alaska. It mandates gas fired room heaters meets the requirements and standards of the American National Standards Institute (ANSI), Z21.11.2.

Unvented gas fired room heaters have been in existence for more than thirty years in Europe and there are more than two million of them in use in the United States with relatively a small number of fatalities or serious injuries. These instances of fatalities are attributable to unvented gas heaters not manufactured for indoor use. This claim cannot be made about the usages of vented room heaters.

Unvented heaters are far more efficient than vented heaters and thereby more economical to operate.

An analysis of the latest statistics (1986) compiled by the U.S. Consumer Product Safety Commission (CPSC) reveals that of the total 150,000 fires involving space [illegible] types (i.., electric, coal, gas, etc.), gas [illegible] counted for only 3%.

TABLE OF CONTENTS

1901 North Moore Street • P.O. Box 9245 • Arlington, Virginia 22209 • 703/525-9565

rebuttal to letters of opposition

DATE: April 21, 1994

FROM: The Gas Appliance Manufacturer's Association
Vent Free Gas Products Task Group

TO: The Alaska Legislature

We have reviewed a sampling of the various letters submitted opposing the approval of vent free gas heating products for sale and installation in Alaska. These letters, while obviously well intentioned are grossly misinformed. It is not practical to address all erroneous information in this memo, but the following is a sampling of assertions that we strongly dispute:

1) Letter from Design Associates:
"People will die. Unvented space heaters will do this."

GAMA Response:
The Consumer Products Safety Commission data finds no evidence of deaths due to use of an oxygen depletion sensor (ODS) vent free gas product.

In fact, the action of the ODS extinguishing the vent free heater has often served to alert the home owner that service was required. Service then detected carbon monoxide production by another home appliance. In effect the vent free heater reacted as a CO detector. We are not recommending that vent free heaters be used as a CO detector, but their "fail-safe" performance is impressive.

2) Letter from Chuck Renfro:
"All literature ... reflects factory installation is to disallow the unit in sleeping quarters"

GAMA Response:
Effective April 1994, the American National Standards Institute and the National Fire Protection Assoc. (which administers the National Fuel Gas Code) approved the installation of vent free gas heaters of 10,000 BTU or less, wall hung, for sleeping quarters. This decision followed three years of careful review by the engineers, inspectors, cand gas companies of the industry. All product manuals will be revised accordingly.

3) Letter from Scotts Heating and Air Conditioning Services:

"Each year there are many cases of carbon monoxied poisoning in homes, cabins, and yes, even tents, remembering the 6 people in the "Iditerod 1994" race that made the front page of the Daily News."

GAMA Response:

The product involved in the unfortunate death of 6 Iditerod racers was a commercial (vs. residential) propane heater, mounted on top of a propane tank, it was not an ODS equipped vent free gas heater, and has no relevance to the product proposed for approval.

4) Letter from Bruce V. Zatulor

"Normal oxygen content in the atmosphere is 20.9% or 209.000 parts per million (ppm). Carbon monoxide at levels of 100ppm can cause severe health problems." ... inferring that vent free gas heaters lead to that effect.

GAMA Response:

Vent free gas heating appliances produce only "trace" amounts of carbon monoxide which translates to 10 - 50 ppm. of room air. No adverse health effects are known to result to these trace amounts of carbon monoxide, regardless of the Source.

5) Letter from the American Lung Association:

"Alaska has wisely adopted the Uniform Building Code (ICBO) which prohibits such devices and feel that these standards should not be changed in cold climate regions. They are prohibited in other severe weather climates such as Minneapolis, New Hampshire, and New York State."

GAMA Response:

There are five major building codes in the U.S. only ICBO prohibits vent free heaters and wrote that language into their code prior to introduction of the ODS in 1980. New Hampshire, in Dec. 1993, changed their state law to permit the installation of vent free gas heating products.

SW/lc

1901 North Moore Street • P.O. Box 9245 • Arlington, Virginia 22209 • 703/525-9565

DATE: April 21, 1994

FROM: Jack Langraede, Vice President
Technical Services

TO: Whom it May Concern

The consumer Products Safety Commission moroidity and mortality date base reveals that there have been no deaths caused by carbon monoxide poisoning attributed to use of vent free gas space heating products equipped with an oxygen depletion sensor (all such products manufactured and marketed since 1980 ... approximately 2.8 million units in residential use).

/lc

1901 North Moore Street • P.O. Box 9245 • Arlington, Virginia 22209 • 703/525-9565

DATE: April 21, 1994

FROM: The Gas Appliance Manufacturer's Association
Vent Free Gas Products Task Group

TO: The Alaska Legislature

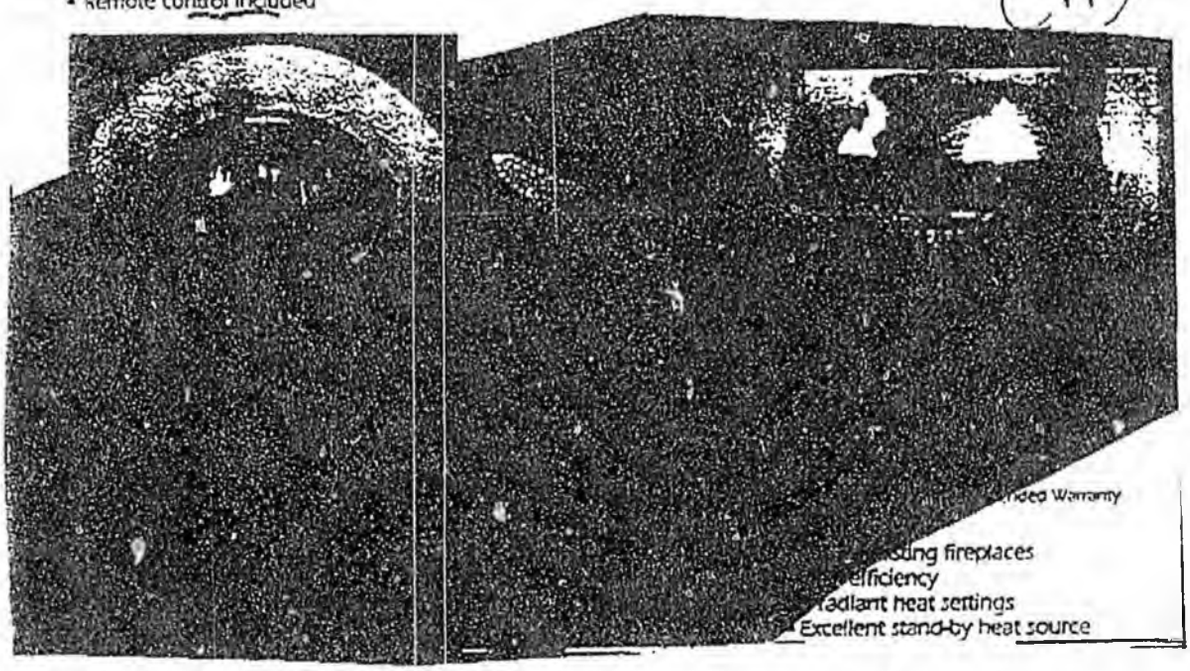
While a representative of a Suburban propane branch in Alaska has written a letter opposing vent free gas products, it is important to acknowledge that while there are two branch locations of Suburban in Alaska; there are 784 total branches in 49 states in the U.S.. The corporate headquarters of Suburban Propane in Whippany, New Jersey solidly supports vent free gas products as evidenced in the attached fall '93 promotional brochure published by Suburban Propane.

SW/lc


JOURNEY INTO SAVINGS
SAN PROPANE'S
ANNUAL FALL SPECTACULAR
SALE
Most Locations Open Saturday Sale Ends November 30, 1993
Blower Included
EMPIRE
(VF)
40,000 BTU DELUXE VENT FREE GAS HEATER
NOW ONLY $349.95
w/3-yr. Extended Warranty
Regular $451.40
NOW ONLY $529.95
w/3-yr. Extended Warranty
Regular $720.45
•Cozy visual blue flame
•100% efficient
•Vent free installation
•Auto on/off thermostat
•100% ODS (oxygen depletion sensor) for maximum safety
•Matchless piezo ignition
NEW FOR 93!
Warm Morning
(VF)
VENTED RADIANT-FRONT
GAS ROOM HEATER
Model #VR65B
NOW ONLY $849.95
Regular $952.95
$889.93
w/3-yr. Extended Warranty
•Cozy fireplace appearance
•Top mounted controls
30,000 BTU INFRARED GAS
SPACE HEATER WITH THERMOSTAT CONTROL
Model #VP2200T
NOW ONLY $399.95
Regular $437.10
$439.93
w/3-yr. Extended Warranty
•Four heaters in one!
•Fast, efficient infrared

VF = Vent Free

(VF)



VF = Vent Free

Top 25 Propane Retailers

An updated look at the leading propane retail marketers in the United States.

To no one's surprise, Suburban Propane/Petrolane continues to rank as the leading United States retail marketer of propane, according to *LP/Gas* magazine's annual and newly-expanded poll of LPG retailers.

The New Jersey firm, based in Whippany, led the way with sales of 1.125 billion gallons.

Much to the great delight of company officials, Suburban Propane/Petrolane, headed up by president Dennis J. Spina, saw its retail gallonage rise during the past year...despite a seige of unseasonably warm weather which haunted most propane marketers. Sales at the retail level in 1990 totaled 1.097 billon gallons (see January 1991 issue of *LP/Gas*).

However, the company's wholesale gallonage fell by 50 million gallons...producing a 22 million gallons loss.

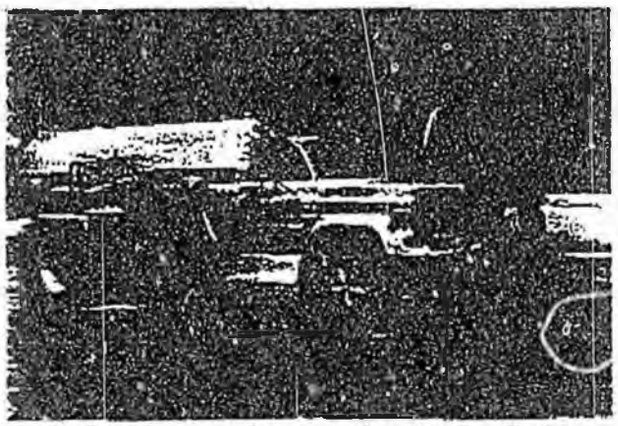
Ferrellgas of Liberty, Missouri reported that its retail sales during the past year (525 million gallons) were identical to those of 1990, though its sales in the wholesale arena were off 165 million gallons, when its figures are compared to 1990 data which it furnished.

AmeriGas also reported that its retail sales were off during the past year, posting an 18 million gallons loss. The Pennsylvania-based (Valley Forge) recorded 1991 propane retail sales of 353.732 million gallons. Its wholesale gallons sales, which were 108 million the previous year, were only 5.981 million last year.

Empire Gas of Lebanon, Missouri, headed up by Bob Plaster, was also among those reporting drops in retail sales. During the past year, retail gallonage fell by 15 million gallons...the slippage being attributed to a seige of unseasonably warm weather which has been negatively impacting propane marketers throughout the country for the past several years.

Star Gas, headquartered in Mt. Laurel, New Jersey, and headed up by Jim Bullen, was another company which saw its retail sales slip...falling 19 million gallons to 99.1 million gallons during the past year. Its sales in the wholesale area also slipped by 11.5 million gallons.

Agway Energy of Syracuse, New York, enjoyed a slight increase in its retail sales, from 90 million gallons to 92.8 million gallons during the past year due in part to the acquisition of several new outlets.



Empire Gas was among those reporting drops in gallonage.

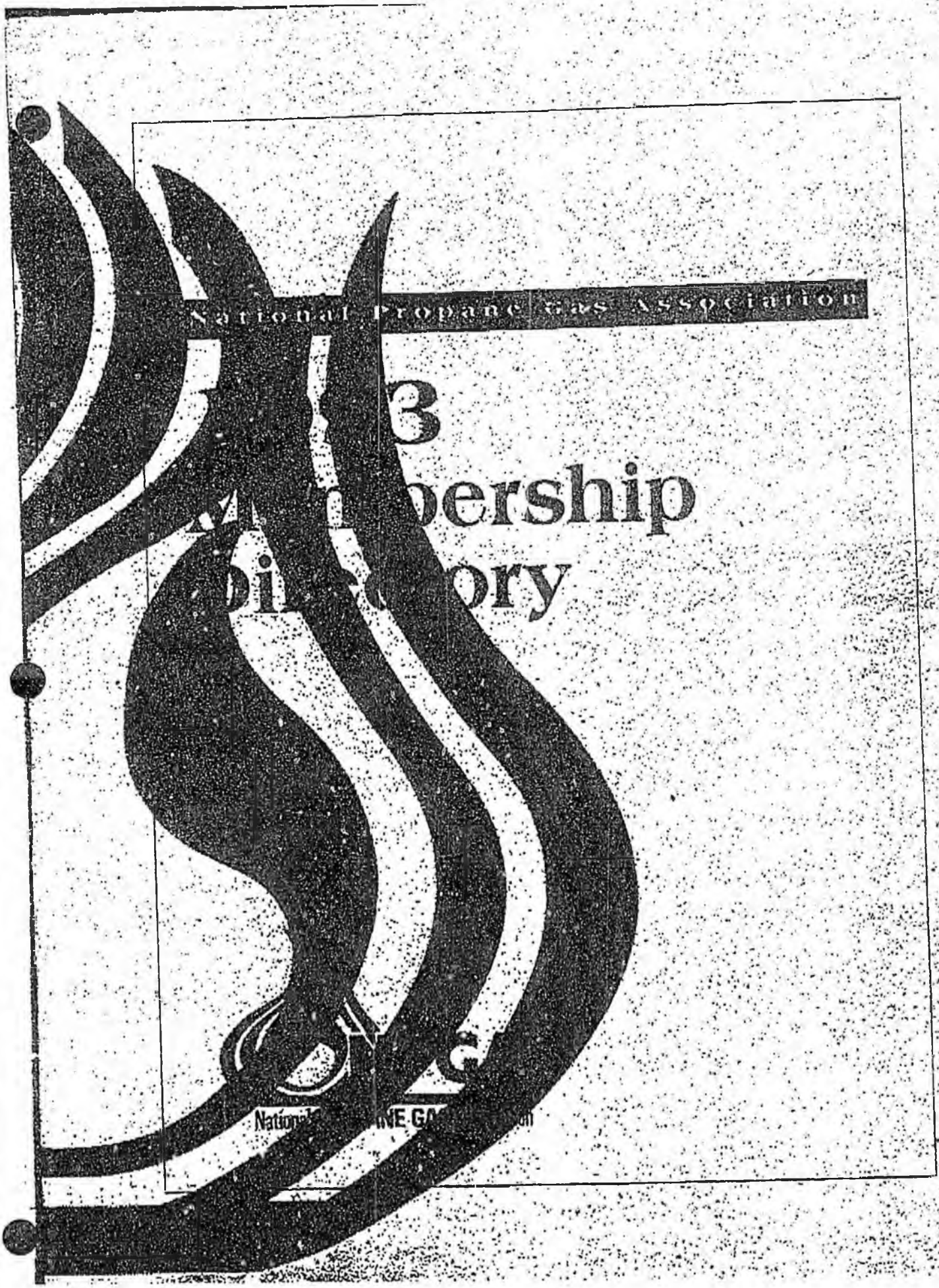
Heritage Propane of Tulsa, which was founded just three years ago (May 1, 1989) this month, saw its 1991 retail gallonage (70 million) increase 3 million gallons. But, like Agway, the growth was the result of 13 more outlets acquired via the firm's acquisition program.

Overall, sales for the Top 10 LP-gas retail marketers were down across the board. Most of the slippage, the marketers agree, was spawned by mild winter weather. □

TOP 25 UNITED STATES RETAIL PROPANE MARKETERS

RANK	COMPANY (Headquarters)	RETAIL	WHOLESALE	TOTAL GALLONS	OUTLETS	STATES	CUSTOMERS
1	Suburban Propane/Petrolane (Whippany, NJ)	1,125,000,000	401,000,000	1,526,000,000	784	49	1,600,000
2.	Ferrellgas (Liberty, MO)	525,000,000	110,000,000	800,000,000	500	45	600,000
3.	AmeriGas (Valley Forge, PA)	353,732,000	5,981,500	358,713,500	304	37	417,000
4.	DWG Propane Corp. (Miami Beach, FL)	165,000,000	13,000,000	178,000,000	146	21	NA
5.	Meteo Gas Products (Tulsa, OK)	160,000,000	50,000,000	210,000,000	133	11	185,000
6.	Empire Gas (Lebanon, MO)	157,000,000	4,000,000	161,000,000	260	22	210,000
7.	Synergy (Farmingdale, NY)	130,000,000	NA	130,000,000	125	17	156,000
8.	Suburban, Inc. (Oak Brook, IL)	125,000,000	15,000,000	140,000,000	108	10	1...,000
9.	Enro Propane (Flint, MI)	102,000,000	None	102,000,000	80	4	140,000
10.	Star Gas (Mt. Laurel, NJ)	99,100,000	50,500,000	149,600,000	93	12	204,000
11.	Agway Energy (Syracuse, NY)	92,800,000	None	92,800,000	95	10	194,000
12.	Heritage Propane (Tulsa, OK)	70,000,000	21,000,000	91,000,000	80	11	140,000
13.	Blackman Gas (Ocean Springs, MS)	52,500,000	None	52,500,000	70	7	110,000
14.	Vision Energy (New York City, NY)	51,450,500	38,847,650	90,298,200	60	7	40,000
15.	Cenex/Land O'Lakes (St. Paul, MN)	50,000,000	295,500,000	245,500,000	320	14	190,000
16.	ProFlame (Novato, CA)	35 [illegible]5,000	37,000,000	72,765,000	28	3	40,000
17.	MFA Oil Co. (Columbia, MO)	34,500,000	None	34,500,000	50	1	42,000
18.	Commonwealth Propane (Richmond, VA)	33,700,000	20,600,000	54,300,000	25	8	63,800
19.	Dowdle Butane (Columbus, MS)	31,925,000	11,100,000	43,025,000	34	3	68,000
20.	Piedmont Propane (Charlotte, NC)	30,450,000	4,...56,000	35,000,000	20	3	38,000
21.	Gas Supply, Inc. (Minneapolis, MN)	30,000,000-e	90,000,000-e	120,000,000	12	3	25,000
22.	Lakes Gas (Forrest Lake, MN)	22,500,000	None	22,500,000	25	3	40,000
23.	Ipe Gas (Honolulu, HI)	22,000,000	1,750,000	23,750,000	7	1	35,000
24.	Peoples Gas (Tampa, FL)	20,000,000	None	20,000,000	10	1	35,000
25.	Jenkins Gas (Pollocksville, NC)	17,300,000	None	17,300,000	10	1	30,000

SOURCE: Annual survey of marketers by LP/GAS magazine. E - Estimated, based upon industry data.


National Propane Gas Association
bership
ory

ALABAMA MARKETERS - Continued

2224 Forrest Ave
Gadsden, AL 35904-2097
205/547-6971

PO Box 307
Heflin, AL 36264-1131
205/463-2171

PO Box 12694
Huntsville, AL 35802-2134
205/882-2118

P O Box 555 Highway 31
Jemison, AL 35085-9999
205/688-2450

PO Box 728
Leeds, AL 35094-0728
205/699-6660

PO Box 582
Pell City, AL 35125
205/338-3318

PO Box 527 Highway 35 West
Rainsville, AL 35986
205/638-2555

Tri-Cities Gas Co
Jack Clemons
PO Box 561
Florence, AL 35630
205/381-7741

Uneeda Gas Co Inc
Larry D Ray
PO Box 925
Alexander City, AL 35010
205/234-7201

Vaughen Gas & Appliance Co Inc
Bob Vaughan
PO Box 1612
Decatur, AL 35602
205/353-2545

PO Box 134
Moulton, AL 35650
205/974-0628

W & J Propane Gas
Jim Cassidy
PO Box 776
Greenville, AL 36037
205/382-3158

PO Box 375
Andalusia, AL 36420
205/222-4525

PO Box 628
Butler, AL 36904
205/459-2949

P O Box 245
Dadeville, AL 36853
205/825-4338

PO Box 148
Eutaw, AL 35462
205/372-2169

PO Box 88
Evergreen, AL 36401
205/578-3099

P O Box 525
Florala, AL 36442
205/858-3716

PO Box 154
Georgiana, AL 36033
205/376-2211

PO Box 9
Greensboro, AL 36744
205/624-4984

P O Box 247
Heflin, AL 36264
205/463-2221

PO Box 418
Huntsboro, AL 36860
205/667-6457

PO Box 342
Luverne, AL 36049
205/335-3356

PO Box 159
Sweetwater, AL 36782

PO Box 1025
Troy, AL 36081
205/566-1670

PO Box 5040
Union Springs, AL 36089
205/738-3050

P O Box 500
Wedowee, AL 36278-0500
205/363-2411

Wan Bon Gas Inc
R Ed Wakdrip
PO Box 28
Westover, AL 35185
205/678-6681

Waters LP-Gas Co
PO Box 668
Moulton, AL 35650
205/974-1360

ALASKA

AmeriGas L P Gas Division
Wayne Canary
19244 E Valley Hwy
Kent, WA 98032
206/395-4428

PO Box 32279
Juneau, AK 99801
907/789-7897

Northern Gas & Oil Co
Fred J Schikora
3374 Sandvik St
Fairbanks, AK 99709
907/452-1176

Petrolane
2250 Cushman St
Fairbanks, AK 99701
907/452-1176

PO Box 33857
Juneau, AK 99803-3857
907/789-7840

Rt 1 Box 1143
Ketchikan, AK 99901
907/225-4060

SRA Box 6185 A3
Palmer, AK 99645
907/745-4841

P O Box 410
Soldotna, AK 99669
907/262-4683

Suburban Propane
J T Davis
1851 S Central Place #217
Kent, WA 98031
206/852-5900

1200 E Whitney Rd
Anchorage, AK 99501
907/272-7581

ARIZONA

Ajo Propane Gas CO
Johnny Martin
688 W Southern
Apache Jct, AZ 85220
602/982-8280

AmeriGas
Bob Burns
9559 East Valley BLvd
El Monte, CA 91731
602/444-0656

P O Box 1599
Cottonwood, AZ 86326
602/646-6034

PO Box 638
Holbrook, AZ 86025
602/524-3504

Highway 264 & Luepp Road
Kykotsmovi, AZ 86039
602/734-2480

510 S Lewis St
Mesa, AZ 85210
602/969-2315

2651 N Grand Ave #23
Nogales, AZ 85621
602/281-1341

PO Box 1029
Overgaard, AZ 85933
602/535-6123

PO Drawer 2259
Show Low, AZ 85901
602/537-4944

PO Box 1648
Sierra Vista, AZ 85636
602/378-2326

2455 West Westmore Rd
Tucson, AZ 85705-2018
602/887-7120

Apache Propane Co
Steven Munyon
1767 S Wick-up Road
Apache Junction, AZ 85219
602/986-1712

Arrow Gas Company, Subsidiary National Propane Corporation
Robert L Guest
Box 1777
Roswell, NM 88201
505/622-8031

PO Box 1392
Camp Verde, AZ 86322
602/634-5408

PO Box 218
Congress, AZ 85332
602/427-3317

PO Box 2578
Flagstaff, AZ 86001
602/526-0659

Barnett Propane
Roger Barnett
Box 1325
Sierra Vista, AZ 85636
602/458-4541

Black Mountain Gas Co
Tom LeNeau Mayne
PO Box 427
Cave Creek, AZ 85331
602/488-3402

P O Box 3025
Page, AZ 86040
602/645-2391

Blue Flame Bottle Gas Service
Harold Malott
2803 N Fairview Ave
Tucson, AZ 85705
602/622-1491

Blue Flame Bottle Gas
Hwy 92
Sierra Vista, AZ 85636
602/622-1491

Century Propane Company Inc dba Discovery Propane
Steve Baze
PO Box 6128
Kingman, AZ 86401
602/753-9596

54 North Lake Havasu Avenue
Lake Havasu City, AZ 86403
602/453-6633

Empire Gas Corp
Paul Lindsey
PO Box 303
Lebanon, MO 65536
417/532-3101

HCO2 Box 112[illegible]
Globe, AZ 85501
602/425-1143

Flame Inc
C Barrett
475 North Sixth St
Prescott, AZ 86302
602/445-3191

1901 North Moore Street • P.O. Box 9245 • Arlington, Virginia 22209 • 703/525-9565

Gama

DATE: April 21, 1994

FROM: The Gas Appliance Manufacturer's Association
Vent Free Gas Products Task Group

TO: The Alaska Legislature

Many concerns have been raised regarding the issue of "opening a window" to provide combustion air for the use of vent free gas heating appliances.

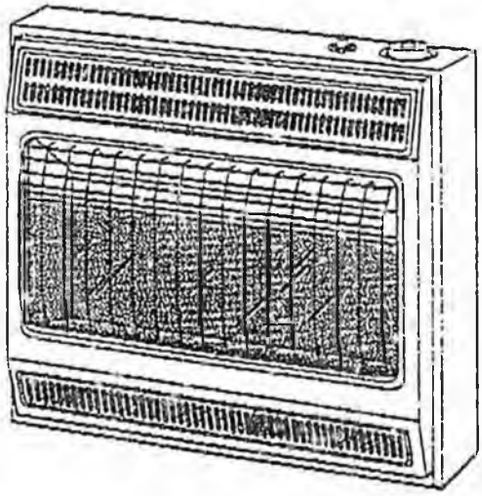
All vent free products manuals refer the installer to the National Fuel Gas Code for combustion air guidelines (see excerpt from sample attached product manual). The National Fuel Gas Code is very definitive regarding residential space that is "confined or unconfined" and provides clear direction on combustion air requirements in either situation. Vent free gas appliance manufacturers integrate these guidelines in their manuals, and train installers accordingly. When these guidelines are followed there is no reason for an open window.

The "open window" language is an "anachronistic" phrase carried from the early '80's. The American National Standards Z.21.11.2 subcommittee which oversees standards for these products, in May of '94 will take action to eliminate this language, and put exclusive focus on the National Fuel Gas Code combustion air guidelines.

SW/lc

BLUE-FLAME VENT-FREE NATURAL GAS HEATER

OWNER'S OPERATION AND INSTALLATION MANUAL



Heater Sizes: 18,000 BTU/Hr Non-Thermostat, 18,000 BTU/Hr Thermostat, and 28,000 BTU/Hr Thermostat "A" Model Heaters

WARNING: If the information in thi... is not followed exactly, a fire or ex... may result causing property damage, pe... sonal injury, or loss of life.

— Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

— WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

— Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual for correct installation and operational procedures. For assistance or additional information consult a qualified installer, service agency, or the gas supplier.

DESIGN CERTIFIED AMERICAN GAS ASSOCIATION

Save this manual for future reference.

PRODUCT IDENTIFICATION

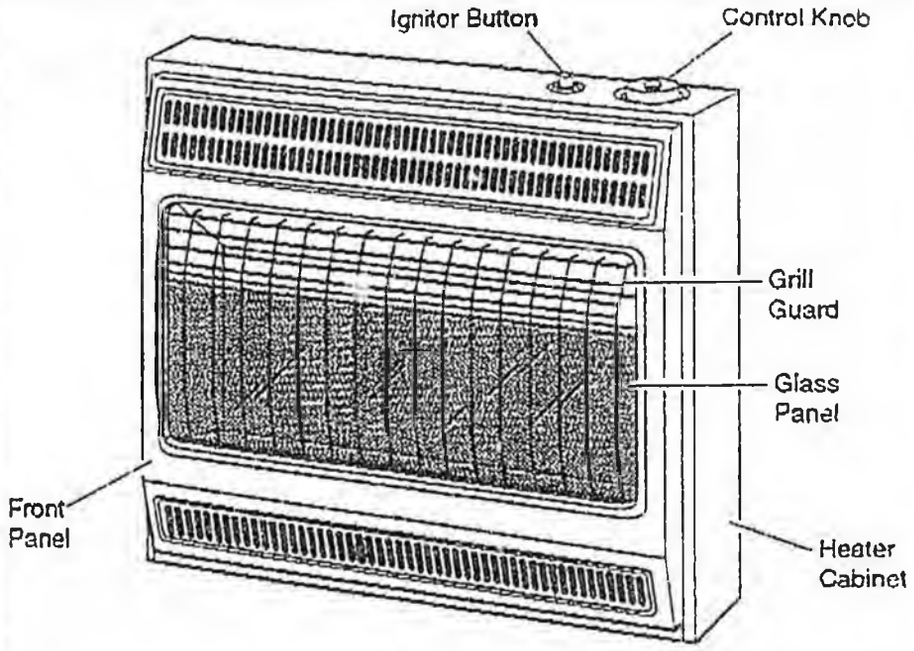


Figure 1 - Vent-Free Natural Gas Heater (28,000 BTU/Hr Model Shown)

LOCAL CODES

Install and use heater with care. Follow all local codes. In the absence of local codes, use the latest edition of the National Fuel Gas Code ANSI Z223, also known as NFPA 54*.

*Available from:

American National Standards Institute, Inc.
1430 Broadway
New York, NY 10018

National Fire Protection Association, Inc.
Batterymarch Park
Quincy, MA 02269

UNPACKING

1. Remove heater from carton.
2. Remove all protective packaging applied to heater for shipment.
3. Check heater for any shipping damage. If heater is damaged, promptly inform dealer where you bought heater.

PRODUCT FEATURES

Safety Device

This heater has a pilot with an Oxygen Depletion Sensor Shutoff System (ODS). The ODS/pilot is a required feature for vent-free room heaters. The ODS/pilot shuts off the heater if there is not enough fresh air.

Piezo Ignition System

This heater has a piezo ignitor. This system requires no matches, batteries, or other sources to light heater.

Thermostatic Heat Control
(Thermostat Models Only)

Thermostat models have a thermostat sensing bulb and a control valve. This results in the greatest heater comfort. This can also result in lower gas bills.

FRESH AIR FOR COMBUSTION AND VENTILATION

Continued

DETERMINING FRESH-AIR FLOW FOR HEATER LOCATION

Determining if You Have a Confined (Closed) or Unconfined (Open) Area

Use this worksheet to determine if you have a confined or unconfined area.

1. Add the BTU/Hr of all fuel burning appliances in the area.

	Vent-free heater	_____	BTU/Hr
	Gas water heater	_____	BTU/Hr
	Gas furnace	_____	BTU/Hr
	Vented gas heater	_____	BTU/Hr
	Gas fireplace logs	_____	BTU/Hr
	Other gas appliances* +	_____	BTU/Hr
	Total =	_____	BTU/Hr
Example:	Vent-free heater	18,000	BTU/Hr
	Vent-free heater +	28,000	BTU/Hr
	Total =	46,000	BTU/Hr

* Do not include direct-vent gas appliances.

2. Determine the volume of the room (length x width x height).

Length x Width x Height = _____ cu. ft. (Volume of room)

Example: Room size 20 ft. (length) x 16 ft. (width) x 8 ft. (ceiling height) = 2560 cu. ft. (Volume of room)

If additional ventilation to joining room is supplied with grills or openings, add the volume of these rooms to the total volume of the room.

3. Divide the room volume by 50 cubic feet to determine the maximum BTU/Hr the room can support.

_____ (Volume of room) ÷ 50 cu. ft.=_____ (Maximum BTU/Hr the room can support)

Example: 2560 cu. ft. (Volume of room) ÷ 50 cu. ft.= 51.2 or 51,200 (Maximum BTU/Hr the room can support)

4. Compare the maximum BTU/Hr the room can support with the actual amount of BTU/Hr used.

_____ BTU/Hr (Maximum the room can support)
_____ BTU/Hr (Actual amount of BTU/Hr used)

Example: 51,200 BTU/Hr (Maximum the room can support)
46,000 BTU/Hr (Actual amount of BTU/Hr used)

The room in the above example is an unconfined (open) area because the actual BTU/Hr used is less than the maximum BTU/Hr the room can support. See *Locating Heater in Unconfined (Open) Area* page 7.

If the actual BTU/Hr used is more than the maximum BTU/Hr the room can support, you must provide additional fresh air. See *Locating Heater in Confined (Closed) Area* on page 7.

⚠ WARNING

You must provide additional fresh air in a confined (closed) area.

FRESH AIR FOR COMBUSTION AND VENTILATION

Continued

Locating Heater in Unconfined (Open) Area

NOTICE*

An unconfined area has a minimum air volume of 50 cubic feet for each 1000 BTU/Hr input rating of all appliances in the area (cubic feet equals length x width x height of area). Include adjoining rooms only if there are no doors between the rooms or if you add ventilation grills between the rooms.

In an open area, the air that leaks around doors and windows may provide enough fresh air for combustion and ventilation. However, in buildings of unusually tight construction, additional air shall be provided using the methods described in *Providing Permanent Fresh-Air Ventilation for Confined Areas and Unusually Tight Construction*, page 8.

NOTICE*

Unusually tight construction is defined as construction where:

a. walls and ceilings exposed to the outside atmosphere have a continuous water vapor retarder with a rating of one perm or less with openings gasketed or sealed *and*

b. weather stripping has been added on openable windows and doors *and*

c. caulking or sealants are applied to areas such as joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical, and gas lines, and at other openings.

Locating Heater In Confined (Closed) Area

NOTICE*

A confined area has an air volume of less than 50 cubic feet for each 1000 BTU/Hr input rating of all appliances in the area (cubic feet equals length x width x height of area). Include adjoining rooms only if there are no doors between the rooms.

If you install this heater in a confined area, you must provide additional fresh air.

* *Excerpt from NFPA54/ANSI Z223.1, Section 5.3*

Ventilating Confined Area

This fresh air would come from an adjoining open area or outdoors.

⚠ WARNING

The adjoining open area must have enough fresh, outside air ventilation to supply any appliance in that area plus the confined area. Follow instructions under *Locating Heater in Unconfined (Open) Area*, above, to make sure fresh air ventilation is adequate.

When ventilating to an adjoining open area, you must provide two permanent openings: one within 12" of the ceiling and one within 12" of the floor on the wall connecting the two areas. Follow the National Fuel Gas Code NFPA 54/ANSI Z223.1. It lists fresh-air requirements for fuel-burning appliances.

Continued

FRESH AIR FOR COMBUSTION AND VENTILATION

Continued

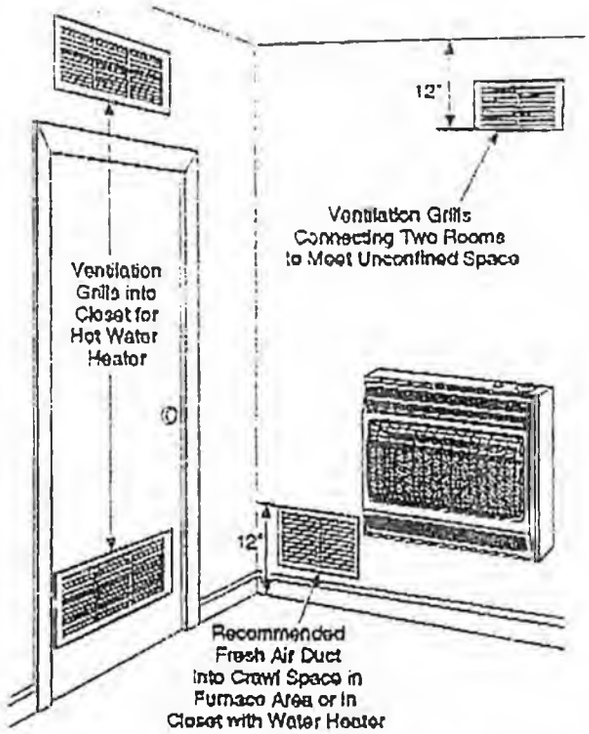


Figure 2 - Ventilation Air from Inside Building

Providing Permanent Fresh-Air Ventilation for Confined Areas and Unusually Tight Construction

Provide extra fresh air by using ventilation grills or ducts. Connect these items directly to the outdoors or spaces open to the outdoors. These spaces include attics and crawl spaces. If you install this heater in an area with other gas appliances, you must total the BTU/Hr input rating of all appliances. Follow the National Fuel Gas Code NFPA 54/ANSI Z223.1, Sec. 5.3, Air for Combustion and Ventilation. It lists fresh-air requirements for fuel-burning appliances.

IMPORTANT

Do not provide openings for inlet or outlet air into attic if attic has a thermostat controlled power vent.

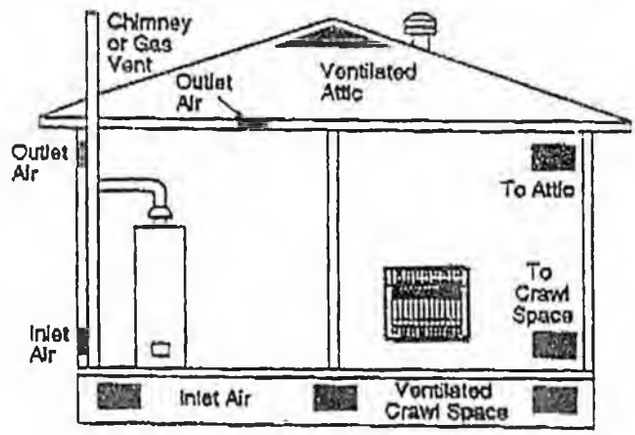


Figure 3 - Ventilation Air from Outdoors

1901 North Moore Street • P.O. Box 9245 • Arlington, Virginia 22209 • 703/525-9565

DATE: April 21, 1994

FROM: The Gas Appliance Manufacturer's Association
Vent Free Gas Products Task Group

TO: The Alaska Legislature

While some staff of ENSTAR Gas of Alaska oppose vent free gas heaters it is important to acknowledge that many major natural gas utilities merchandise, install, and service these products. The following utilities with 200,000 to 1,000,000 residential customers have for many years sold vent free gas products. Many of these companies are in New Jersey and Pennsylvania where there are extended periods of very cold weather.

UGI (Pennsylvania)

Pennsylvania Gas & Water (Pennsylvania)

Philadelphia Gas Works (Pennsylvania)

South Jersey Gas (New Jersey)

Public Service North Carolina (N. Carolina)

Piedmont Natural Gas (N. Carolina)

Peoples Gas (Iowa & Nebraska)

Atlanta Gas Light (Georgia)

Entex Gas (Mississippi)

Mississippi Valley Gas (Mississippi)

United Cities Gas (Tennessee)

Nashville Gas (Tennessee)

Alajanco (Alabama)

Mobile Gas co. (Alabama)

ODS PILOT TAMPER RESISTANT FEATHRES

ODS OPERATION:

The Oxygen Depletion Sensing system (i.e. oxygen sensitive pilot, thermocouple and safety shut-off valve) is a proven technological innovation with an unmatched safety record for the last thirty plus years.

Introduced first in Europe and then mandated in the U.S. in 1979, the ODS operates as follows:

If the oxygen level in the surrounding atmosphere drops to 18% (from a normal level of approximately 20.9%) a lifting of the pilot flame occurs. This cools the thermocouple, causing the gas supply to the heater to be shut off.

TESTING OF COMPONENT PARTS:

A.G.A. certification requires parts to be tested prior to assembly and then random "life" tests after assembly. Most manufacturers test every assembled unit as it finishes the production process.

RUBY ORIFICE:

Every ODS contains a ruby chip with a lazer drilled orifice. If someone attempts to drill out the orifice to enlarge the pilot flame, the orifice will completely disintergrate. If someone attempts to plug and redrill the orifice, the reduced BTU output will not generate sufficient millivolts to hold the gas valve open.

NON-REMOVEABLE ACCESS NUT:

The access nut to the ruby orifice is notched in such a fashion as to cause the threads to be "stripped" or destroyed should someone attempt to access the ruby orifice.

NOTCHED THERMOCOUPLE BRACKET:

The thermocouple base and bracket are notched and grooved in such a fashion as to clearly indicate correct placement. Should someone attempt to move the thermocouple further up into the flame, the ODS will still function as the pilot flame also lifts away from the pilot tube and thermocouple as well as up from the thermocouple.

COMPLETE PILOT FLAME EXTINGUISHMENT:

The ODS pilot flame will extinguish totally at 18 % oxygen level.

1901 North Moore Street • P.O. Box 9245 • Arlington, Virginia 22209 • 703/525-9565

Gama

April 1, 1994

The Honorable Al Vezey
Chairman, House State Affairs Committee
Alaska State Legislature
State Capitol
Juneau, Alaska 99801-1182

Dear Representative Vezey:

The Gas Appliance Manufacturers Association (GAMA) is a national trade association whose membership includes the vast majority of U.S. manufacturers of vented and unvented residential space heating equipment. At the request of Mr. Joseph Easaw of your staff, GAMA has reviewed a work draft of a bill to allow the installation and use of unvented gas space heaters in residential buildings.

GAMA recommends that Section 2 of the draft bill be revised to read as follows:

> Sec 2. AS 18.60.705 is amended by adding a new subsection to read:
>
> (c) Notwithstanding subsection (a) of this section, unvented gas space heaters are allowed in residential buildings provided: (1) they are listed by a testing agency qualified under the American National Standards Institute Accreditation Program as complying with the American National Standard for Gas-Fired Room Heaters, Volume II, Unvented Room Heaters, (ANS Z21.11.2); and (2) they are installed in accordance with the manufacturer's installation instructions.

The above language insures that only unvented gas space heaters that comply with relevant national product safety and installation standards will be allowed. For your information, manufacturers' installation instructions are reviewed and approved as part of the product safety certification process and must conform with the National Fuel Gas Code, ANS Z223.1/NFPA 54 (see enclosed excerpt from ANS Z21.11.2). The product is installed and operated by the testing agency per the

/Continued . . .

manufacturer's instructions and is then tested for safe operation. Therefore, there is no need to reference the National Fuel Gas Code in the bill.

GAMA supports the passage and enactment of this legislation as amended to include the language we have proposed above. If GAMA can be of further assistance in this matter, please let me know. Thank you.

Sincerely,

Joseph M. Mattingly
Director of Government Affairs
and General Counsel

JMM:gjr-1
Enclosure

1.18.2 Motor, blower or fan bearings shall be either (a) permanently lubricated or (b) provided with accessible means for lubrication. (Also see 1.19.5.)

1.18.3 It shall be possible to oil the motor, blower or fan bearings, which require that lubricant be added, when the room heater is installed in accordance with the manufacturer's instructions.

TABLE IX

MAXIMUM ALLOWABLE MOTOR WINDING TEMPERATURES, F (°C)

Motor Condition	Class A Insulation	Class B Insulation
1. Locked rotor, during first hour of operation.	392 (200)	437 (225)
2. Maximum temperature, locked rotor, after first hour of operation.	347 (175)	392 (200)
3. Average temperature, locked rotor, after first hour of operation.	302 (150)	347 (175)
4. Motor operating at any load.	284 (140)	329 (165)

1.18.4 Bearings of motors, blowers or fans shall be of a type suitable for the temperatures to which subjected in normal operation.

1.18.5 On belt-driven blowers or fans, means for adjusting belt tension shall be provided and shall be readily accessible.

1.19 INSTRUCTIONS

1.19.1 Each room heater shall bear a Class IIIB marking with letters on a contrasting background, located adjacent to the controlling device or in an equally conspicuous position where the instructions can be easily read. These instructions shall include the statement:

"Keep burner and control compartment clean. See installation and operating instructions accompanying heater."

On an appliance of such design that space does not permit proper location of these instructions, they may be furnished on a metal tag attached to the appliance.

1.19.2 The printed instructions accompanying the room heater shall include at least the following information in a readily obvious and prominent manner, such as by being underlined, encircled, or printed in larger or different color type:

a. Due to high temperatures, the appliance should be located out of traffic and away from furniture and draperies.

b. Children and adults should be alerted to the hazard of high surface temperature and should stay away to avoid burns or clothing ignition.

c. Young children should be carefully supervised when they are in the same room with the appliance.

d. Do not place clothing or other flammable material on or near the appliance.

e. Any safety screen or guard removed for servicing an appliance must be replaced prior to operating the heater (see 1.2.3).

f. Installation and repair should be done by a qualified service person. The appliance should be inspected before use and at least annually by a professional service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean.

g. "WARNING: Any change to this heater or its controls can be dangerous."

1.19.3 When provision is made for manual operation of the automatic valve, operating instructions shall be clearly indicated on Class V marking material on or adjacent to this valve.

1.19.4 Each room heater shall be accompanied by printed instructions and diagrams adequate for proper field assembly, installation and safe operation of the appliance, including all controls and accessories.

The front cover or, in the absence of a cover, the first page shall bear the following boxed warning. It shall be boxed as shown:

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

— Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

— WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

— Installation and service must be performed by a qualified installer, service agency or the gas supplier.

The letters used for the boxed warning above shall be boldfaced type having a minimum uppercase letter height of 0.120 inch (3.05 mm). The minimum vertical spacing between lines of type shall be 0.046 inch (1.17 mm).* Lowercase letters shall be compatible with the uppercase letter size specification.

These instructions shall specify:

a. Adequate clearances around air openings.

b. Provisions for adequate combustion and ventilation air.

c. Adequate clearances for accessibility for purposes of servicing and proper operation.

d. The installation instructions for an appliance for installation on combustible flooring shall specify that when the appliance is installed directly on carpeting, tile or other combustible material, other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance.

e. The installation instructions for an appliance for installation at a specified minimum distance above combustible flooring shall specify that the specified clearance shall be maintained from the top surface of carpeting, tile, etc.

f. Minimum clearances to combustible construction as verified by test (see 2.15).

In addition to the minimum clearances the installation instructions shall identify the left and right side and front of the appliance. For those clearances where a second side wall is specified, accessibility for purposes of servicing shall also be addressed.

g. If applicable, clearances from any projection(s) such as shelves, window sills, fireplace mantles, etc., above the appliance (see 1.20.7).

h. As applicable:

1. An unvented room heater having input rating of more than 10,000 Btu per hour shall not be installed in a bedroom or bathroom; or

2. An unvented room heater having a input rating of more than 6,000 Btu per hour shall not be installed in a bathroom.

When instructions for a series of similarly constructed room heaters are included in a common printing, the instructions shall identify by model number and input rating any installation restriction pertaining to the above.

i. Information to adequately cover cleaning of the appliance including the burner(s).

j. The manufacturer's, distributor's, jobber's or dealer's name, as it appears on the appliance rating plate, and address and appliance model or series number.

k. The installation must conform with local codes or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1.

l. The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any

* This letter height and line spacing corresponds to 12 point type.

1901 North Moore Street • P.O. Box 9245 • Arlington, Virginia 22209 • 703/525-9565

March 19, 1993

TO: DIRECT HEATING DIVISION
(Delegates, Alternates, Technical Representatives and Government Affairs Coordinators)

FTC Proposes to Continue Exemption of Direct Heating Equipment From Its Appliance Labeling Rule

In a notice of proposed rulemaking published in the March 5, 1993, Federal Register, the U.S. Federal Trade Commission (FTC) solicits public comment by April 19, 1993, on various proposed amendments to its Appliance Labeling Rule for NAECA-covered appliances. The FTC proposes to continue to exempt electric space heaters and vented gas space heaters from its Appliance Labeling Rule, and also proposes to exempt unvented gas space heaters. Unless Division members instruct otherwise, GAMA will submit written comments by the April 19 deadline supporting these decisions. A copy of the FTC's Federal Register notice is attached to the delegate's copy of this bulletin.

The FTC's Appliance Labeling Rule dates from 1979. In the original FTC rulemaking proceeding, the FTC exempted electric space heaters and vented gas space heaters from its energy efficiency labeling requirements. In June 1988 the FTC commenced a new rulemaking proceeding to consider possible amendments to its Appliance Labeling Rule. In a notice of proposed rulemaking published in the June 13, 1988, Federal Register, the FTC solicited public comment on several questions. One of those questions was whether the FTC should prescribe efficiency labeling requirements for unvented gas space heaters in view of the fact that the U.S. Department of Energy (DOE) had published efficiency test procedures for unvented gas space heaters in 1984.

The FTC received two comments on this issues, one from GAMA and one from the Coalition for Energy Efficient Appliance Labeling (CEEAL) an ad hoc coalition composed of consumer, utility and environmental advocacy organizations. GAMA recommended exemption of unvented gas space heaters from the FTC's Appliance Labeling Rule. CEEAL recommended that the FTC require labeling of both vented and unvented gas space heaters.

/Continued . . .

In its March 5, 1993, Federal Register notice, the FTC proposes to exempt unvented heaters fueled by natural gas, propane and kerosene from its Appliance Labeling Rule. The FTC's reasoning is that "because all models are 100% efficient, and because there is no significant difference in operating cost among similarly sized models, labels disclosing costs would not help consumers make purchasing decisions." (page 12828) The FTC also makes the following statement regarding labeling of vented heaters:

> "The Commission exempted the category of vented heaters (all fuel types) during the original rulemaking proceeding. The Commission finds that the present record does not contain sufficient justification for reversing that decision." (page 12828, footnote 102)

Joseph M. Mattingly
Director of Government Affairs
and General Counsel

JMM:gjr-1
Attachment (delegate's copy only)

1901 North Moore Street. P.O. Box 9245. Arlington, Virginia 22209. 703/525-9565

Gama

August 24, 1993

Mr. Mark A. Nolan
Supervisor
Gas Standards & Technology
Public Service Company of Colorado
P. O. Box 840
Denver, Colorado 80201-0840

Dear Mark:

This is in response to your letter of August 13, 1993 regarding unvented room heaters.

High Altitude Performance of the ODS:

As you know there have been many vent-free appliances sold and used throughout Colorado. In fact, one manufacturer alone is now selling three semi-truckloads of vent-free fireplaces per month in Colorado.

Consideration of high altitude installation and usage is accounted for in the ANSI Z21.11.2 standard by reference to the National Fuel Gas Code, ANSI Z223.1/NFPA 54. A.G.A. Laboratories continues to certify designs for compliance with the applicable national safety test standards with confidence concerning safe operation due to the immense consensus approach taken to develop the standards in use.

Although I recognize you do not have the capability to test under the ANSI standard, my understanding from your comments in Denver on June 25th was that your June 93 testing in Denver and Leadville confirmed that:

1. The ODS shut off the gas supply to the pilot and main burners before the oxygen level reached 18 percent.

2. The CO levels you measured were always lower than the level allowed by the ANSI standard.

3. You experienced no "Nuisance outages".

/Continued . . .

On some appliances, A.G.A. requires the manufacturer to include a statement in the Operating Instructions stating that, "The product is designed to be operated at elevations of less than 5,000 feet. If operated at higher elevations, nuisance outage may occur." Let me stress that this does not apply to all vent-free appliances and, although it may be a nuisance, it is not a safety concern. The Gas Research Institute (GRI) is currently running vent-free heaters up and down the Colorado mountains. I can assure you that insight from this effort to avoid nuisance shut downs will be incorporated into the national safety standards.

The "accompanying noise" from the pilot when you turned the control to "pilot" after operating the appliance for extended periods is completely normal. This low-level noise lasts until the appliance cools down (about 5 minutes) and presents no operational or safety hazard. It is completely eliminated by following the manufacturer's instructions to turn the control knob to the "off" position when not using one of the three heat settings.

Production and Accumulation of Carbon Monoxide:

The ODS will ensure the gas supply to the pilot and main burners is shut off if the oxygen in the surrounding atmosphere is depleted to a level at or above 18.0 percent.

In addition to the 30 million ODS-equipped appliances sold in Europe since 1961, there have now been over 2,250,000 sold in the U.S. since 1981 without a single CO-related fatality. This is a lot of appliances used for a long period of time without causing a CO-related fatality. Since there has never been a CO-related fatality from an ODS-equipped appliance, the concern for CO production in an atmosphere with more than 18 percent oxygen is an unjustified concern.

The Statement to Open a Window When Using the Heater.

All gas appliances require make up combustion air. This can be accomplished in several ways:

1. In homes of ordinary tightness, all or a portion of the combustion air may be obtained from infiltration when the requirement for 50 cubic feet per 1000 Btu/h input is met. (Section 601(a) and Section 605(d)1 of the Uniform Mechanical Code (UMC)). NOTE: Some cities and counties that have adopted the UMC use this as a guide for vent-free appliances in all construction since Section 601(a) of the UMC exempts "domestic clothes dryers and listed cooking appliances" from the combustion air requirements of Chapter 6 of the UMC.

/Continued . . .

2. For homes which are built to "unusually tight construction" standards, combustion air for the central heating system must be obtained from outside through permanent openings. NOTE: These combustion air ducts should not terminate adjacent to a vent-free appliance because this would eliminate the effectiveness of the ODS.

3. Opening a window an inch or two.

While I know of no published analysis concerning how many residents open a window for fresh air, I believe the fact that there have been over 2,250,000 vent-free appliances sold in the U.S. since 1981 without a single CO-related fatality makes this an academic rather than a practical concern. If there is insufficient make-up air, the ODS will simply shut off the gas supply to the pilot and main burners.

Violation of the 1991 Uniform Mechanical Code:

International Conference of Building Officials (ICBO) is the only national model code that does not allow vent-free appliances in residences. Council of American Building Officials (CABO), Building Officials and Code Administrators International (BOCA), Southern Building Code Congress International (SBCCI), and the National Fuel Gas Code all recognize the use of vent-free room heaters and decorative gas logs and fireplaces in residences. We are very pleased that many cities and counties throughout the area where the ICBO codes are adopted have made an exception to this restriction based on the enviable safety record of the appliances. I believe this can only help in the process of changing the UMC to align with all the other national building codes.

ICBO has given two reasons for not allowing vent-free appliances:

1. The equivalent safety of an oxygen-depletion sensor to a conventional venting system which carries the products of combustion to the outside has not been established.

2. The condensation of water vapor (1.6 quarts per hour) at maximum burn (39,000 Btu/h) creates corrosion and potential structural damage problems.

We know of No Basis (scientific or historical) for either of the above stated reasons. The Facts are:

1. In addition to the 30 million ODS-equipped appliances sold in Europe since 1961, there have now been over 2,250,000 sold in the U.S. since 1981 without a single CO-related fatality.

/Continued . . .

2. In all of our work throughout the U.S. and Europe, we are not aware of any case where a vent-free appliance has caused corrosion or structural damage. The amount of water vapor created at the maximum burn rate is less than half that produced by a good home humidifier!

Vent-free heaters are a supplementary not a primary source of heat. If unacceptable levels of condensation occur on windows, the heaters will be turned off.

Sincerely,

Gary D. Thibeault

Gary D. Thibeault
Codes and Standards Coordinator
Technical Services

GDT/ljb

INDOOR AIR QUALITY IN A LOW INFILTRATION RATE HOUSE

BY RICHARD J. PRIEM

AMERICAN GAS ASSOCIATION LABORATORIES [Dec 1985]

SUMMARY

This paper reports the results of studies conducted by the American Gas Association Laboratories (AGAL) staff in an ultra- tight research and demonstration house to determine the effects of infiltration rate on indoor air quality.

The research and demonstration house (2,500 ft.^{2}) was constructed with a high level of insulation [R-40 walls and R-50 ceilings]. Inside the house, just under the drywall on the ceilings and walls, and under the basement floor, a 6-mil polyethylene film vapor barrier was installed to reduce normal air infiltration. The seams were glued together to form a continuous sheet as an air/vapor barrier. Breaches in the air/vapor barrier were avoided by placing electric outlets and air registers on the floor instead of outside walls. Windows were triple-glazed with an R value of 3.1. Exterior doors were insulated to an R value of 6. W. S. Fleming & Associates were commissioned to conduct on-site envelope integrity tests. Together with AGAL personnel, they located and sealed all envelope leaks. During winter testing, the air change rates were determined to be 0.5 air changes per hour (ACPH) when the house was unoccupied.

Applicable indoor air quality standards from OSHA and EPA for CO, CO_2, NO_x, and NO_2 were used for reference. AGAL found that houses with low infiltration rates do not have high concentrations of pollutants as might be expected. The data also showed that indoor air quality pollutants were higher during the summer when the house was air conditioned than in the winter. However, **THE POLLUTANT LEVELS NEVER EXCEEDED THE APPLICABLE STANDARDS.**

For example, during a cooking period for a family of four when chicken was baked, potatoes were deep fried and water was boiled, the CO_2 and CO levels rose to peak values of 0.1% and 4 PPM respectively. Concentration maximums were achieved within 5 minutes of starting a gas appliance. When the appliance was turned off, the concentration decreased dramatically within 20 minutes. During this period gasses were presumably being mixed throughout the house. However, concentrations in other areas did not noticeably increase. AGAL concluded that since indoor air concentrations in the kitchen area during cooking periods did not change significantly as infiltration rates were changed, air quality in the cooking area was controlled by the emissions from the appliances and not by the infiltration rate to the house.

Tab 2

American Gas Association

1515 Wilson Boulevard, Arlington, Va. 22209
Telephone (703) 841-8400

January 13, 1994

TO: Gas Utility Personnel Working With Local Building Officials

FROM: Jim Ranfone/Paul Cabot Jim Ranfone/Paul Cabot PMS

RE: Updating the COSTIN Mailing List -- Reply by February 15th

---

The American Gas Association's Building Energy Codes and Standards (BECS) Committee is reactivating its information exchange network intended to coordinate A.G.A.'s national code and standards efforts with similar activity on the local level. **To update our mailing list, we are asking that you complete and return the enclosed form by February 15, 1994.**

A.G.A. formed the BECS Committee in 1978 to assure the marketability of natural gas, in part by addressing overly restrictive and unnecessary code requirements and modifying codes to recognize new concepts. A.G.A. staff and Committee members attend all the model code hearings and annual meetings, maintain liaison with the model code staff, and provide information and technical services to their members. Additionally, they support member companies' efforts with their state and local agencies and provide technical assistance and advice to their representatives.

With enormous changes occurring within the entire gas industry the need for timely two-way communication becomes crucial. To transfer codes and standards information effectively, the BECS Committee will utilize its information exchange service called COSTIN (Codes and Standards Information Network). COSTIN will be a two-way communication mechanism to:

FAX: (216) 642-3463
TELEX: 263574AGA

Each COSTIN mailing will provide you with an update on code and standards activities that A.G.A. and the BECS Committee are involved with. This information can be of use to you in your dealings with local building officials. In return, A.G.A. encourages you to contact A.G.A. Codes and Standards Division staff with questions and local code concerns.

A.G.A. codes and standards staff are: Jim Ranfone, Director, Code, Standards and Technical Support, at (703)841-8648, or Paul Cabot, Manager, Codes, Standards and Technical Support at (703)841-8649.

JR:ms

Attachment

ADDENDUM "A"

INCIDENT STATISTICS
1986, Latest Year Reported By The
Consumer Product Safety Commission

A. FIRE INCIDENTS

- Gas space heaters account for less than 3% of all heating equipment fires.

NATIONAL FIRE INCIDENT PROJECTIONS, 1986

Heater Types	Fires	Civilian Deaths	Civilian Injuries	Property Loss (Millions)
All*	150,000	640	2,380	$574.5
Wood/Coal Heaters	87,000	110	420	$188.9
Electric, Fixed and Portable (not including central heating)	5,700	150	240	$48.4
Gas, Fixed and Portable (not including central heating)	4,800	70	260	$44.8
Kerosene/Oil, Fixed and Portable (not including central heating)	3,400	100	310	$30.4

*The "All" category includes fixed and portable space heaters, central furnaces, water heaters, fireplaces, chimneys and other heating equipment using solid or liquid fuel, gas, electricity or other energy sources.

B. CONTACT BURNS

- Only 0.02% of all gas heaters in use resulted in contact burns in 1982 per CPSC estimates.
- The gas heater incident rate is 1/3 that of portable kerosene heaters, and 2/3 that of wood/coal stoves.

ADDENDUM "B"

VENT-FREE HEATER COMPARISON
GAS VS. PORTABLE KEROSENE

	GAS	KEROSENE
Comprehensive Safety Standard	Yes (ANSI-Z21.11.2-1983)	Yes (UL647)
Certified or Listed by Independent Nationally Recognized Laboratory	Yes	Yes
Surface Temperature Limit	Yes	Yes
Wall & Floor Temperature Limits	Yes	Yes
Clothing Ignition Safeguards	Yes	Yes
Permanent Installation	Yes	No
ODS Equipped	Yes	No
Safety Shutoffs	Yes	Yes

Note 1: The safety standard for vent-free gas space heaters is identical to the standard for vented gas space heaters pertaining to surface temperatures and fire safety.

Note 2: The following eight states have passed legislation since 1981 permitting the sale and use of listed portable kerosene heaters: Delaware, Maryland, New Hampshire, New York, Ohio, Rhode Island, South Dakota, and Washington.

This is particularly unfortunate today since the costs of heating with central equipment have risen so sharply in recent years. When a space heater is used for supplementary or zone heating, home heating costs can be reduced, and gas is less costly than both electricity and kerosene.

Today's vent-free gas-fired space heater bears little resemblance to that used 30, 20 or even 10 years ago. There have been significant technological advances and, equally important, the national safety standard has been continuously updated to insure a safe product.

Therefore, these products, as designed and manufactured today, deserve to be recognized for the safe economical source of heat that they are and accepted in all states and local areas.

III. BENEFITS

A. Efficiency

Since there is no heat lost through a vent, the efficiency of vent-free gas-fired space heaters is nearly 100%. In fact, the U.S. Department of Energy's Test Procedures for Unvented Home Heating Equipment, issued March 28, 1984, assign a 100% fuel efficiency to vent-free gas-fired space heaters.

B. Operating Cost

In its February 29, 1988 Federal Register notice, the Federal Trade Commission provided information on costs for the various fuels as noted below. In its comparison of 1988 national average prices of electricity versus gas in

dollars per million Btu's, natural gas and LP-gas are shown to be clearly superior economically for heating.

TYPE OF ENERGY	IN COMMON TERMS	DOLLARS PER MILLION BTU'S
Electricity	8.04 cents/kWh	$23.56
Natural Gas	56.2 cents/therm or $5.80/MCF	5.62
Propane	70.0 cents/gallon	7.69

According to these figures, the cost to heat a space with a gas space heater would be less than a third of the cost to heat the space with an electric space heater.

C. Installation

The simple permanent installation avoids those potential fire hazards associated with portable heaters. Not only is the expense of a vent or chimney avoided, but also the problems of blockage or leaks.

IV. SAFETY

An analysis of the latest statistics (1986) compiled by the U.S. Consumer Product Safety Commission (CPSC) reveals that of the total 150,000 fires involving space heating equipment of all types (i.e., electric, coal, gas, etc.), gas-fired space heaters accounted for only 3%.

This exemplary record of minimal accident reports related to gas-fired heating equipment is not purely coincidental. The strict adherence of manufacturers to national safety standards for gas heating equipment is the major contributor to this excellent safety record.

A. Safety Standard

For many years, the American National Standards Institute has maintained a safety and performance standard for vent-free gas-fired space heaters under the nomenclature of ANS Z21.11.2. This standard is constantly upgraded to provided the highest degree of safety possible, based on the state-of-the-art technology. All listed or certified products sold in the U.S. must be tested to this standard.

The following are some of the revisions that have been incorporated into the American National Standard since 1975:

1. Reduction of surface temperatures to minimiz. potential for contact burns. This provision eliminated from the marketplace all the extremely low priced heaters, commonly referred to as bathroom heaters, which were the major cause of incidents.

2. Automatic ignition and safety shutoff devices for safer starting and operation.

3. Pressure regulator which prevents over-firing in case of increased gas pressure.

4. Surface guarding to minimize accidental contact with parts of the heater which could accidentally ignite fabric.

5. A warning label on the front of the heater which is clearly visible from 5 feet away stating: "CAUTION: Hot while in operation. Do not touch. Keep children, clothing and furniture away."

6. Wall and floor temperature limits during heater operation were established as well as maximum output temperature at the discharge air opening.

7. Oxygen depletion safety shutoff system (ODS) is required for all vent-free gas space heaters.

There are a total of 19 major performance test requirements including carbon monoxide in the current standard.

B. U.S. Consumer Product Safety Commission

The CPSC has been actively monitoring the improvements in the standards for unvented gas-fired space heaters. In 1974, CPSC began an extensive study of this product since it had received a petition to develop a mandatory safety standard for all types of space heaters, electric, oil, gas, etc. CPSC decided not to proceed with the development of a mandatory standard for unvented gas-fired space heaters because it found that there was an extremely high degree of compliance with voluntary standards, and that the standards had been revised as outlined above to address more adequately the majority of identified risks. Another risk, that of carbon monoxide, led to the CPSC proposal in 1978 to ban unvented gas-fired space heaters. The proposed ban was then withdrawn in favor of mandatory use of an oxygen depletion sensing (ODS) system. In 1980, a CPSC issued a mandatory regulation which required that all unvented gas-fired space heaters be equipped with the ODS capable of shutting off the gas supply to the heater when the oxygen in the surrounding atmosphere is reduced to a level below 18%. The normal level of oxygen in the atmosphere is approximately 20.9%. Concurrently, the requirement for the ODS was made part of the American

National Standard for unvented gas-fired space heaters. In its issuance of the ODS requirement, CPSC provided substantial technical data supporting the 18% oxygen level cutoff point. The following is an excerpt from the September 17, 1980 Federal Register notice issued by CPSC on the ODS:

> "These data lead the Commission to the conclusion that an ODS which shuts off gas to the heater when surrounding oxygen is depleted to less than 18% would be adequate to address the acute hazard and thereby reduce the number of deaths from CO poisoning associated with unvented gas-fired space heaters. Further, since the ODS can be expected to effect a reduction in CO emissions by shutting off the gas supply, such a reduction can also help reduce levels of available CO that may present a chronic hazard.
>
> "Based on the available data the Commission has adopted, with nonmaterial modifications, the ODS provision of the ANSI standard which provides for shutoff at no less than 18% oxygen, when using the gas specified in the standard."

On November 23, 1984 CPSC revoked its ODS requirement, recognizing that the voluntary requirements in the American National Standard noted above require an ODS and that there is a high degree of compliance with this standard by the industry.

In an October 18, 1984 letter, Nancy Harvey Steorts, then Chairman of the CPSC, made the following statement regarding the ANS safety standard for unvented gas-fired space heaters:

"I would like to express my total agreement with you regarding the significant progress that has been made to improve the safety of unvented gas space heaters. Besides the work that has been done to reduce carbon monoxide poisonings, safety improvements to address the risk of contact burns, fires and explosions have been significant. I personally feel that the cooperative working relationship between the Commission staff and the ANSI subcommittees for gas-fired appliances is one of the best examples of industry and government working together for the safety of the consumer. I am certain that this positive relationship will continue."

C. <u>The Oxygen Depletion Sensing (ODS) System</u>

The following is a brief explanation of the operation of an ODS:

The ODS system consists basically of three components: a precisely designed pilot burner that provides regulation of flame characteristics, a thermocouple positioned in the mantle of the pilot flame and a safety shutoff valve. The pilot is designed to be stable within a very narrow operating range. The thermocouple responds to changes in the pilot flame characteristics and, when heated, generates a millivoltage across the solenoid which keeps the gas supply valve in the open position. If low levels of oxygen are present in the proximity of the ODS system,

the flame extinguishes. The loss of flame causes the thermocouple to cool which, in turn, reduces the millivoltage across the solenoid causing the gas valve to return to its normally closed position.

The Oxygen Depletion Sensing (ODS) System has been used extensively on vent-free gas-fired space heaters in Europe since 1961 and has an excellent record for both safety and reliability.

V. CODES AND STANDARDS

In the United States there are a variety of state and local building codes. Many of these codes are based on model codes adopted by five different model building code-making bodies:

- o National Fire Protection Association (NFPA)
- o Council of American Building Officials (CABO)
- o Southern Building Code Congress International (SBCCI)
- o Building Officials and Code Administrators International (BOCA)
- o International Conference of Building Officials (ICBO)

The following is a summary of the coverage concerning vent-free gas-fired space heaters:

NFPA 54 National Fuel Gas Code	The Code's only restrictions for vent-free gas space heaters are that they shall not be installed in sleeping quarters, bathrooms or institutions.

This code has been adopted by the American National Standards Institute as the National Fuel Gas Code, ANSI Z223.1.

CABO — The code allows vent-free fuel-fired space heaters equipped with ODS systems in one and two family dwellings.

SBCCI — Vent-free space heaters are permitted if they are listed, installed in accordance with their listing and the manufacturers' instructions, equipped with an ODS system, not installed in sleeping quarters and have less than 40,000 Btu/hr. input rating.

BOCA — Vent-free space heaters must be listed (or certified) by a recognized testing agency. There are no restrictions on use.

ICBO — Listed vent-free overhead space heaters are permitted for other than residential or institutional use.

VI. SUMMARY

Throughout this country, American consumers should have the opportunity to benefit from one of the most economical and safest sources of supplementary heat -- the vent-free gas-fired space heater.

FOR FURTHER INFORMATION, PLEASE CONTACT:

Jack P. Langmead, Vice President and Director of
Technical Services

or

Joseph M. Mattingly, Director of Government Affairs

at

Gas Appliance Manufacturers Association
703-525-9565

DEVELOPMENT AND USE OF THE OXYGEN DEPLETION SENSOR (ODS VALVE) TO PREVENT ACCIDENTAL CARBON MONOXIDE POISONING

The most significant safety issue relating to unvented decorative gas logs and fireplaces is the possibility of accidental poisoning from an overdose of carbon monoxide (CO). The ODS valve was developed to eliminate this potential hazard.

In simple terms, this virtually fail-safe device is designed to shut off the gas supply if the amount of available oxygen in the room is lower than predetermined amounts. In the United States this predetermined amount has been determined by the Consumer Products Safety Commission of the United States ("CPSC") to be 18%. At sea level the amount of oxygen in the air is approximately 20.9%. Since there is a direct relationship between the amount of oxygen available and the level of CO, the ODS valve will shut off the gas supply long before dangerous levels of CO can accumulate.

ODS valves were required in Europe in the early 1960's. Since that time, there has not been a single report of any fatality associated with the use of an ODS-equipped appliance even though millions of these units are now in use throughout the world. In fact, on September 17, 1980, CPSC issued a detailed study of the ODS valve and concluded that "an oxygen depletion device has been used successfully on unvented heaters in Europe for many years. The device is known there as an oxygen depletion sensor. According to the European manufacturer of such devices during the 20 years this device has been used on unvented gas fire and space heaters in Europe, there have been no reported deaths associated with such heaters." Federal Register - Volume 45, No. 182, September 17, 1980.

This unparalleled safety record, first established in Europe, has now been repeated in the United States. Since ODS valves were introduced into the United States market in the early 1980's, there has not been a single reported death associated with the use of an ODS-equipped unvented gas product. The Southern Building Code Congress International Inc. (SBCCII), Building Officials and Code Administrators International, Inc. ("BOCA"), and Counsel of Building Officials (CABO) all allow the use of unvented gas appliances equipped with ODS valves.

At this point a brief description of the ODS valve and its operation would be useful. The diagrams (Figs. 1 & 2) which follow will help to explain the design and operation of the ODS valve.

The ODS system consists of the following main components:

- A precise pilot flame
- Spark ignition
- Thermocouple
- Main shut-off value

All of these components are pre-set at the factory and cannot be adjusted by the user. The precise pilot flame is achieved by a ruby orifice laser-drilled to precise tolerances.

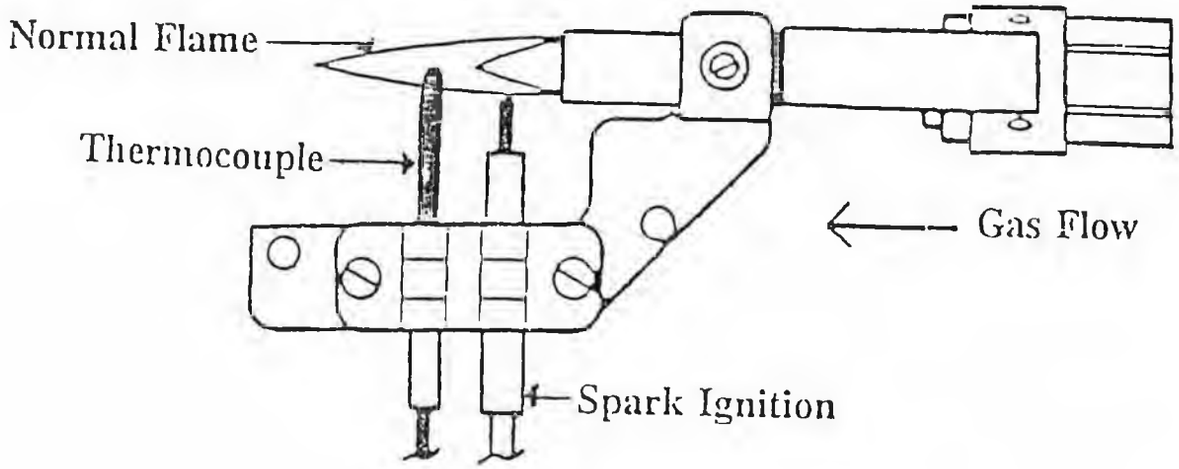
Under normal operating conditions, the pilot flame is stable and burns across the thermocouple. The heated thermocouple produces a small electrical current which is connected to a small solenoid valve in the main gas supply valve. This small current is just enough to keep the main gas supply valve open. See Fig. 1. The main gas supply valve is spring loaded and will remain open so long as the thermocouple's electrical current pulls the solenoid open. If the thermocouple's current is stopped, the main gas supply valve will automatically close, cutting off the entire gas supply to the unit, including the pilot.

When the oxygen level approaches 18%, the pilot flame becomes unstable. At a minimum of 18% the pilot flame lifts off the thermocouple. The thermocouple quickly cools and the electric current stops, causing the main gas supply valve to return to its normally closed position, and the gas supply to the unit is shut off. See Fig. 2.

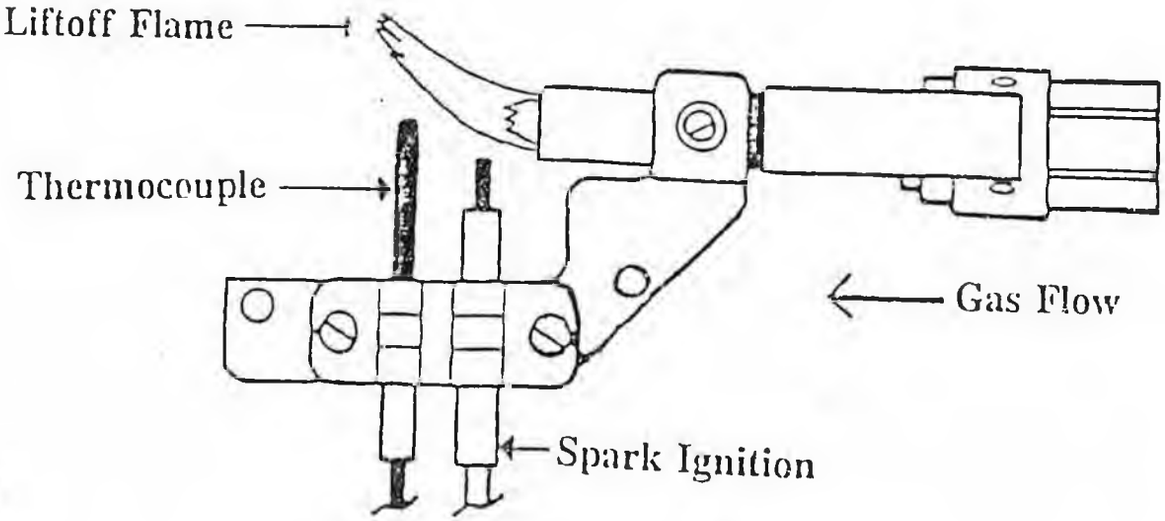
The design, construction, and operation of this ODS valve is as dependable and safe as any component can be.

Oxygen Depletion Sensor
"ODS"

1. 1 - Normal Operation



1. 2 - Shut-off Conditions
(Less than 18% oxygen)



DEVELOPMENT OF STANDARDS FOR VENTLESS PRODUCTS

During the late 1970's the American gas industry became impressed with the use of ODS valves in Europe and sought to develop standards that would incorporate these valves into North American products. During the same period of time, the American Gas Association ("AGA") and the American National Standards Institute ("ANSI") jointly developed a set of voluntary standards for the gas industry for the use of unvented appliances. The industry published the standards in its official document entitled ANSI-Z21.11.2.

Following the development of these voluntary standards, in 1978 the CPSC began an investigation into unvented gas products. The CPSC asked the National Bureau of Standards ("NBS") to assist in the testing and the development of standards for ventless gas products. Over the course of nearly two years, the NBS conducted extensive tests to evaluate the ODS valve and other competitive technology. NBS concluded that the other competing technologies did not show much promise, but that the ODS valve was a safe and very reliable device. The NBS then conducted tests to determine what calibrated oxygen limits the ODS valve should be set at in the United States to protect the consumer from accidental CO poisoning. The NBS concluded these tests and reported to the CPSC that an 18% oxygen level afforded a very high degree of protection to the public from accidental CO poisoning. As part of this evaluation, the NBS collected data which showed that it took CO concentrations of 200-300 parts per million ("PPM") over a period of four hours to create any symptoms of CO poisoning. The NBS also concluded that concentrations of 1000-1500 PPM over a period of 10 hours were needed to cause death. In sealed test conditions, the ODS valve was found to shut off the gas before levels of CO reached 37 PPM. In actual room conditions, TemTex has determined that actual CO levels are under 10 PPM, and often below 5 PPM.

On September 17, 1980, the CPSC reported in the Federal Register the findings of the NBS and proposed specific regulations regarding the use of ODS valves that would eventually become part of 16 CFR Part 1212. Although this report was quite complex and technical, it resolved two critical questions. First, it concluded that the ODS valve was safe and reliable. It noted that in all of the testing done by the NBS, there had not been a single failure of an ODS valve. Second, it concluded that 18% oxygen was more than adequate to address the hazards of CO poisoning associated with the use of unvented gas products.

After the adoption of the CPSC's regulations requiring the use of ODS valves, the AGA and ANSI adopted these mandatory standards as a part of its ANSI Z21.11.2 industry standards. In 1983 after the adoption of the mandatory standards by the CPSC, the Gas Appliance Manufacturer's Association ("GAMA") petitioned the Consumer Products Safety Commission to revoke its mandatory standards because the appliance manufacturing

companies in the United States had unanimously adopted the ODS requirement for their unvented gas products. The CPSC concluded that the mandatory federal requirements were no longer needed and revoked the mandatory federal rules regarding ODS valves in favor of the voluntary adoption by the industry of the ANSI Z21.11.2 standards. These ANSI Z21.11.2 standards require, among other things, that ventless heaters produce less than one-quarter (1/4) as much CO as a modern gas range.

This extensive testing by the industry and the federal government has established that ventless products which meet ANSI Z21.11.2 standards and are equipped with ODS valves are extremely safe devices.

Unvented Room Heaters

American National Standard Z21.11.2 and A.G.A. Requirements for Unvented Room Heaters Equipped With Oxygen Depletion Safety Shutoff Systems, 2-79

UNVENTED ROOM HEATER. An unvented, self-contained, free-standing, nonrecessed (except as noted under 2 of the following classifications), fuel-gas burning appliance for furnishing warm air by gravity or fan circulation to the space in which installed directly from the heater without duct connection. Unvented room heaters do not normally have input ratings in excess of 40,000 Btu per hour.

1. Unvented Circulator. A room heater designed to convert the energy in fuel gas to convected and radiant heat by direct mixing of air to be heated with the combustion products and excess air inside the jacket. Unvented circulators have an external jacket surrounding the burner and may be equipped with radiants with the jacket open in front of the radiants.
2. Wall Heater. Unvented Closed Front. An unvented circulator having a closed front, for insertion in or attachment to a wall or partition. These heaters are plainly marked, "UNVENTED HEATER" in letters ½ inch high and do not have normal input ratings in excess of 25,000 Btu per hour.

Unvented room heaters listed in this section are equipped with oxygen depletion safety shutoff systems designed to act to shut off the gas supply to the main burner and pilot burner if the oxygen content of the surrounding atmosphere is reduced below a predetermined level.

INSTALLATION.

National Fuel Gas Code, ANSI Z223.1 (NFPA 54)

6.23.1 Prohibited Installations: Unvented room heaters shall not be installed in bathrooms or bedrooms.*

6.23.2 Installations in Institutions: Room heaters shall not be installed in institutions such as homes for the aged, sanitariums, convalescent homes, orphanages, etc.

Refer also to local codes.

*It is recommended that space heating appliances installed in all bedrooms or rooms generally kept closed be of the direct vent type.

Unvented room heaters require fresh air openings into the room in which the heater is installed. Refer to marking on heater and manufacturer's installation instructions.

The certified designs of room heaters are such that temperatures of adjacent combustible walls and surfaces will not be excessive when the heater is installed and used as specified in the manufacturer's instructions and on the marking plate. Certification anticipates installation on wooden floors unless the appliance is designed and marked for installation in noncombustible fireplaces only.

For additional installation information, reference should be made to the current edition of the National Fuel Gas Code, American National Standard Z223.1 (NFPA 54). Copies are obtainable from the American Gas Association, 1515 Wilson Boulevard, Arlington, Virginia 22209.

Input ratings are shown in Btu per hour and are for elevations up to 2,000 feet. For elevations above 2,000 feet, input should be reduced 4 percent for each 1,000 feet above sea level.

Model Number	Input Rating
APPALACHIAN STOVE & FABRICATORS, 329 Emma Road, Ashville, North Carolina 28806	
For Use With Natural Gas	
Unvented Room Heaters For Installation In Solid-Fuel Burning Fireplaces Only — Trade Name: Ultra-Flame	
UV-4000N, UV-4000-30N	40,000
Unvented Circulators (Gas Logs)	
UV-36FPN, UV-42FPN	40,000

For Use With Liquefied Petroleum Gases
Unvented Circulators

DIR18LP	Max.	15,900
	Min.	6,000
DIR30LP	Max.	25,000
	Min.	6,000

The other models listed for use with natural gas also are for use with liquefied petroleum gases with the same ratings and trade name.

DESA INTERNATIONAL, 2701 Industrial Drive, Bowling Green, Kentucky 42101
For Use With Natural Gas
Unvented Circulators — Trade Name: Comfort Flame

CMH2800TN	Max.	28,000
	Min.	14,000

Trade Name: Comfort Glow

CGN18R	Max.	18,000
	Min.	6,600
CGN30C	Max.	30,000
	Min.	6,600

Trade Name: Radiant Flame

RFN2ST	Max.	28,000
	Min.	14,000

Trade Name: Vanguard

VMH2800TN	Max.	28,000
	Min.	14,000
VN1800C, VN1800IT, VN1800TC	Max.	18,000
	Min.	6,600
VN2550IT	Max.	25,500
	Min.	7,000
VN3000C	Max.	30,000
	Min.	6,600
VN3000TC	Max.	30,000
	Min.	13,200

Unvented Room Heaters For Installation in Solid-Fuel Burning Fireplaces Only — Trade Name: Comfort Flame

CFLH26N	Max.	26,500
	Min.	18,000
CFLH39N	Max.	39,000
	Min.	12,000

Trade Name: Vanguard

VLH26N	Max.	26,500
	Min.	18,000
VLH39N	Max.	39,000
	Min.	12,000

Unvented Wall Heaters — Trade Name: Comfort Glow

CGN10	Max.	10,000
	Min.	5,000
CGN12	Max.	12,000
	Min.	6,000
CGN18A, CGN18B, CGN18TA	Max.	18,000
	Min.	9,000
CGN28TA	Max.	28,000
	Min.	14,000

(Continued from page 319)

The CGN, CGP, TGN, TGP, VN and VP series (except Model Nos. CGN10, CGP10, CGN12, CGP11, VN6A, VP5A, VN12, VP11, VN1000B and VP1000B) and Model Nos. CMH2800TN, RFTN28T and VMH2800TN may be free-standing with an optional base.

The Model Nos. CGN10 and VN1000B may be installed in bedrooms as a wall mounted unit only.

The Model Nos. VN6A and VP5A may be installed in bedrooms and bathrooms as a wall mounted unit only.

The CMH, RFN and VMH series may be used with an optional mantel.

The CFLH and VLH series may be used with Fireplace Manufacturers, Inc. GL(5000, 6000)- series of unvented fireplace inserts.

EMPIRE COMFORT SYSTEMS, INC., 918 Freeburg Avenue, Belleville, Illinois 62222-0529

For Use With Natural Gas

Unvented Circulators — Trade Name: Empire/Corcho

CH-6		6,000
CH-7 NAT	Max.	7,000
	Min.	4,000
CH-15-1	Max.	15,000
	Min.	5,420
CH-18, CH-18-1	Max.	18,000
	Min.	7,000
CH-18T-1		18,000
CH-30, CH-30-1	Max.	30,000
	Min.	7,250
CH-30T-1		30,000

Trade Name: Empire Indiglo

VF-10-1		10,000
VF-20-1	Max.	20,000
	Min.	8,500
VF-30-1	Max.	30,000
	Min.	8,500

For Use With Liquefied Petroleum Gases

Unvented Circulators — Trade Name: Empire/Corcho

CH-7	Max.	7,000
	Min.	3,800
CH-18, CH-18-1	Max.	18,000
	Min.	6,500
CH-30, CH-30-1	Max.	30,000
	Min.	7,000

The other models listed for use with natural gas also are for use with liquefied petroleum gases with the same ratings and trade names.

The CH- series may be wall-mounted.

The Model No. VF-10-1 may be installed in bedrooms as a wall mounted heater.

MAJCO BUILDING SPECIALTIES, L.P., 1000 E. Market Street, Huntington, Indiana 46750

For Use With Natural Gas

Unvented Room Heater For Installation In Solid-Fuel Burning Fireplaces Only

Trade Names: Majco Building Specialties, Majco

VL21	Max.	32,000
	Min.	18,000

For Use With Liquefied Petroleum Gases

The model listed for use with natural gas also is for use with liquefied petroleum gases with the same ratings and trade name, but with final suffix LP.

All models may be used with Majco Building Specialties, Majestic VF36/VFC36-series of unvented fireplace inserts.

MARTIN INDUSTRIES, INC., P. O. Box 128, Florence, Alabama 35631

For Use With Natural Gas

Unvented Circulators

Trade Name: Martin

C2120	Max.	20,000
	Min.	12,000
C2130	Max.	30,000
	Min.	18,000
C2140	Max.	40,000
	Min.	24,000
GIR30-NAT	Max.	30,000
	Min.	6,900
MIR6-NAT, MIR6C-NAT		6,000
MIR12-NAT, MIR12C-NAT	Max.	10,000
	Min.	5,600
MIR18-NAT, MIR18C-NAT	Max.	18,000
	Min.	6,400
MIR30-NAT, MIR30C-NAT	Max.	30,000
	Min.	6,900
MIR40-NAT, MIR40C-NAT	Max.	36,000
	Min.	13,000
MIT18-NAT, MIT18C-NAT		18,000
MIT30-NAT, MIT30C-NAT		30,000
MIT40-NAT, MIT40C-NAT		36,000

Unvented Room Heaters

MU/MA/ZF/HC200C	Max.	20,000
	Min.	16,000
UF/AUF/HC29C	Max.	29,000
	Min.	20,000

Unvented Room Heater For Installation in Solid-Fuel Burning Fireplaces Only

HL17	Max.	25,000
	Min.	12,500
HL27	Max.	40,000
	Min.	20,000
HW40, HW40W	Max.	40,000
	Min.	24,000
MS40, MS40W	Max.	40,000
	Min.	24,000
MU17	Max.	25,000
	Min.	12,500
MU27	Max.	40,000
	Min.	20,000

(Continued from page 323)

For Use With Liquefied Petroleum Gases

The models listed for use with natural gas also are for use with liquefied petroleum gases with the same ratings and trade names, but with suffix N replaced by suffix L.

THE READYBUILT PRODUCTS CO., 1701 McHenry Street, Baltimore, Maryland 21223

For Use With Natural Gas

Unvented Circulators	Trade Name: Readybuilt
30-OS	22,000
30-OSR	22,000
RB40-ODS	22,000

For Use With Liquefied Petroleum Gases

Unvented Circulator	
30-OS	14,000

The other models listed for use with natural gas also are for use with liquefied petroleum gases with the same ratings and trade name.

RINNAI CORPORATION, 2-26, Fukuzumi-Cho, Nakagawa-Ku, Nagoya, Japan

For Use With Natural Gas

Unvented Circulators		Trade Name: Rinnai
REH-15FB-N, REH-15TB-N, REH-15TC-N	Max.	15,200
	Min.	8,400
REH-19D-N	Max.	20,000
	Min.	7,700
REH-20B-N, REH-20FB-N, REH-20TB-N, REH-20TC-N	Max.	20,000
	Min.	11,000
REH-27D-N	Max.	27,000
	Min.	7,700

Unvented Wall Heaters		Trade Name: Equator
REH-6-N		6,000
REH-10-N	Max.	10,000
	Min.	5,500

		Trade Name: Rinnai
REH-18-N, REH-18T-N	Max.	18,000
	Min.	9,600
REH-25-N, REH-25T-N	Max.	25,000
	Min.	14,000

For Use With Liquefied Petroleum Gases

Unvented Circulators		
REH-15FB-P, REH-15TB-P, REH-15TC-P	Max.	14,000
	Min.	7,400
REH-19D-P	Max.	19,500
	Min.	7,000
REH-20B-P, REH-20FB-P, REH-20TB-P, REH-20TC-P	Max.	19,000
	Min.	10,000
REH-27D-P	Max.	26,000
	Min.	7,000

Trade Name: TEMCO American Dream

ADF36N, ADF42N, ADL36N, ADL42N	Max.	39,000
	Min.	12,000
ADF3629N, ADL3629N	Max.	29,000
	Min.	8,500

Unvented Room Heaters For Installation In Solid-Fuel Burning Fireplaces Only — Trade Name: FIRETECH 2000

2000N	Max.	39,000
	Min.	12,000
2020N	Max.	29,000
	Min.	8,500

Trade Name: TEMCO American Dream

AD29N	Max.	29,000
	Min.	8,500
AD39N, AD3930N	Max.	39,000
	Min.	12,000

For Use With Liquefied Petroleum Gases

Unvented Circulators (Gas Logs) — Trade Name: FIRETECH 2000

FP2000P, FP4000P, FR2500P, FR4500P	Max.	31,000
	Min.	10,000
FP2023P, FR2523P	Max.	23,000
	Min.	8,500

Trade Name: TEMCO American Dream

ADF36P, ADF42P, ADL36P, ADL42P	Max.	31,000
	Min.	10,000
ADF3623P, ADL3623P	Max.	23,000
	Min.	8,500

Unvented Room Heaters For Installation In Solid-Fuel Burning Fireplaces Only — Trade Name: FIRETECH 2000

2000P	Max.	31,000
	Min.	10,000
2020P	Max.	23,000
	Min.	8,500

Trade Name: TEMCO American Dream

AD23P	Max.	23,000
	Min.	8,500
AD31P, AD3130P	Max.	31,000
	Min.	10,000

VALOR HEATING, Wood Lane,
Erdington, Birmingham, B24 9QP England

For Use With Natural Gas

Unvented Circulators — Trade Name: Valor

271VN	Max.	18,000
	Min.	7,000
272VN	Max.	30,000
	Min.	7,000

For Use With Liquefied Petroleum Gases

Unvented Circulators

271VP	Max.	15,900
	Min.	6,000
272VP	Max.	25,000
	Min.	6,000

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MAR 3 1 1994

U.S. CONSUMER PRODUCT SAFETY COMMISSION WASHINGTON, D.C. 20207

UNITED STATES GOVERNMENT

Memorandum

TO : Douglas L. Noble, EX-2
Through: Dr. Robert D. Verhalen, AED, Epidemiology

DATE: May 18, 1983
(Revision of (text) 7, 1983 memorandum)

FROM : Beatrice Harwood, EPHA

SUBJECT : Rationale for Denying the Gas Space Heater Petitions (SH82-1 through SH82-23)

The Directorate for Epidemiology recommendation to deny the petitions is based on the fact that there is no evidence that these state and local bans provide a significantly higher degree of protection from the risk of CO poisoning than CPSC's safety standard; in fact, available evidence suggests that communities will be better protected from the risk of CO poisoning by having access to this safety-protected, relatively inexpensive form of heat.

A ban provides a higher level of protection only if the heat source that a consumer a consumer uses in place of the banned product is safer. The Commission has data indicating that several kinds of heating devices that are likely alternatives to ODS-equipped unvented gas space heaters present a significantly higher risk of CO poisoning. These include:

1. Vented gas space heaters.

The risk of CO poisoning is 6 times higher in a vented gas heater than in an unvented heater, even one without an ODS device. 1979 estimates are of 130 deaths from vented heaters out of an estimated 3,253,000 in use, vs. 40 deaths from unvented heaters out of an estimated 5,394,000 in use.

The reason for this is that vented heaters are often not vented properly or are not vented at all. Just this year the Commission has learned of several tragic accidents involving vented gas heaters.

2. Unvented gas heaters not manufactured for indoor use. CPSC in-depth investigations include several accidents involving heaters not intended for indoor use, or make-shift type gas-fired heaters.

3. Hibachis, charcoal grills or other patently unsafe devices, which have been brought into a home or home trailer. Commission files also include examples of this practice.

Although there is no statistical evidence that consumers who are unable to purchase an unvented gas heater (in the event of a local ban) will frequently choose one of the more hazardous appliances named above, available information suggests that this is a reasonable assumption. For example, the vented gas heaters that were involved in the recent Barnwell, S.C. tragedy had been purchased as replacement

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To Joe Fasaw	From Keith Kettler
Co.	Co.
	Phone #

Consumer Product Safety Comm Ltr.

MAR 3 1 1994

for unvented gas heaters. Another case in Commission files describes a vented heater that had been purchased as a replacement in a home with several existing unvented heaters. Unwilling to pay the cost of installing a vent, the consumer used the heater in an unvented mode. Several weeks later he and his wife died of CO poisoning.

The price of vented and unvented heaters is about the same, according to the Directorate for Economics, but a vented heater is less efficient, and therefore more costly to operate. The owner of the heater involved in a recent accident in Prichard, Alabama, in which 3 persons died, explained that the vented heater involved had in the past been operated in a vented mode several times but that it "didn't give off any heat."

EC has reported that unvented heaters are usually purchased as replacements, not in new construction, and primarily among low and moderate income groups. A consumer who is unable to purchase an unvented heater may very likely purchase a vented heater instead, but fail to vent it. Even if a vent is installed it is likely not to be installed correctly.

At a recent Commission meeting about vented gas space heaters, manufacturers made the following observations that bear on this question:

- Sales of vented gas space heaters rose significantly during 1978, when manufacturers voluntarily stopped manufacturing unvented gas heaters, in anticipation of a proposed CPSC ban.

- A gas space heater designed to be vented but left unvented generates considerably more CO than a gas heater of the same size designed to be unvented.

If only a few persons who would otherwise have purchased an ODS-equipped unvented heater purchase instead, for whatever reason, a vented heater or one of the other devices named above, even though the remaining majority choose a zero-risk alternative, such as an electric heater, the aggregate risk among those households will be higher than the expected risk among households using ODS-equipped unvented heaters.

UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

TO : Douglas L. Noble, EX-P
Through: Dr. Robert D. Verhalen, AED, Epidemiology

DATE: April 7, 1983

FROM : Beatrice Harwood, EPHA BH

SUBJECT: Rationale for Denying the Gas Space Heater Petitions (SH82-1 through SH82-23)

The Directorate for Epidemiology recommendation to deny the petitions is based on the fact that there is no evidence that these state and local bans provide a significantly higher degree of protection from the risk of CO poisoning than CPSC's safety standard; in fact, available evidence suggests that communities will be better protected from the risk of CO poisoning by having access to this safety-protected, relatively inexpensive form of heat.

A ban provides a higher level of protection only if the heat source that a consumer uses in place of the banned product is safer. The Commission has data indicating that several kinds of heating devices that are likely alternatives to ODS-equipped unvented gas space heaters present a significantly higher risk of CO poisoning. These include:

1. Vented gas space heaters.

   The risk of CO poisoning is 6 times higher in a vented gas heater than in an unvented heater, even one without an ODS device. 1979 estimates are of 130 deaths from vented heaters out of an estimated 3,253,000 in use, vs. 40 deaths from unvented heaters out of an estimated 5,394,00 in use.

   The reason for this is not that vented heaters are inherently less safe, but rather that consumers all too often fail to vent them properly or do not vent them at all. Just this year the Commission has learned of several tragic accidents involving vented gas heaters.

2. Unvented gas heaters not manufactured for indoor use. CPSC in-depth investigations include several accidents involving heaters not intended for indoor use, or make-shift type gas-fired heaters.

3. Hibachis, charcoal grills or other patently unsafe devices, which have been brought into a home or home trailer. Commission fires also include examples of this practice.

Although there is not statistical evidence that consumers who are unable to purchase an unvented gas heater (in the event of a local ban) will frequently choose one of the more hazardous appliances named above, available information suggests that this is a reasonable conjectus. For example, the vented gas heaters

that were involved recent Barnwell, S.C. tragedy had been purchased as replacement for unvented gas heaters. Another case in Commission files describes a vented heater that had been purchased as a replacement in a home with several existing unvented heaters. Unwilling to pay the cost of installing a vent, the consumer used the heater in an unvented mode. Several weeks later he and his wife died of CO poisoning.

The price of vented and unvented heaters are about the same, according to the Directorate for Economics, but a vented heater is less efficient, and therefore more costly to operate. The owner of the heater involved in a recent accident in Prichard, Alabama, in which 8 persons died, explained that the vented heater involved had in the past been operated in a vented mode several times but that it "didn't give off any heat."

EC has reported that unvented heaters are usually purchased as replacements, not in new construction, and primarily among low and moderate income groups. A consumer who is unable to purchase an unvented heater may very likely purchase a vented heater instead, but fail to vent it. Even if a vent is installed it is likely not to be installed correctly.

If only a few persons who would otherwise have purchased an ODS-equipped unvented heater purchase instead, for whatever reason, a vented heater or one of the other devices named above, even though the remaining majority choose a zero-risk alternative, the aggregate risk among those households will be higher than the expected risk among households using ODS-equipped unvented heaters.

Prepared by: Liz Gomilla

Date: 4/7/83

Compliance Activities Between January 1982 and March 1983

1. Preparation of field compliance program by CA:	.5 SM
2. Monitoring of field compliance program by CA:	1.0 SM
3. Inspection of 12 firms by RO:	3.0 SM
4. Collection of 12 samples by RO:	1.0 SM
5. Testing of 12 samples by ENG:	3.0 SM
6. Compliance follow-up by RO:	1.0 SM
TOTAL	9.5 SM

Approximately 55% of the known industry was covered by these activities.

CA Position on Revocation and the Petitions

CA is against revocation of the standard because the industry is still growing and changing. For example, only 5 to 6 firms were involved in the manufacture or importation of unvented gas-fired space heaters when the standard was issued in 1980. Now there are approximately 20 firms, with more expected to enter the market due to the anticipated sale of portable unvented gas-fired space heaters or cabinet heaters. With this type of heater, the gas source is stored inside the heater cabinet making the heater easy to move from room to room. In addition, one of the two present sources for the ODS device is reportedly discontinuing production of the device in September of this year and two European sources are reportedly planning to enter the U.S. market. A change in the type, availability and/or source of the ODS may affect the ability of the heater manufacturer to obtain and incorporate an acceptable device into its heaters.

CA recommends denying the petitions. This recommendation is based primarily upon the epidemiology position that if unvented gas-fired space heaters are not available due to local or state regulation, consumers may create an unsafe environment by using a gas heater that is intended to be vented, without taking the necessary steps to vent the heater.

UNITED STATES GOVERNMENT

MEMORANDUM

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

APR 1 1994

TO : Elizabeth Leland, Project Manager
Carbon Monoxide Detection

THROUGH: Dr. Robert D. Verhalen, Associate Executive Director
Directorate for Epidemiology RDV for RDV

FROM : Kimberly Long, EPHA, 504-0470 K.L.

SUBJECT: Non-Fire Incident Related Carbon Monoxide (CO) Death Estimates for 1990

In 1990, there were an estimated 245 non-fire incident related CO deaths. The following shows their distribution by various appliances and fuel types:

183	(74.7%)	Gas Fueled Appliances (including space heaters and furnaces);
38	(15.5%)	Solid Fueled Appliances (including charcoal and wood grills);
24	(9.8%)	Liquid Fueled Appliances (including oil and kerosene heaters).

The estimated number of non-fire incident related CO deaths decreased from 296 in 1989 to 245 in 1990 with the largest drop relating to space heaters. However, the 1989 estimate may not have been a change in the downward trend in deaths related to these products, since the estimate for 1990 is similar to the estimates for 1986 to 1988. See Figure 1 which shows the trend over an 11 year period from 1980 to 1990.

Attached are tables providing estimates of non-fire incident related carbon monoxide (CO) deaths. These estimates were derived by applying the proportion of deaths related to specific products (automobiles excluded) identified in the CPSC death certificate file to the total number of deaths identified by external cause of death (E-code) as due to carbon monoxide, from the National Center for Health Statistics. Table 1 shows 1990 estimates in number and percent distribution by types of appliances and fuel type, while Table 2 compares the number of CO deaths over an 11 year period.

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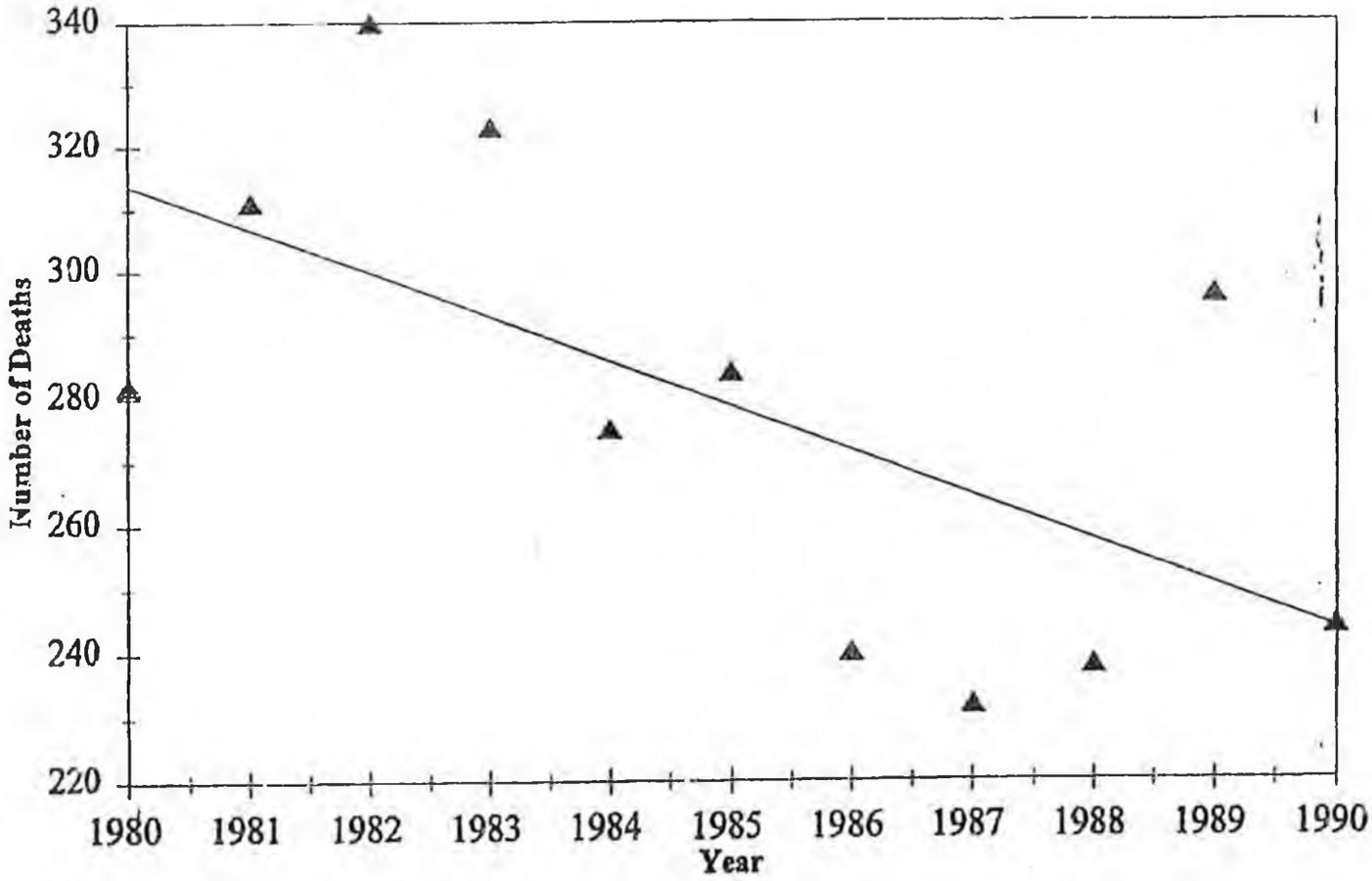
No Mfrs Identified
Excepted
Mfrs Notified
Comments Proce

Figure 1
Non-Fire Related CO Deaths, 1980-1990



Source: National Center for Health Statistics, Mortality Data; U.S. Consumer Product Safety Commission.

Table 1
National Estimates of Non-Fire Related Carbon Monoxide Deaths Associated with the Use of Residential Appliances, 1990

Carbon Monoxide Deaths for 1990			
Fuel Type	Appliance	Number	Percent
Total		**245**	**100.0%**
Gas	**Total**	183	74.7%*
	Space Heaters	86	35.1%
	Furnaces	55	22.5%
	Range/Stove	25	10.2%
	Water Heater	7	2.9%
	Refrigerator	6	2.5%
	Lantern	4	1.6%
Solid	**Total**	38	15.5%*
	Charcoal/Wood Grill	20	8.2%
	Wood/Coal Stove	9	3.7%
	Chimney/Fireplace	6	2.5%
	Coal Furnace	3	1.2%
Liquid	**Total**	24	9.8%*
	Gasoline Generator	11	4.5%
	Kerosene Heater	7	2.9%
	Oil Heater/Stove	6	2.5%

Source: National Center for Health Statistics, 1989 Mortality Data; U.S. Consumer Product Safety Commission.

Note: The distinction between space heaters and furnaces is not always exact in the information available on death certificates. Some of the deaths attributed to space heaters may actually have involved central heating appliances (furnaces).

* Detail may not add due to rounding.

Table 2
National Estimates of Non-Fire Related Carbon Monoxide Deaths for Various Residential Appliances 1980-1990

Fuel Type by Appliance	Year										
	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980
	Number of Deaths										
Total	245	296	238	232	240	284	275	323	340	311	282
Gas Fueled Appliances	183	220	190	181	198	226	204	249	280	266	247
Space Heater	86	130	84	89	103	115	104	135	178	122	150
Furnace	55	56	83	54	57	57	47	55	71	68	78
Range/Stove	25	22	5	23	23	31	28	24	4	25	11
Water Heater	7	6	13	3	7	20	13	21	12	20	5
Refrigerator	6	2	-	-	3	3	-	3	11	24	3
Lantern	4	4	5	12	2	3	12	11	3	7	-
Solid Fueled Appliances	38	32	34	31	23	52	62	53	23	33	28
Charcoal Grill	20	30	29	20	21	49	38	39	14	18	18
Coal Furnace	3	-	-	3	-	-	12	2	4	15	8
Wood/Coal Stove	9	2	5	8	2	3	12	12	5	-	2
Chimney/Fireplace	6	-	-	-	-	-	-	-	-	-	-
Liquid Fueled Appliances	24	44	14	20	19	6	9	21	37	12	7
Oil Heating	6	9	3	12	14	-	6	9	33	8	7
Kerosene Heater	7	20	11	5	5	6	3	12	4	2	-
Gasoline Product	11	15	-	3	-	-	-	-	-	2	-

Source: National Center for Health Statistics, Mortality Data; U.S. Consumer Product Safety Commission.

bcc: Frye
Long
Nicholls
Verhalen

U.S. CONSUMER PRODUCT SAFETY COMMISSION
4330 East West Highway
Bethesda, MD 20814
tel 301-504-0666
fax 301-504-0025
fax 301-504-0124

FAX transmittal

to: MEL KROGSENG

fax #: 507-465-4565

from: Dan Sweitzer

date: 4/15/94

re: CO POISONING

pages: 6 , including this cover sheet

COMMENTS:

INTERNATIONAL APPROVAL SERVICES

A JOINT VENTURE OF A.G.A. LABORATORIES AND CGA APPROVALS, INC.

8501 East Pleasant Valley Rd. • Cleveland, Ohio, U.S.A. 44131-5575 • Phone: (216) 524-4990 • Fax: (216) 642-3463

April 18, 1994

Senator Randy Phillips
State Capitol
Juneau, Alaska 99801-1182

Subject: Safety of Unvented Gas Appliances

Dear Mr. Phillips:

This letter is in response to a recent telephone request for information concerning safety aspects of unvented gas appliances.

Various unvented gas-fired appliances are design certified by A.G.A. Laboratories for compliance with the applicable American National Standard ANSI Z21.11.2 for Unvented Gas-Fired Room Heaters. This standard contains construction and testing requirements intended to demonstrate safe operation under established test conditions. Enclosed is a copy of the standard for your review.

Carbon monoxide production is covered under the combustion test outlined in Section 2.4 of the standard. The appliance shall not produce a concentration of carbon monoxide in excess of 0.02 percent in an air-free sample of the flue gases when the appliance is tested in an open room. Additional combustion testing is conducted in a closed room environment in conjunction with the oxygen depletion test.

The oxygen depletion test outlined in Section 2.9 of the standard requires that the system acts to shut off the gas to the appliance main and pilot burners when the oxygen level in the closed room environment is reduced to 18.0 percent.

Other standard safety-related testing is conducted to establish fire hazard clearances (wall, floor and ceiling temperatures), surface temperatures, temperature at discharge openings (as applicable), ignition system temperatures, ignition system operation, and clothing ignition potential.

Senator Randy Phillips
State Capitol
Juneau, Alaska 99801-1182

Also enclosed with this letter is a copy a white paper published by the Gas Appliance Manufacturers Association (GAMA). I have been informed that there has been much activity in this area over the past year or so and an updated version of the enclosed paper has been published. GAMA is very interested in promoting the safety of these appliances. Please feel free to contact Mr. Gary Thibodeau at GAMA (703-525-9565) and he will be pleased to provide you with further information. (Gary will not be back in the office until April 25th).

A.G.A. Laboratories as a testing and inspection body certifies the designs of appliances and appliance accessories for compliance with the requirements of an applicable national safety test standard such as those published by the American National Standard Institute (ANSI) and Underwriters Laboratories (UL).

The Laboratories' Certification Seal on an appliance or the Laboratories' Certification Symbol on an accessory or component is the manufacturer's representation that the product is constructed in agreement with A.G.A. Laboratories' records of the certified design when released from the production facility.

Completion of all conditions of the certification program results in listing of the product in the Laboratories' Directory of Certified Appliances and Accessories. This is a semi-yearly publication published in January and July. Monthly supplements to the major issues are also printed.

The Laboratories has been accepted as a nationally recognized testing laboratory by professional organizations, safety agencies and regulatory authorities. Please refer to the attachment provided with this letter.

The procedure for certification requires the manufacturer to submit product to the Laboratories for test against applicable safety test standards. Satisfactory test results authorize the manufacturer to display the Laboratories' Certification Seal on appliances or the Laboratories' Certification Symbol on accessories. Each provision of the test standard is covered for compliance, as applicable.

In order to maintain certification and Directory listings, manufacturers are subjected to quarterly inspections of an unannounced nature. Our inspection procedure consists of dimensional checks of the equipment, performance of safety related tests on complete appliances and accessories, and a evaluation of the manufacturer's quality control procedures and documentation.

Senator Randy Phillips
State Capitol
Juneau, Alaska 99801-1182

Certified designs shall conform in all respects to the design which was certified by test. Any design modifications must be authorized by the Laboratories before any such modified models may be offered for sale or lease, or sold or leased, while bearing any marking indicating certification.

The Laboratories' control of certified designs generally ends when the product is released from the factory. The product is then only considered design certified if installed and operated in an application of its intended usage an. in accordance with the authorized manufacturer's installation instructions. The installation and operating instructions are reviewed and documented as part of the Laboratories' Certification Program.

Also enclosed with this letter is a copy of the July 1992 issue of the A.G.A. Directory for your reference. Please note subscription information is provided inside the back cover should you be interested.

I hope this provides sufficient information concerning the safety aspects of unvented gas-fired appliances. However, please feel free to contact me for any additional information I can provide.

Sincerely,

Thomas C. Clark

THOMAS C. CLARK
Manager
Quality Assurance

Encls.

Recognition and Accreditation

A.G.A. Laboratories is widely recognized for its Certification Programs. Products which are design certified by the Laboratories are recognized as safe for their intended installation and usage by consumers and local, state and area jurisdictional code/regulatory authorities. Consumers and regulatory authorities have developed confidence in the experience and reputation of the Laboratories' Certification Program as well as the integrity of the Certification Seal and Symbol. A.G.A. Laboratories are accredited or otherwise accepted for certification testing of appliances and accessories by a number of cities, states, and code authorities as follows:

American National Standards Institute (ANSI)
Occupational Safety and Health Administration (NRTL)
National Evaluation Services, Inc. (NES)
International Conference of Building Officials (ICBO)
Building Officials and Code Administrators International, Inc. (BOCA)
Southern Building Code Congress International, Inc. (SBCCI)
California Energy Commission (CEC)
International Association of Plumbing and Mechanical Officials (IAPMO)
American Society for Testing and Materials (ASTM)
South Coast Air Quality Management District (California)
Recreation Vehicle Industry Association (RVIA)
Office of the State Architect - California
California State Fire Marshall
Materials and Equipment Acceptance (MEA)
New York City Department of Buildings
Middle Department Inspection Agency, Inc.
(Delaware, New Jersey, Maryland, New York, Pennsylvania, Virginia, West Virginia)

State of Connecticut
State of New York
State of Massachusetts
State of Ohio
State of Oregon
State of Washington
State of Wisconsin
State of Nebraska
State of Maryland
State of Illinois
State of Minnesota
State of Vermont
State of Oklahoma
State of Colorado
State of Indiana
State of North Carolina

State of Nevada
State of Tennessee
State of Virginia
City of Los Angeles, CA
City of Fort Worth, TX
City of Detroit, MI
City of Charlotte, NC
City of Phoenix, AZ
City of Portland, OR
City of Denver, CO
City of Atlanta, GA
City of New York, NY
City of Chicago, IL
City of San Francisco, CA
City of Cleveland, OH
City of Burbank, CA
City of Ft. Lauderdale

In its March 5, 1993, Federal Register notice, the FTC proposes to exempt unvented heaters fueled by natural gas, propane and kerosene from its Appliance Labeling Rule. The FTC's reasoning is that "because all models are 100% efficient, and because there is no significant difference in operating cost among similarly sized models, labels disclosing costs would not help consumers make purchasing decisions." (page 12828) The FTC also makes the following statement regarding labeling of vented heaters:

> "The Commission exempted the category of vented heaters (all fuel types) during the original rulemaking proceeding. The Commission finds that the present record does not contain sufficient justification for reversing that decision." (page 12828, footnote 102)

Joseph M. Mattingly
Director of Government Affairs
and General Counsel

JMM:gjr-1
Attachment (delegate's copy only)

1901 North Moore Street · P.O. Box 9245 · Arlington, Virginia 22209 · 703/525-9565

CONTEMPORARY
VENT-FREE GAS-FIRED SPACE HEATERS

I. OBJECTIVE

This paper is intended to provide current, accurate information about contemporary vent-free (unvented) gas space heaters in order to clear up outdated misconceptions about the operation and safety of this type of heating equipment.

II. BACKGROUND

A. The Product

Vent-free gas space heaters differ from central heating in that they do not use heating ducts, do not require a chimney or vent, and are located in the space to be heated.

These space heaters operate on natural gas or propane. They may be permanently installed as free-standing or wall mounted units. They are available in heat outputs from 7,000 to 40,000 Btu/hr. with most models having adjustable heat ranges. Both radiant and convective heating types are available.

B. The History

Vent-free gas-fired space heaters have long been used successfully for residential space heating in the southern part of the United States where the mild climate does not make central heating a necessity.

However, some states and localities within the country have not permitted the use of vent-free gas-fired space heaters for any purpose. These restrictions undoubtedly are based on past experiences with outdated types of heaters which did not have the features, labeling and design safeguards that are now incorporated in contemporary products.

This is particularly unfortunate today since the costs of heating with central equipment have risen so sharply in recent years. When a space heater is used for supplementary or zone heating, home heating costs can be reduced, and gas is less costly than both electricity and kerosene.

Today's vent-free gas-fired space heater bears little resemblance to that used 30, 20 or even 10 years ago. There have been significant technological advances and, equally important, the national safety standard has been continuously updated to insure a safe product.

Therefore, these products, as designed and manufactured today, deserve to be recognized for the safe economical source of heat that they are and accepted in all states and local areas.

III. BENEFITS

A. Efficiency

Since there is no heat lost through a vent, the efficiency of vent-free gas-fired space heaters is nearly 100%. In fact, the U.S. Department of Energy's Test Procedures for Unvented Home Heating Equipment, issued March 28, 1984, assign a 100% fuel efficiency to vent-free gas-fired space heaters.

B. Operating Cost

In its February 29, 1988 Federal Register notice, the Federal Trade Commission provided information on costs for the various fuels as noted below. In its comparison of 1988 national average prices of electricity versus gas in

dollars per million Btu's, natural gas and LP-gas are shown to be clearly superior economically for heating.

TYPE OF ENERGY	IN COMMON TERMS	DOLLARS PER MILLION BTU'S
Electricity	8.0 cents/kWh	$23.56
Natural Gas	56.2 cents/therm or $5.80/MCF	5.62
Propane	70.0 cents/gallon	7.69

According to these figures, the cost to heat a space with a gas space heater would be less than a third of the cost to heat the space with an electric space heater.

C. Installation

The simple permanent installation avoids those potential fire hazards associated with portable heaters. Not only is the expense of a vent or chimney avoided, but also the problems of blockage or leaks.

IV. SAFETY

An analysis of the latest statistics (1986) compiled by the U.S. Consumer Product Safety Commission (CPSC) reveals that of the total 150,000 fires involving space heating equipment of all types (i.e., electric, coal, gas, etc.), gas-fired space heaters accounted for only 3%.

This exemplary record of minimal accident reports related to gas-fired heating equipment is not purely coincidental. The strict adherence of manufacturers to national safety standards for gas heating equipment is the major contributor to this excellent safety record.

A. Safety Standard

For many years, the American National Standards Institute has maintained a safety and performance standard for vent-free gas-fired space heaters under the nomenclature of ANS Z21.11.2. This standard is constantly upgraded to provided the highest degree of safety possible, based on the state-of-the-art technology. All listed or certified products sold in the U.S. must be tested to this standard.

The following are some of the revisions that have been incorporated into the American National Standard since 1975:

1. Reduction of surface temperatures to minimize the potential for contact burns. This provision eliminated from the marketplace all the extremely low priced heaters, commonly referred to as bathroom heaters, which were the major cause of incidents.

2. Automatic ignition and safety shutoff devices for safer starting and operation.

3. Pressure regulator which prevents over-firing in case of increased gas pressure.

4. Surface guarding to minimize accidental contact with parts of the heater which could accidentally ignite fabric.

5. A warning label on the front of the heater which is clearly visible from 5 feet away stating: "CAUTION: Hot while in operation. Do not touch. Keep children, clothing and furniture away."

6. Wall and floor temperature limits during heater operation were established as well as maximum output temperature at the discharge air opening.

7. Oxygen depletion safety shutoff system (ODS) is required for all vent-free gas space heaters.

There are a total of 19 major performance test requirements including carbon monoxide in the current standard.

B. U.S. Consumer Product Safety Commission

The CPSC has been actively monitoring the improvements in the standards for unvented gas-fired space heaters. In 1974, CPSC began an extensive study of this product since it had received a petition to develop a mandatory safety standard for all types of space heaters, electric, oil, gas, etc. CPSC decided not to proceed with the development of a mandatory standard for unvented gas-fired space heaters because it found that there was an extremely high degree of compliance with voluntary standards, and that the standards had been revised as outlined above to address more adequately the majority of identified risks. Another risk, that of carbon monoxide, led to the CPSC proposal in 1978 to ban unvented gas-fired space heaters. The proposed ban was then withdrawn in favor of mandatory use of an oxygen depletion sensing (ODS) system. In 1980, a CPSC issued a mandatory regulation which required that all unvented gas-fired space heaters be equipped with the ODS capable of shutting off the gas supply to the heater when the oxygen in the surrounding atmosphere is reduced to a level below 18%. The normal level of oxygen in the atmosphere is approximately 20.9%. Concurrently, the requirement for the ODS was made part of the American

National Standard for unvented gas-fired space heaters. In its issuance of the ODS requirement, CPSC provided substantial technical data supporting the 18% oxygen level cutoff point. The following is an excerpt from the September 17, 1980 Federal Register notice issued by CPSC on the ODS:

> "These data lead the Commission to the conclusion that an ODS which shuts off gas to the heater when surrounding oxygen is depleted to less than 18% would be adequate to address the acute hazard and thereby reduce the number of deaths from CO poisoning associated with unvented gas-fired space heaters. Further, since the ODS can be expected to effect a reduction in CO emissions by shutting off the gas supply, such a reduction can also help reduce levels of available CO that may present a chronic hazard.
>
> "Based on the available data the Commission has adopted, with nonmaterial modifications, the ODS provision of the ANSI standard which provides for shutoff at no less than 18% oxygen, when using the gas specified in the standard."

On November 23, 1984 CPSC revoked its ODS requirement, recognizing that the voluntary requirements in the American National Standard noted above require an ODS and that there is a high degree of compliance with this standard by the industry.

In an October 18, 1984 letter, Nancy Harvey Steorts, then Chairman of the CPSC, made the following statement regarding the ANS safety standard for unvented gas-fired space heaters:

"I would like to express my total agreement with you regarding the significant progress that has been made to improve the safety of unvented gas space heaters. Besides the work that has been done to reduce carbon monoxide poisonings, safety improvements to address the risk of contact burns, fires and explosions have been significant. I personally feel that the cooperative working relationship between the Commission staff and the ANSI subcommittees for gas-fired appliances is one of the best examples of industry and government working together for the safety of the consumer. I am certain that this positive relationship will continue."

C. The Oxygen Depletion Sensing (ODS) System

The following is a brief explanation of the operation of an ODS:

The ODS system consists basically of three components: a precisely designed pilot burner that provides regulation of flame characteristics, a thermocouple positioned in the mantle of the pilot flame and a safety shutoff valve. The pilot is designed to be stable within a very narrow operating range. The thermocouple responds to changes in the pilot flame characteristics and, when heated, generates a millivoltage across the solenoid which keeps the gas supply valve in the open position. If low levels of oxygen are present in the proximity of the ODS system,

the flame extinguishes. The loss of flame causes the thermocouple to cool which, in turn, reduces the millivoltage across the solenoid causing the gas valve to return to its normally closed position.

The Oxygen Depletion Sensing (ODS) System has been used extensively on vent-free gas-fired space heaters in Europe since 1961 and has an excellent record for both safety and reliability.

V. CODES AND STANDARDS

In the United States there are a variety of state and local building codes. Many of these codes are based on model codes adopted by five different model building code-making bodies:

- o National Fire Protection Association (NFPA)
- o Council of American Building Officials (CABO)
- o Southern Building Code Congress International (SBCCI)
- o Building Officials and Code Administrators International (BOCA)
- o International Conference of Building Officials (ICBO)

The following is a summary of the coverage concerning vent-free gas-fired space heaters:

NFPA 54 National Fuel Gas Code	The Code's only restrictions for vent-free gas space heaters are that they shall not be installed in sleeping quarters, bathrooms or institutions.

This code has been adopted by the American National Standards Institute as the National Fuel Gas Code, ANSI Z223.1.

CABO — The code allows vent-free fuel-fired space heaters equipped with ODS systems in one and two family dwellings.

SBCCI — Vent-free space heaters are permitted if they are listed, installed in accordance with their listing and the manufacturers' instructions, equipped with an ODS system, not installed in sleeping quarters and have less than 40,000 Btu/hr. input rating.

BOCA — Vent-free space heaters must be listed (or certified) by a recognized testing agency. There are no restrictions on use.

ICBO — Listed vent-free overhead space heaters are permitted for other than residential or institutional use.

VI. SUMMARY

Throughout this country, American consumers should have the opportunity to benefit from one of the most economical and safest sources of supplementary heat -- the vent-free gas-fired space heater.

FOR FURTHER INFORMATION, PLEASE CONTACT:

Jack P. Langmead, Vice President and Director of Technical Services

or

Joseph M. Mattingly, Director of Government Affairs

at

Gas Appliance Manufacturers Association
703-525-9565

ADDENDUM "A"

INCIDENT STATISTICS
1986, Latest Year Reported By The
Consumer Product Safety Commission

A. FIRE INCIDENTS

- Gas space heaters account for less than 3% of all heating equipment fires.

NATIONAL FIRE INCIDENT PROJECTIONS, 1986

Heater Types	Fires	Civilian Deaths	Civilian Injuries	Property Loss (Millions)
All*	150,000	640	2,380	$574.5
Wood/Coal Heaters	87,000	110	420	$188.9
Electric, Fixed and Portable (not including central heating)	5,700	150	240	$48.4
Gas, Fixed and Portable (not including central heating)	4,800	70	260	$44.8
Kerosene/Oil, Fixed and Portable (not including central heating)	3,400	100	310	$30.4

*The "All" category includes fixed and portable space heaters, central furnaces, water heaters, fireplaces, chimneys and other heating equipment using solid or liquid fuel, gas, electricity or other energy sources.

B. CONTACT BURNS

- Only 0.02% of all gas heaters in use resulted in contact burns in 1982 per CPSC estimates.
- The gas heater incident rate is 1/3 that of portable kerosene heaters, and 2/3 that of wood/coal stoves.

ADDENDUM "B"

VENT-FREE HEATER COMPARISON
GAS VS. PORTABLE KEROSENE

	GAS	KEROSENE
Comprehensive Safety Standard	Yes (ANSI-Z21.11.2-1983)	Yes (UL647)
Certified or Listed by Independent Nationally Recognized Laboratory	Yes	Yes
Surface Temperature Limit	Yes	Yes
Wall & Floor Temperature Limits	Yes	Yes
Clothing Ignition Safeguards	Yes	Yes
Permanent Installation	Yes	No
ODS Equipped	Yes	No
Safety Shutoffs	Yes	Yes

Note 1: The safety standard for vent-free gas space heaters is identical to the standard for vented gas space heaters pertaining to surface temperatures and fire safety.

Note 2: The following eight states have passed legislation since 1981 permitting the sale and use of listed portable kerosene heaters: Delaware, Maryland, New Hampshire, New York, Ohio, Rhode Island, South Dakota, and Washington.

AMERICAN NATIONAL STANDARD

GAS-FIRED ROOM HEATERS

Volume II, Unvented Room Heaters

Secretariat
AGA
American Gas Association
1515 Wilson Boulevard
Arlington, VA 22209

PREFACE

This publication represents a standard for safe operation, substantial and durable construction, and acceptable performance of gas-fired unvented room heaters. It is the result of years of experience in the manufacture, testing, installation, maintenance, inspection and research on appliances designed for the utilization of gas. There are risks of injury to persons inherent in some appliances that, if completely eliminated, would defeat the utility of the appliance. The provisions in this Standard are intended to reduce such risks while retaining the normal appliance.

Nothing in this standard is to be considered in any way as indicating a measure of quality beyond compliance with the provisions it contains. It is designed to allow compliance of unvented room heaters, the construction and performance of which may exceed the various provisions specified herein. In its preparation, full recognition has been given to possibilities of improvement through ingenuity of design. As progress takes place, revisions may become necessary. When they are believed desirable, recommendations should be forwarded to the Chairman of Accredited Standards Committee Z21, 8501 East Pleasant Valley Road, Cleveland, Ohio 44131.

Safe and satisfactory operation of a gas-fired unvented room heater depends to a great extent upon its proper installation, and it should be installed in accordance with the National Fuel Gas Code, ANSI Z223.1; manufacturers' installation instructions and local municipal codes.

Users of this American National Standard are advised that the devices/products/activities within its scope may be subject to regulation at the Federal, state or local level. Users are strongly urged to investigate this possibility through appropriate channels. In the event of a conflict with this standard, the Federal, state or local regulations should be followed.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute, Inc., require that action be taken to reaffirm, revise or withdraw this standard no later than five (5) years from the date of approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, Inc., 11 West 42nd Street, New York, N.Y. 10036, (212) 354-3300.

EFFECTIVE DATE: An organization using this standard for product evaluation as a part of its certification program will normally establish the date by which all products certified by that organization should comply with this standard.

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conducted. However, tests at normal inlet test pressure shall be conducted whenever tests at the increased inlet test pressure are specified.

2.3.2 The inlet test pressures specified in 2.3.1 shall be the pressures immediately ahead of all controls. The manifold pressure shall approximate that recommended by the manufacturer (see 1.14.4).

2.3.3 Unless otherwise specified herein, tests at increased input rate shall be conducted with the gas appliance pressure regulator adjusted to provide an increase in the input rate specified by the manufacturer of 12 percent for a room heater for use with natural, manufactured and mixed gases or LP gas-air mixtures, and 9 percent for an appliance for use with liquefied petroleum gases. When the regulator outlet pressure cannot be readily adjusted to obtain this increase in input rate, the regulator may be removed or blocked in the open position, or the inlet test pressure may be increased as necessary. (Also see 2.3.4.)

2.3.4 Burners shall be adjusted to their Btu ratings at normal inlet test pressure, unless otherwise specified herein. After the room heater has been operated for 15 minutes, starting with all parts at room temperature, the burner adjustments shall be within ± 5 percent of the manufacturer's specified hourly Btu input rating. When primary air control is provided, it shall be set to give a good flame at this adjustment and neither burner ratings nor primary air adjustments shall be changed during a series of tests on any one test gas. Any adjustment resulting in the deposit of carbon during any of the tests specified herein shall not be acceptable.

2.3.5 The minimum input rating for test purposes, on a room heater provided with a control which will reduce the input rating by automatic means, shall be 87 percent of the minimum input rating specified by the manufacturer. The manufacturer's specified minimum input rating shall not be less than 20 percent of the manufacturer's specified normal input rating.

2.4 COMBUSTION

2.4.1 A room heater shall not produce a concentration of carbon monoxide in excess of 0.02 percent in an air-free sample of the flue gases when the appliance is tested in a room with approximately a normal oxygen supply.

Method of Test

The burner and primary air adjustments shall be made in accordance with 2.3.4.

Means shall be employed to concentrate the flue gases by venting them through a single opening. Such means shall not affect secondary aeration. After the gas has been burning for at least 15 minutes at normal inlet test pressure, the appropriate test shall be conducted, as follows:

a. For an appliance equipped with an adjustable (limited adjustment) pressure regulator or an adjustable manual gas burner valve, or both, the manifold pressure of the appliance for use with natural, manufactured or mixed gases or LP gas-air mixtures shall be adjusted to a manifold pressure 50 percent below that obtained during burner adjustment; the manifold pressure of the appliance for use with liquefied petroleum gases shall be adjusted to 15 percent below that obtained during burner adjustment.

b. For an appliance equipped with a fixed setting pressure regulator and a nonadjustable manual gas valve incapable of adjustment to other than the full on or full off position, the test shall be conducted at reduced inlet test pressure for all test gases in accordance with 2.3.1.

Following a brief purge period (at least 2 minutes), samples of the flue gases shall be secured.

The manifold pressure shall then be adjusted to provide an input rate of 123 percent of the manufacturer's specified input rate for an appliance for use with natural, manufactured or mixed gases or LP gas-air mixtures and 109 percent of the manufacturer's specified input rate for an appliance for use with liquefied petroleum gases. Following a brief purge period (at least 2 minutes), another sample of the flue gases shall be secured. When the regulator outlet pressure cannot be adjusted readily, this increase in input rate may be obtained with the gas appliance pressure regulator removed or locked in its full open position.

On an appliance equipped with a power burner, an additional sample of the flue gases shall be secured with the appliance operating at normal inlet test pressure and the supply voltage reduced to 85 percent of the appliance rating plate voltage.

The samples secured shall be analyzed for carbon monoxide and carbon dioxide.

2.4.2 A room heater shall not produce carbon monoxide in excess of 0.025 percent in a room with no air changes occurring during combustion of the amount of gas necessary to reduce the oxygen content of the room to a quantity equal to 15.1 percent by volume, corrected to 60 F (15.5 °C) and 30.0 inches mercury column (101.3 kPa) pressure.

Method of Test

The burner and primary air adjustments shall be made in accordance with 2.3.4.

The oxygen depletion safety shutoff system shall be bypassed so it will not control gas flow.

The appliance shall be installed in a room constructed so as to prevent infiltration of air. The volume of the room shall be not less than 500 cubic feet (14.1 m^3) for a room heater having a normal input rate of 30,000 Btu per hour (8 792 W) or less and 1000 cubic feet (28.3 m^3) for a room heater having a normal input rate in excess of 30,000 Btu per hour (8 792 W). Air circulation within the room shall be provided so the atmosphere of the room is evenly mixed and shall not interfere with the operation of the appliance under test. Provision for measuring the average temperature of the room and for withdrawing samples of the atmosphere of the room shall also be provided.

The appliance shall be operated for 15 minutes with the door of the room open and the room completely ventilated. The door shall then be sealed and the ventilation stopped. The appliance shall be operated at the increased input rate specified in 2.4.1.

During the course of the test, oxygen, room temperature and carbon monoxide shall be monitored.

When percent oxygen by volume indicates that the total oxygen contained in the closed room is within + 0.5 percent of that amount contained in the room at a concentration of 15.1 percent by volume at 60 F (15.5 °C) and 30.0 inches mercury column (101.3 kPa) pressure, the test shall be terminated.

A sample withdrawn at the end of the test shall be analyzed for carbon monoxide and the increase in carbon monoxide concentration computed.

This test shall be repeated with the room heater operating at a manifold pressure 50 percent below that obtained during burner adjustment for appliances for use with natural, manufactured or mixed or LP gas-air mixtures; and 15 percent below that obtained during burner adjustment for appliances for use with liquefied petroleum gases.

2.4.3 A room heater for use with natural gas shall comply with 2.4.1 and 2.4.2 when readjusted, and reorificed if necessary, to obtain the manufacturer's specified input rating and operated with test Gas A at 4.0 inches water column (995 Pa) inlet test pressure.

When the manifold pressure at the 4.0 inches water column (995 Pa) inlet test pressure adjustment is not less than the manufacturer's specified manifold pressure, this test need not be conducted.

2.4.4 A room heater for use with manufactured gas shall comply with 2.4.1 and 2.4.2 when readjusted, reorificed if necessary, to obtain the manufacturer's specified input rating and operated with test Gas B at 2.0 inches water column (498 Pa) inlet test pressure.

This test need be conducted only when the manufacturer's specified manifold pressure is in excess of 2.0 inches water column (498 Pa). (See 1.20.2-d.)

2.5 BURNER OPERATING CHARACTERISTICS

2.5.1 Burner flames shall not flash back:

a. When turned on and off at the burner adjustment and inlet test pressures specified in 2.3.1;

b. When turned on and off at the 4.0 inches water column (995 Pa) inlet test pressure with test Gas A as specified in 2.4.3 when use with natural gas is desired (when the manifold pressure at the 4.0 inches water column (995 Pa) inlet test pressure is not less than the manufacturer's specified manifold pressure, this test need not be conducted);

c. When turned on and off at the 2.0 inches water column (498 Pa) inlet test pressure with test Gas B specified under 2.4.4 when use with manufactured gas is desired (when the manifold pressure at the 2.0 inches water column (498 Pa) inlet test pressure is not less than the manufacturer's specified manifold pressure, this test need not be conducted);

d. When the gas valve is adjusted to deliver 15 percent of the normal input rating;

e. When turned on and off at 87 percent of the lowest input rating if the room heater is equipped with an automatic modulating control which provides for ignition and operation at a reduced input rating; and

f. When adjusted to 87 percent of the lowest input rating if the room heater is equipped with an automatic modulating control which acts to reduce the input rating after ignition of the main burner gas, if this results in an input rating of less than 15 percent of the normal input rating.

These tests shall be conducted with the burner(s) both hot and cold.

2.5.2 Burner flames shall carry to all ports and burn on all ports.

Method of Test

After burner adjustment, the gas shall be shut off and the appliance allowed to cool to approximately room temperature.

The gas shall then be ignited at one point under the test conditions specified in 2.5.1-a, -b, -c and -e, and the flame travel and burning of gas at all burner ports noted.

An additional test shall be conducted under the test conditions specified in 2.4.1 and 2.4.2 and the burning of gas at all burner ports noted.

2.5.3 The arrangement of burners and ignition devices shall be such that the gas from any burner or combination of burners shall be effectively ignited without delayed ignition, flashback or danger to the room heater under the test conditions specified in 2.5.1-a, -b, -c and -e.

These tests shall be conducted with the burner(s) both hot and cold.

2.5.4 When ignition is made in a normal manner under the adjustment conditions specified in 2.5.1-a, -b, -c and -e, flames shall not flash outside the combustion space.

2.5.5 There shall be no back pressure at the burner mixer face under the test conditions specified in 2.5.1.

Method of Test

A flame shall be played on the mixer face in such a manner that any gas escaping from the mixer head would be ignited.

2.5.6 Burners and pilots shall ignite, operate and extinguish without undue noise under the adjustment conditions specified in 2.5.1.

2.5.7 Burner flames shall not flash back or become permanently extinguished when the front and sides of the room heater are subjected to a draft equivalent to a wind velocity of 3 miles per hour (1.34 m/s).

Method of Test

This test shall be conducted at normal inlet test pressure.

The wind shall be produced by a blower which delivers air through a 12-inch (305 mm) length of 5-inch (127 mm) diameter sheet-metal pipe having a sheet-metal orifice plate with a 3-inch (76.2 mm) diameter orifice fastened to its outlet end.

The point on the axis of the air stream 6 feet (1.83 m) from the orifice of the blower duct shall coincide with the midpoint of the plane of the burner surface containing the ports. When two or more burners are employed, the midpoint of the one nearest the front or side of the appliance shall be used. The appliance shall then be removed and the blower adjusted to produce a wind velocity of 3 miles per hour (1.34 m/s) as measured by the average of the readings taken with an anemometer at the midpoint of four 6-inch (152 mm) squares forming a plane area 1 square foot (0.09 m^2) at 90 degrees (1.57 rad) to the axis of the air stream and 6 feet (1.83 m) from the orifice. The appliance shall then be replaced in the identical position it initially occupied and a wind velocity of 3 miles per hour (1.34 m/s) directed alternately against the front and sides, or vice versa, of the appliance.

The same procedure shall be repeated for such locations of the blower around the appliance as may be necessary to determine satisfactory compliance with this provision.

Determinations shall be made at each position. Tests shall be of 2 minutes duration.

2.5.8 A room heater provided with a power burner or induced draft shall also comply with the

following tests when operated with the supply voltage adjusted to 85 percent and 110 percent of the appliance rating plate voltage. Unless otherwise specified, normal and reduced inlet test pressures at the burner adjustment specified in 2.3.4 shall be used.

a. Burners shall effectively ignite without delayed ignition or flashback.

b. Burners shall extinguish without flashback.

c. There shall be no back pressure at the burner mixer face.

d. There shall be no back pressure at the mixer face when an automatic control device for reduction of gas flow to a low rate operates in a normal manner at normal inlet test pressure.

2.6 PILOT OPERATING CHARACTERISTICS

2.6.1 The pilot(s) shall ignite the gas at the main burner(s) without delay.

2.6.2 A continuous pilot shall not be extinguished when the gas to the main burner(s) is turned on or off in a normal manner, either manually or by means of automatic devices.

2.6.3 The pilot(s) shall not deposit carbon during any test specified in this standard when adjusted according to the manufacturer's printed instructions.

2.6.4 A Bunsen-type pilot burner shall be constructed so ignition of the main burner gas occurs in a normal manner, even though the pilot is burning at the orifice. A pilot that cannot be made to flash back under any test conditions shall be considered as complying with this provision.

2.6.5 The pilot(s) shall be adequately protected against drafts.

Method of Test

The pilot(s) shall be ignited and operated at normal inlet test pressure for a period of 15 minutes.

A 3-mile-per-hour (1.34 m/s) wind shall be directed horizontally against the front and sides of the appliance, both on a plane with, and below, the pilot(s) by means of a fan or blower.

The pilot(s) shall not lift, flash back nor become extinguished during a period of 1 minute.

2.6.6 Remotely controlled pilot ignition systems employing electric pilot igniters shall be designed to prevent turning on the gas in the event the pilot(s) fails to ignite. Such systems shall comply with the applicable provisions specified herein for pilot burners and safety shutoff devices (see 2.7).

2.7 PILOT BURNERS AND SAFETY SHUTOFF DEVICES

2.7.1 Pilot burner and safety shutoff device assemblies shall comply with the applicable performance provisions of the Standard for Automatic Gas Ignition Systems and Components, ANSI Z21.20.

2.7.2 If a piezo-electric spark device is used for pilot burner ignition it shall comply with the applicable performance provisions of the Standard for Manually-Operated Piezo-Electric Spark Gas Ignition Systems and Components, ANSI Z21.77.

2.7.3 Oxygen depletion safety shutoff systems not used for main burner ignition shall comply with the applicable provisions of 2.9.

2.7.4 The pilot shall effect ignition of the gas at the main burner(s) under the following conditions. For purposes of this test, the control manufacturer's specified maximum flame failure response time for the automatic gas ignition system shall be used.

A pilot which becomes extinguished after having completed main burner ignition is considered as complying with this provision.

The following tests shall be conducted at normal inlet test pressure:

a. Single-Flame Pilot Burners (Pilot burners which produce a single flame with substantially uniform contour under turndown conditions.)

The pilot shall effect ignition of the gas within 4 seconds from the time that gas

is admitted to the main burner(s) when the pilot gas supply is reduced to an amount just sufficient to keep the valve of the safety shutoff device open or just above the point of flame extinction, whichever represents the higher pilot gas rate.

A flame can be considered as being equivalent to a substantially uniform contour flame if its deviation from uniform contour is occasioned by a flame baffle(s) or channel(s).

b. Multiflame Pilot Burners (Pilot burners which produce a flame(s) with substantial variation in contour under turndown conditions.)

The pilot shall effect ignition of the gas within 4 seconds from the time that gas is admitted to the main burner(s) when all the pilot burner ports, except those for heating the thermal element, are blocked and the pilot gas supply is reduced to an amount just sufficient to keep the valve of the safety shutoff device open, or just above the point of flame extinction, whichever represents the higher pilot gas rate.

The above test shall also be conducted under sufficient conditions of increased pilot burner input rating to determine that main burner ignition will take place within 4 seconds from the time that gas is admitted to the main burner(s) with the pilot burner input at any level from the turndown condition described above, up to and including that providing normal flow through the unblocked port(s) based on the manufacturer's specified normal input rating for the pilot.

c. Pilot Burner and Thermal Element Assemblies Which Supply Electrical Energy for an Automatic Control System.

When the thermal element is the only source of electric power for operation of the automatic valve, the tests under "a" and "b" above shall be conducted with the pilot adjusted to the minimum size (pull-in millivoltage) required to open the automatic valve. This test condition shall be based on the performance of the system when only the thermal element and automatic valve are present. Under these conditions, the pilot shall effect ignition of the gas within 4 seconds from the time the gas is admitted to the main burner(s).

Room thermostats and any other system components which may be changed or added shall be excluded during this test. When a multiflame pilot is provided, the tests outlined under "b" at increased pilot input ratings shall also be conducted.

d. Recycling Pilot Burners (Gas Ignited.)

In the case of pilot burners which operate every time the main burner is turned on or off, either manually or by automatic controls, the ignition flame(s) shall provide ignition of the gas within 4 seconds from the time gas is admitted to the main burner(s) when the gas supply to the ignition flame is just sufficient to light the gas at the thermal heating parts.

2.7.5 A room heater equipped with a control permitting ignition at less than full rate shall comply with 2.7.4 with the main burner gas input at full rate and at minimum turn-on rate.

2.7.6 The pilot burner of a safety shutoff device shall meet the provisions specified herein for pilots.

2.7.7 The time from initiation of pilot gas flow to proof of the ignition source shall not exceed 5 minutes, except that for a system which operates every time the main gas burner(s) with which it is used is turned on or off, the time shall not exceed $1\frac{1}{2}$ minutes.

In the case of a system requiring a manual operation to assume the "on" position, the time required for application of the manual operation shall not exceed $1\frac{1}{2}$ minutes, and this time plus the time from initiation of pilot gas flow to proof of the ignition source shall not exceed 5 minutes.

For purposes of this test, the control manufacturer's specified maximum flame-establishing period for the automatic gas ignition system shall be used.

Method of Test

This test shall be conducted at normal inlet test pressure. With the appliance at room temperature, the pilot gas shall be ignited and the time required for the ignition system to turn on the main gas supply noted.

2.7.8 When an interrupted ignition source is provided, the time required for the main burner flame to be proved from the initiation of main gas flow shall not exceed 90 seconds when the room heater is operated at normal inlet test pressure.

2.7.9 The time required for the automatic gas ignition system to shut off the gas supply following loss of the supervised flame shall not exceed 3 minutes.

For purposes of this test, the control manufacturer's specified maximum flame failure response time for the automatic gas ignition system shall be used.

Method of Test

The appliance shall be operated for 15 minutes at normal inlet test pressure. All gas shall then be turned off and the gas flow to a continuous or intermittent pilot immediately reestablished but not ignited. The combined flame failure response time and valve closing time shall not exceed 3 minutes. An interrupted pilot having a separate sensing device from that for the main burner flame shall also be tested by turning off all gas after the pilot has been proved but before the main burner gas is ignited. The gas flow to the interrupted pilot shall be immediately reestablished but not ignited. The combined flame failure response time and valve closing time shall not exceed 3 minutes.

2.7.10 If the time of operation for safety shutoff devices can be varied by means of an adjustment, this adjustment shall be the same throughout tests for compliance with 2.7.7, 2.7.8 and 2.7.9.

2.7.11 When the pilot acts both as the actuating medium of the safety shutoff device and as the means for igniting the gas at the main burner(s), the construction shall be such that in the event the pilot flashes back and burns at the orifice, the device shall operate either to shut off the main gas supply in accordance with the test specified in 2.7.9, or provide effective ignition of the gas at the main burner(s). A pilot that cannot be made to flash back under any test condition shall be considered as complying with this provision.

2.7.12 A standing pilot equipped with an automatic relight pilot system shall not cause excessive flame flashout or damage to the room heater.

For purposes of this test, the control manufacturer's specified maximum flame failure response time or minimum recycle time for the automatic gas ignition system shall be used.

Method of Test

The pilot igniter shall be rendered inoperative.

The appliance shall be instrumented with a sampling tube(s) to measure the gas-air ratio at various points in the appliance. This sampling tube(s) shall be connected to a gas-air analyzer coupled to a chart-type single-point recording potentiometer in order to produce a constant trace of the gas-air ratio at the sample point for sufficient time to allow a complete evaluation of the system. The gas-air ratio trace shall be developed with the appliance both hot and cold and with all test gases for which the appliance is tested. Supplemental natural gas tests with test Gas G need not be conducted.

Unburned gas shall be allowed to flow into the appliance for a time equivalent to the control manufacturer's specified maximum flame failure response time. Immediately following shutoff of the gas supply, an ignition cycle shall be initiated and the time at which the pilot igniter would normally be energized noted.

If the gas-air ratio at the time at which the pilot igniter would normally be energized does not exceed the lower explosive limit, the appliance shall be considered as complying with this provision. If this ratio is above the lower explosive limit, sufficient ignition tests shall be conducted between the time of energization of the ignition means and when the atmosphere of the appliance returns to below the lower explosive limit to determine that the automatic relight pilot system does not cause excessive flame flashout or damage to the appliance.

An appliance with a control system providing a purge period of 5 minutes or longer shall be considered as complying with this provision.

2.7.13 Temperatures of automatic gas ignition and safety shutoff devices shall not exceed those temperatures for which the devices are designed.

Method of Test

Thermocouples shall be peened into or brazed to the following points which are applicable to the component provided:

a. Pilot burner tip;

b. Pilot burner orifice fitting;

c. Electric igniter;

d. Flame sensor;

e. Surfaces of the hot and cold junction of thermoelectric types;

f. Valve body;

g. Electric switch;

h. Contact mechanism; and

i. Magnetic assembly.

The pilot(s) and main burner(s) shall be operated at normal inlet test pressure until equilibrium pilot burner temperatures have been attained, at which time the temperatures at the points listed above shall be recorded.

2.8 DIRECT IGNITION SYSTEMS

2.8.1 A direct ignition system shall provide a lockout timing of not more than 60 seconds and shall comply with the applicable performance provisions of the Standard for Automatic Gas Ignition Systems and Components, ANSI Z21.20. For test purposes the control manufacturer's specified maximum lockout time for the ignition system shall be used.

2.8.2 For systems which incorporate an ignition activation period (see Part IV, Definitions) the period of time between deactivation of the ignition means and the maximum lockout time shall not exceed 4 seconds.

2.8.3 The ignition system shall effect ignition of the gas at the main burner(s) immediately after gas reaches the main burner port(s) when operated at appliance rating plate voltage (see 1.20.14).

Method of Test

While maintaining appliance rating plate voltage to the appliance, the ignition system shall be placed in operation and ignition observed.

The procedure described above shall be repeated 25 times, and in each instance ignition shall occur immediately after gas reaches the main burner port(s).

2.8.4 The ignition system shall effectively ignite the main burner gas within 4 seconds after gas reaches the main burner port(s) when the ignition circuit is operated at 85 percent of appliance rating plate voltage.

Method of Test

While maintaining 85 percent of the appliance rating plate voltage to the appliance and all other electrical components, the appliance shall be placed in operation and ignition observed.

The procedure described above shall be repeated 25 times, and in each instance ignition shall occur within 4 seconds after gas reaches the main burner port(s).

2.8.5 With the room heater at equilibrium temperatures while operating at normal inlet test pressure, the time required for the main burner gas supply to be shut off in the event of flame outage during an operating cycle shall not exceed 90 seconds.

If the ignition means is reactivated, it shall be reenergized in not more than 0.8 second following flame outage, and the ignition means shall reignite the main burner gas without flame flashout or damage to the appliance. On an appliance where all air for combustion is supplied by mechanical means, the ignition means may be reactivated after a purge period (recycle time) sufficient to provide a minimum of four air changes of the combustion chamber and flue gas passageways. For purposes of this test, the control manufacturer's specified maximum flame failure response time shall be used.

If the ignition means is reactivated, the control manufacturer's specified maximum flame failure reignition time or minimum recycle time for the automatic gas ignition system shall be used.

2.8.6 The construction of the room heater and the arrangement of the ignition system shall be such that in the event of a delay in ignition of the main burner gas, such as might be caused by foreign debris or electrical shorting of the ignition means, the appliance will vent itself without excessive flame flashout or damage.

For purposes of this test, the control manufacturer's specified maximum lockout time for the automatic gas ignition system shall be used. For systems which deactivate the ignition means prior to the end of the lockout time, the

test shall be conducted using the control manufacturer's specified maximum ignition activation period timing.

Method of Test

This test shall be conducted at normal inlet test pressure with the appliance at room temperature. The appliance shall be placed in operation with the ignition means temporarily circumvented for varying intervals of time up to the control manufacturer's specified maximum lockout time or specified maximum ignition activation period, whichever is shorter. The resulting ignition in each trial shall be observed for excessive flame flashout or damage to the appliance.

2.8.7 Temperatures of automatic gas ignition and safety shutoff devices shall not exceed those temperatures for which the devices are designed when tested as specified in 2.7.13.

2.9 OXYGEN DEPLETION SAFETY SHUTOFF SYSTEMS

An oxygen depletion safety shutoff system shall act to shut off the gas to the main and pilot burners when the oxygen level in the surrounding atmosphere is reduced to not less than 18.0 percent.

Method of Test

This test shall be conducted at barometric pressures between 28.5 and 30.5 inches mercury column (96.2 to 103.0 kPa).

The burner and primary air adjustments shall be made in accordance with 2.3.4.

The appliance shall be installed in a 1000 cubic foot (28.3 m^3) room constructed so as to prevent infiltration of air. Provisions shall be made for the determination of room air temperature, carbon monoxide (CO) and carbon dioxide (CO_2) and/or oxygen (O_2) concentrations. Room air temperature shall be measured with at least 5 thermocouples at different levels and plan locations. The thermocouples shall be shielded from direct radiation from the appliance under test. Room atmosphere shall be sampled at the same locations. The average of 5 separate room atmosphere measurements, or a single measurement through the use of a manifold which mixes the samples, may be used.

Air circulation within the room shall be provided to evenly mix the atmosphere and not interfere with the operation of the appliance under test. The air will be considered evenly mixed when the temperature readings, as indicated by the 5 thermocouples in the room, do not differ by more than 5 F (3 °C) during the test.

The appliance shall be operated for 15 minutes with the door of the room open and the room completely ventilated. The door shall then be sealed and the ventilation stopped. The appliance shall be operated at normal inlet test pressure. During the conduct of this test, the room air temperature shall be maintained at 80 ± 5 F (26.5 ± 3 °C).

A sample of the room atmosphere shall be withdrawn at the start of the test and analyzed for CO_2 and O_2. The percent oxygen* in the room atmosphere shall be continuously monitored during the entire test. When the oxygen depletion shutoff system acts to shut off the gas supply to the appliance, the oxygen content of the room atmosphere, expressed in percent volume, shall not be less than 18.0 percent.

This test shall be repeated with the appliance rating at both the reduced and increased inlet test pressures specified in 2.3.1 with no change in adjustments.

The above tests shall be conducted with the type(s) of gas selected by the manufacturer.

2.10 MANUAL GAS VALVES

2.10.1 Manual gas valves shall comply with the applicable performance provisions of the Standard for Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves, ANSI Z21.15.

2.10.2 Temperatures of manual gas valve bodies shall not exceed those for which the valves are designed.

Method of Test

This test shall be conducted as specified in 2.16.2 concurrently with the test specified in 2.15.

2.11 GAS APPLIANCE PRESSURE REGULATORS

2.11.1 Gas appliance pressure regulators shall comply with the applicable performance provisions of the Standard for Gas Appliance Pressure Regulators, ANSI Z21.18, and shall have a maximum regulation capacity (see Part IV, Definitions) as determined under that standard, at least equal to the manufacturer's total hourly Btu input rating for the room heater.

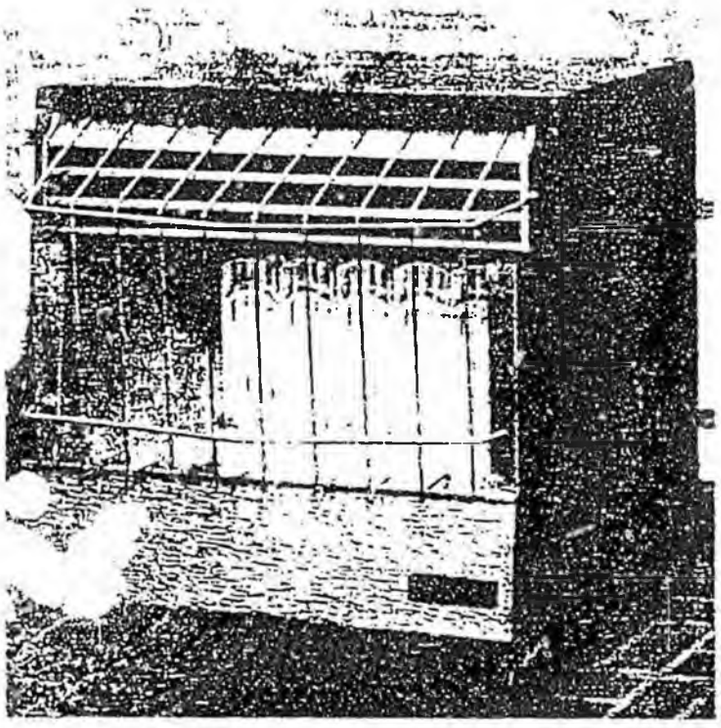
* As an alternate to monitoring oxygen concentration, carbon dioxide concentration may be monitored and converted to percentage oxygen by use of the graph or formulae shown in Appendix E.

UTILITIES THAT MERCHANDISE VENT-FREE APPLIANCES

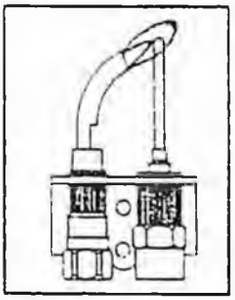
Atlanta Gas Light
Mississippi Valley
K N Energy
Piedmont
AlaGasCo
Roanoke Gas
Philadelphia Gas Works
South Jersey Gas
Virginia Natural
Entex
United Cities Gas
Peoples Gas-Florida
PS of N. Carolina
Mobile Gas Co
NC Natural
UGI
Peoples Gas-Iowa

Utility Companies marketing Unvented Heaters

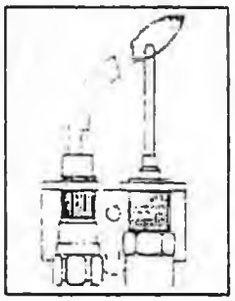
Industries introduces Unvented Gas Heaters with Oxygen Depletion Sensing Systems.



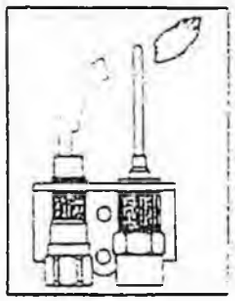
In the unlikely event of oxygen depletion, here's how the system works!



Oxygen in room normal at 20.9% level. Pilot flame stable. Speed of gas flow equals pilot flame speed.



Oxygen depletion begins—pilot flame speed slows and flame begins to move away from gas source. Thermocouple begins to cool.



As the oxygen level approaches 18%, flame becomes unstable, moves off of the thermocouple and pilot extinguishes un...

Safe, efficient zone heating without expensive venting.

new Unvented Gas Heaters are designed and built not only to deliver efficient, economical zone heating, but to be completely safe as well! Built into each unit is an innovative, highly reliable Oxygen Depletion Sensing System programmed to shut down the heater should room oxygen ever fall below completely safe levels.

Safer, more economical than kerosene heaters.

The safety of Unvented Gas Heaters is matched only by their economy. Because they burn natural or L.P. gas, there are no dangerous liquids to store. And you needn't be concerned about their tipping over or being placed too close to furniture or draperies. They emit neither smoke nor odor, require no continuous refueling. And they *save you money!*

FUEL TYPE	BTUs	COST	COST PER 100,000 BTUs PRODUCED*
Natural Gas	1050/cu. ft.	$5.01/1,000 cu. ft.	$ .48
Propane	91,500/gal.	$.70/gal.	$ .76
Kerosene	130,000/gal.	$1.50/gal.	$1.15

*Based on local fuel costs.

ODSS

Feb 10

TEMTEX PRODUCTS OF CALIFORNIA, INC.
P.O. BOX 1148 • 1190 W. OLEANDER AVENUE
PERRIS, CALIFORNIA 92572
TELEPHONE (909) 657-7311 FAX (909) 943-1841
A SUBSIDIARY OF TEMTEX INDUSTRIES, INC.

Quality Products Since 1921
TEMCO
HOTTEST NAME IN FIREPLACES

FACSIMILE Page 1 of 3

April 18, 1994

TO: Mel Krogseng FROM: Keith Kettler (303) 772-2430

Enclosed is a ruling from the Idaho Public Utilities Commission involving unvented heaters. The case involved two utility companies (Intermountain Gas and Washington Water Power) that tried to block these appliances in Idaho.

Although not specifically stated in the ruling, the basis of the PUC ruling was that a utility company's responsibility is to sell gas; their role is not to make judgements regarding what appliances are authorized to burn their gas. In most states, utility companies are supposed to report code violations to the appropriate authority. States and local communities are responsible for adopting and amending building codes to suit their needs and desires.

Regards,

KEITH KETTLER

Encls.

NOV 10 1992

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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE PETITION OF HUNMAC SALES, INC., FOR AN ORDER EXEMPTING INTERMOUNTAIN GAS COMPANY FROM COMPLYING WITH SECTION 807(a) OF THE UNIFORM MECHANICAL CODE, ADOPTED BY REFERENCE IN IDAPA 31.I.2.3	CASE NO. INT-G-92-4
IN THE MATTER OF WHETHER THE IDAHO PUBLIC UTILITIES COMMISSION'S ADOPTION BY REFERENCE OF SECTION 807(c) OF THE UNIFORM MECHANICAL CODE IDAPA 31.I.2.3 SHOULD BE RESCINDED, AMENDED OR REVISED.	CASE NO. 31.I-R-92-1 GENERAL ORDER NO. 185B

This Commission has adopted by reference the 1988 version of the National Fuel Gas Code (NFGC), see IDAPA 31.I.2.2, and the 1988 version of the Uniform Mechanical Code (UMC), see IDAPA 31.I.2.3. Section 807(c) of the UMC prohibits the use of unvented fuel-burning room heaters in institutional or residential buildings. By contrast, sections 6.23 and 7.2.2 of the NFGC allow certain unvented room heaters in some rooms of residences. This difference in the two codes has raised questions regarding compliance with the codes. By this General Order, we qualify our adoption of UMC § 807(c) to allow the installation of unvented room heaters under the NFGC.

BACKGROUND

In General Order No. 185, issued July 22, 1991, we revised our adoption by reference of several national safety codes for electric and gas utilities effective September 1, 1991. In particular, General Order No. 185 adopted at IDAPA 31.I.2.2 the 1988 version of the National Fuel Gas Code, which is jointly published by the American Gas Association and the National Fire Protection Association. Earlier versions of that code had previously been adopted. It also adopted at IDAPA 31.I.2.3 the 1988 version of the Uniform Mechanical Code, which is jointly published by the International Conference of Building Officials and the International Association of Plumbing and Mechanical Officials. This was the first time we had adopted any version of the UMC.

THE COMMISSION'S DECISION

We modify our adoption of the Uniform Mechanical Code to add the following phrase qualifying our adoption of the code: "provided, however, effective January 1, 1993, that unvented room heaters not meeting the requirements of Section 807(c) of the Uniform Mechanical Code may be connected for service if they comply with Sections 6.23 and 7.2 of the National Fuel Gas Code." We do so for several reasons.

First, this relaxation of one of the requirements of UMC does not eliminate all requirements for the connection of unvented heaters. Unvented heaters must nevertheless comply with the NFGC, which is an ANSI standard. Second, Mountain Fuel Supply, the gas utility with the most experience with unvented gas heaters, supports their use. Mountain Fuel's reply comments explaining why it changed its stance from neutral to supportive of the use of unvented gas heaters are well taken. Third, given over thirty years of use of unvented gas heaters without any reports that those equipped with ODS shutoffs are not safe, we believe that unvented gas heaters may be safely installed and that, given this history of safe operation, considerations of consumer choice and consumer esthetics should predominate.

Our amendment to our adoption by reference of the Uniform Mechanical Code is shown in "legislative" format in Appendix A to this General Order and in "clean" format in Appendix B. We provide an effective date for this amendment of January 1, 1993.

Because we do not make the rule immediately effective, we grandfather the provision of gas service to customers with existing unvented gas heaters if those heaters meet the standards of the National Fuel Gas Code, which is an ANSI standard. This grandfathering will continue until January 1, 1993, when it will no longer be necessary because the change in the rules will bring the unvented gas heaters complying with the NFGC within the scope of the rule's approval.

Next, although we urge gas utilities as a precautionary matter to explain to customers connecting unvented gas heaters that those heaters may produce excess humidity and that those heaters should be regularly inspected and serviced, we do not place such a legal obligation on the gas utilities. The legal obligation for assuring the safety of the operation of the heater properly rests with vendors and/or manufacturers, not the serving utility.

KETTLER ENTEI

HOME OF THE VENT-FREE FI

HOME OF THE
VENT-FREE FIREPLACE

KETTLER ENTERPRISES
KEITH KETTLER

TEMCO Vent-Free Gas Logs and Fireplaces
2333 Judson Street - Longmont, CO 80501-1040
Phone or FAX (303) 772-2430

December 3, 1

Mr. Ed Oxborugh
ENSTAR
401 E. Intl. Airport Rd.
PO Box 1900288
Anchorage, AK 99519-0288

Dear Mr. Oxborugh:

Steve Nolan, from TEMCO fireplaces, asked me to send you some information about vent-free gas logs and fireplaces. As you know, TEMCO manufactures AGA listed vent-free gas logs and fireplaces that are distributed by Majestic Sales in Anchorage and approved by the Anchorage building department. There are now six manufacturers that have gained AGA listings for vent-free gas fireplace logs; in a year there will probably be at least ten.

The municipality of Anchorage has approved these products under the alternate materials clause of the UMC. The basis for this decision is that the long, safe track record of these appliances proves their equivalent safety to conventional vented appliances. Additionally, they are allowed by every national building code used in the US except ICBO. These include CABO, BOCA, SBCCI, and the National Fuel Gas Code.

The AGA has fully certified these vent-free gas logs and fireplaces for compliance with the ANSI Z21.11.2 standards. This standard requires meeting or exceeding 19 separate safety standards, one of which is a carbon monoxide standard that is one fourth that of a gas cook stove. It also requires an oxygen depletion sensor valve (ODS) which shuts off the gas supply if the oxygen level falls from its normal level of 20.9% to 18% (well above safe limits).

The ODS was introduced in the U.S. in 1980 and has revolutionized the safety of vent-free appliances. Since then, over 2,250,000 ODS-equipped appliances have been installed in American homes. CPSC data reveals they have not led to a single CO death. Perhaps this is why the CPSC has said for 10 years that the risk of CO poisoning is 6 times higher from a vented heater than from a vent-free heater (even without an ODS valve)!

I hope the enclosed information will help you, as a gas supplier, become more familiar with the products. Feel free to call me or Steve Nolan if you have any questions.

Sincerely,

KEITH KETTLER

Encls.
cc: Steve Nolan (TEMCO Fireplaces)
Jim Bergman (Majestic Sales)

Note: Chuck Buerlein has a set of vent-free gas logs in his home.

KETTLER ENTERPRISES

KEITH L. KETTLER

2333 Judson St.
Longmont, CO 80501-1040
(303) 772-2430

HOME OF THE VENT-FREE FIREPLACE

PURPOSE

- TO PRESENT FACTS ABOUT VENT-FREE GAS LOGS AND FIREPLACES

- TO ANSWER QUESTIONS ABOUT VENT-FREE GAS LOGS AND FIREPLACES

RECOMMENDATION

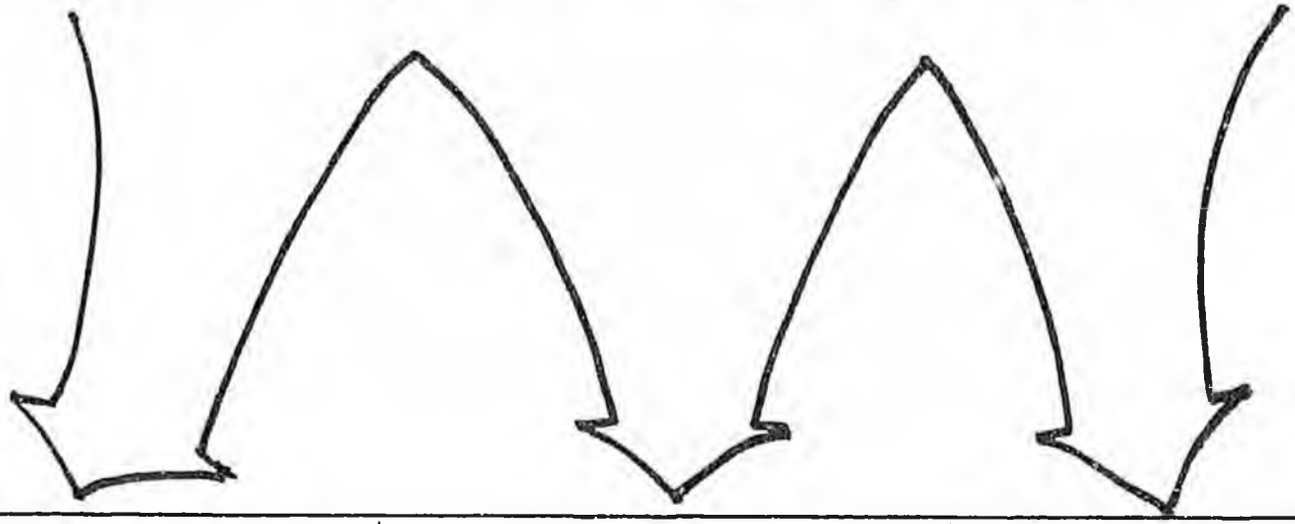
THAT YOU APPROVE THIS REQUEST TO INSTALL VENT-FREE GAS LOGS AND FIREPLACES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

THIS IS NOT A SINGLE-MANUFACTURER ISSUE

- Appalachian Stove & Fabrication
- Fireplace Manufacturers Inc.
- DESA International
- Haugh's Products
- Buck Stove
- Rasmussen
- Uniflame
- Timberline
- Martin Industries Inc.
- Stamping Ground Tool & Die
- TEMTEX Products
- Majestic
- Portland Willamette
- Ready Built
- Superior
- Perfection

C.A.B.O.

Council of Am. Bldg. Officials



BOCA (20 STATES)	SBCCI (9 STATES)	ICBO (19 STATES)
Bldg. Officials & Code Administrators Intl.	Southern Bldg. Code Congress Intl.	Intl. Conf. of Bldg. Officials

WHAT DO CODE AGENCIES SAY?

- CABO (1992) SEC. M-1601
  DOES NOT REQUIRE VENT-FREE APPLIANCES TO BE VENTED TO THE OUTSIDE.
- BOCA (1993) SEC. M-1203.2
  A CHIMNEY OR VENT SHALL NOT BE REQUIRED FOR VENT-FREE APPLIANCES.
- SBCCI (1991) SEC. 505.1
  ALLOWS VENT-FREE ROOM HEATERS IF THEY ARE LISTED, INSTALLED I.A.W. THE MANUFACTURER'S INSTRUCTIONS, AND NOT INSTALLED IN SLEEPING QUARTERS.
- NATL. FUEL GAS CODES (1992) SEC 7.2.2
  ROOM HEATERS LISTED FOR UNVENTED USE ARE NOT REQUIRED TO BE VENTED.
- ICBO
  HASN'T APPROVED VENT-FREE HEATERS ... YET.

VENT-FREE
GAS LOGS/FIREPLACES

- CERTIFIED BY THE AGA FOR VENT-FREE USE.

- BURNS AT AN AMAZING 99.9% EFFICIENCY LEVEL.

- ABSOLUTELY SAFE. EQUIPPED WITH THE PATENTED ODS SHUTOFF SYSTEM.

FACTS ABOUT AMERICAN GAS ASSOCIATION (AGA) CERTIFICATION

- CERTIFIES THE DESIGN OF APPLIANCES FOR COMPLIANCE WITH THE REQUIREMENTS OF NATIONAL SAFETY TEST STANDARDS (ANSI Z21.11.2)
- DESIGN CERTIFICATION REQUIRES PASSING 19 SEPARATE SAFETY TESTS
- RECOGNIZED TESTING LABORATORY BY CABO, BOCA, SBCCI, AND ICBO
- ALL VENT-FREE GAS LOGS AND FIREPLACES ARE FULLY CERTIFIED BY AGA AS VENT-FREE APPLIANCES

SAFETY-RELATED FACTS

- CPSC SAYS THE CO RISK IS 6 TIMES HIGHER FROM A VENTED GAS HEATER THAN FROM A VENT-FREE GAS HEATER.

- CPSC, EPA, GAMA, AND THE GAS RESEARCH INSTITUTE HAVE STUDIED INDOOR AIR QUALITY AND RELATED HEALTH EFFECTS OF VENT-FREE GAS HEATERS FOR 10 YEARS AND HAVE ARRIVED AT NO NEGATIVE CONCLUSIONS.

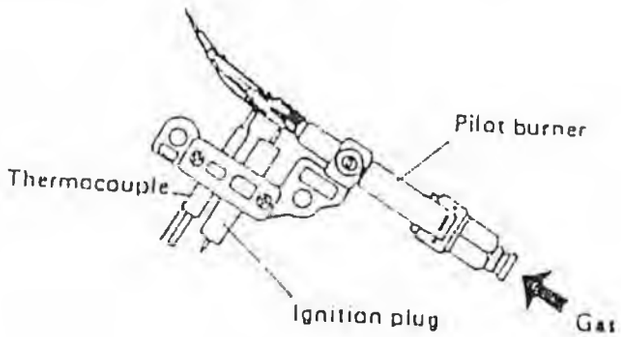
FACTS ABOUT OXYGEN DEPLETION SAFETY SHUTOFF SYSTEM (ODS)

- RECOGNIZED BY THE CPSC AS AN EFFECTIVE WAY TO ADDRESS THE RISK OF CARBON MONOXIDE POISONING
- DEVELOPED IN EUROPE IN 1961; INTRODUCED IN THE U.S. IN 1980 [30 MILLION SOLD IN EUROPE]
- OVER 2,600,000 ODS-EQUIPPED VENT-FREE GAS APPLIANCES SOLD IN THE U.S. SINCE 1981
- CPSC DATA REVEALS NO DEATHS DUE TO CARBON MONOXIDE POISONING FROM ODS-EQUIPPED APPLIANCES
- ALL VENT-FREE GAS LOGS AND FIREPLACES ARE EQUIPPED WITH THE ODS SHUTOFF SYSTEM

HOW DOES AN ODS WORK?

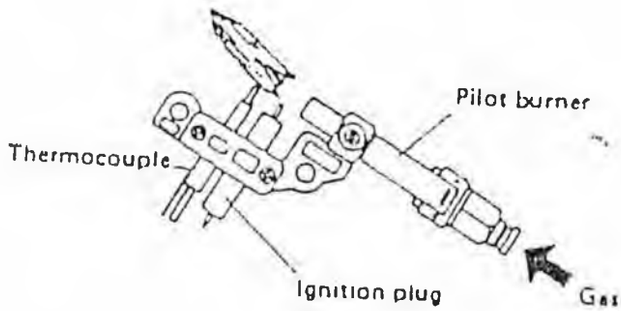
Normal Operation - 20.9% Oxygen

Pilot flame touches tip of thermocouple, generating the thermo-electricity needed to hold the safety valve open.



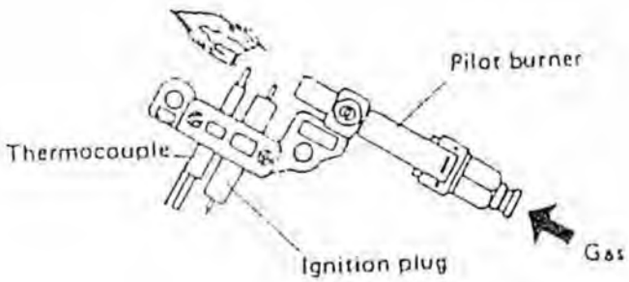
Oxygen Level Dropping - 19% Oxygen

The flame begins to lift-off the precision pilot burner. The termocouple begins to cool.



Safety Shutdown - 18% Oxygen

The unstable pilot flame moves away from the thermocouple causing the thermocouple to stop generating the electricity needed to hold the spring loaded safety valve open. The heater shuts down.



WHAT DOES A.G.A. SAY ABOUT ALTITUDE?

- ALTITUDE IS ACCOUNTED FOR IN THE ANSI STANDARD
- ALTITUDE HAS NO AFFECT ON SAFETY
- THE ODS WILL ENSURE SHUTDOWN IF OXYGEN LEVEL FALLS TO 18%

ENVIRONMENTAL CONSIDERATIONS

- PRODUCES VIRTUALLY NO CARBON MONOXIDE
- INDOOR AIR QUALITY IS EXCELLENT
- CONVERTS 99.9% OF EXPENDED FUEL TO HEAT

WHAT ABOUT OTHER GAS LOGS?

- CRUDE BURNING APPLIANCES
- PRODUCE LARGE AMOUNTS OF PARTICULATE MATTER AND CARBON MONOXIDE
- SOLD AS DECORATIVE LOGS
- REQUIRE LEAVING THE DAMPER WIDE OPEN
  - THE HEAT GOES UP THE CHIMNEY
  - THE COLD COMES DOWN THE CHIMNEY

REVIEW

- SAFETY AND RELIABILITY
  - AGA CERTIFIED
  - THE ODS IS RELIABLE
  - PROVEN SAFETY RECORD OVER MANY YEARS
  - APPROVED BY ALL MODEL CODES EXCEPT ICBO
- EFFICIENCY
  - BURNS AT AN AMAZING EFFICIENCY LEVEL OF 99.9%
  - HEATS THE HOME INSTEAD OF THE OUT-OF-DOORS

RECOMMENDATION

THAT YOU APPROVE THIS REQUEST TO INSTALL VENT-FREE GAS LOGS AND FIREPLACES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

MEMORANDUM

DATE: FEBRUARY 1, 1994

TO: Senate Local Government and Taxation Committee

FROM: Phil Childers

The following information is to help clarify my proposed amendment to Section 39-4109, Idaho Code relating to vent-free gas logs and fireplaces in residences.

During the past 20 years, the decorative gas fireplace industry has perfected highly efficient, vent-free gas logs which are safe and effective. Because of the atmosphere these logs create, they can, and do, replace wasteful vented gas logs and inefficient wood fireplaces which create increasing environmental problems.

Yet despite these new technological advances and the obvious advantages of vent-free gas logs, these products are banned by the Uniform Mechanical Code (UMC) in residences. Unfortunately, this ban continues because of misunderstandings and, in some cases, unsupported prejudices, which in large part, are the result of old vent-free heating devices which were often dangerous. These old products are not even manufactured any more and bear little resemblance to the modern generation of vent-free gas logs.

Here are answers to frequently asked questions about vent-free gas logs.

QUESTION: Are vent-free Decorative Gas Logs safe?

ANSWER: YES! To produce and sell vent-free decorative gas logs in the United States, these products must conform to very strict standards set forth in ANSI Z21.11.2. These standards require that all products be equipped with an oxygen depletion sensor (ODS). These ODS valves will shut off the primary gas supply to the entire appliance long before dangerous levels of carbon monoxide can accumulate. Over the past thirty years, literally millions of these devices have been installed in the U.S. and Europe. At this point, there is not a single reported incident of serious poisoning or death as a result of these products. This safety record is unmatched by any other fuel burning device.

QUESTION: How does the ODS valve work and how can you be sure it will not fail?

ANSWER: The ODS valve is a non-adjustable, precise pilot flame which must be burning before gas is available to the appliance. The ODS system is virtually fail-safe because of two primary design features. First, the pre-set and precise tolerances of the valve will not allow the flame to burn when the oxygen level is below 18%, well above the critical point. Second, the normal position of the spring-loaded, main gas supply valve is off. Gas can only flow through the system when the ODS pilot is burning and providing the necessary electrical current to hold the main gas valve open. If anything goes wrong with the system, regardless of its source and the pilot is interrupted, the entire gas supply will be shut off

(over)

Common Questions & Answers

QUESTION: How do we ensure all vent-free decorative gas logs are equipped with ODS valves and meet the ANSI standards?

ANSWER: The ODS valve is a requirement of the ANSI standard the American Gas Association uses to certify the appliances. Building officials can rely on the AGA certification to assure these products are safe and properly manufactured, as they routinely do for other products.

QUESTION: How do we know these products have been properly tested?

ANSWER: These products have been extensively reviewed and tested by the Consumer Product Safety Commission and the National Bureau of Standards, both U.S. Government agencies, the American National Standards Institute, and the American Gas Association. All of these bodies have concluded that ODS-equipped vent-free gas logs are safe and pose no substantial risk to the consuming public.

QUESTION: Are these devices allowed by other code-writing agencies in the U.S. and abroad?

ANSWER: Yes. In fact, the UMC is the only widely-used code in the U.S. which does not allow these devices. These devices are approved by SBCCI, BOCA, CABO, and the National Fuel Gas Code. Additionally, ODS-equipped heating devices have been used in Europe for about 30 years. Use of these devices in other jurisdictions has created no reportable problems.

QUESTION: If these devices are so safe, why hasn't ICBO changed the UMC to allow them?

ANSWER: ICBO has given two reasons for not allowing vent-free gas logs:

1. The equivalent safety of an oxygen-depletion sensor to a conventional venting system which carries the products of combustion to the outside has not been established.
2. The condensation of water vapor (1.6 quarts per hour) at maximum burn (39,000 Btu/h) creates corrosion and potential structural damage problems.

The Gas Appliance Manufacturer's Association (GAMA) says they know of NO BASIS (scientific or historical) for either of the above stated reasons. The FACTS are:

1. In addition to the 30 million ODS-equipped appliances sold in Europe since 1961, there have now been over 2,250,000 sold in the US since 1981 without a single CO-related fatality.
2. In all of our work throughout the U.S. and Europe, we are not aware of any case where a vent-free appliance has caused corrosion or structural damage. The amount of water vapor created at the maximum burn rate is less than half that produced by a good home humidifier!

I hope the above questions and answers will help you evaluate the facts regarding vent-free gas logs. I also hope the debate over this issue can be based on the facts and specific evidence involved and not on misunderstandings and confusion connected with other outmoded products which bear no resemblance to these modern devices. It is simply wrong and unfair to continue a ban on these devices which is not supported by any evidence.

HEATWORKS INC.
P.O. BOX 771922
EAGLE RIVER, ALASKA 99577
907-694-4928
FAX-907 694-4928

TO: Senate Committee

ATTN. Pandy Phillips

FOLLOWING ARE BEING FAXED

Letter regarding House Bill No. 543 (STA).

TOTAL PAGES 1

FROM: Kit Dahlstrom
DATE: 4/18/94
TIME: 1:25

155 SOUTH SEWARD STREET
JUNEAU, ALASKA 99801

May 2, 1994

File No. 3700

Senator Randy Phillips, Chairman
Community and Regional Affairs Committee
Alaska State Senate

Dear Senator Phillips:

I would like to inform you of the City and Borough of Juneau's opposition to CS HB 543 (STA) concerning unvented gas heaters. As our Chief Building Inspector has explained in more detail in his letter to you, this bill would allow a potentially dangerous and damaging appliance which has purposely not been allowed in any of the model building codes in the United States to be used in Alaska.

Alaska is among the worst of locations to allow unvented gas heaters with our cold climate and resulting tight buildings where the opening of windows to allow escape of excess moisture and carbon monoxide is simply not feasible. Hopefully the Legislature will not override the concerns of municipalities in Alaska which oppose the use of this type of heating appliance. And, hopefully, the Legislature will not condone its use in the areas of the state without building and fire codes.

Thank you for your attention to our concerns.

Sincerely,

Mark R. Palesh
City Manager

Please call if Bill comes out of Committee

155 SOUTH SEWARD STREET
JUNEAU, ALASKA 99801

April 29, 1994

Senator Randy Phillips
Chairman, Community and Regional Affairs

CS HB 543 (STA) UNVENTED GAS SPACE HEATERS

After reviewing the information supplied by the proponents of this bill (manufacturers of gas appliances), I am compelled to voice my opposition to the use of unvented gas room heaters in Alaska.

As chief of building inspections for the City and Borough of Juneau for the past fifteen years, I have seen first hand the major damage caused to people's homes from the use of unvented water producing appliances such as clothes dryers and illegally installed unvented gas room heaters. These problems typically come to my attention when the homeowner complains of severe mold growth or obtains a permit to replace a floor, wall, or roof system which has failed due to rot of the wooden structure.

When an approved gas heater is vented, the carbon monoxide (CO) and water vapor produced during combustion go outside. With unvented appliances, however, those by-products of combustion go inside the house. The significance for Alaskans is that we have historically constructed very tight houses with little natural air leakage due to our cold climate. The pollutants from gas combustion therefore, reach higher concentrations inside our houses. The water vapor will then condense to a liquid inside the structure and cause damage on colder surfaces such as windows, skylights or poorly insulated areas.

Alaska's Building Energy Efficiency Standard is a model document in that it is a voluntary partnership among lenders, code officials, government, builders and the scientific/educational communities. It mandates low air infiltration construction practices and allows only vented gas appliances. As an instructor for the Alaska Craftsman Home Program (ACHP), I have also had the opportunity to teach building science technology throughout the State and at the University. My students intuitively grasped these physical laws of moisture control and the danger of poisoning the air inside our homes.

The manufacturer's instructions for these devices on the other hand, tell us that they're safe, just open a window during the winter while you use these heaters or you might experience property damage, explosion, injury or death. This caveat makes use of the heaters potentially more expensive to operate and less effective at providing comfort than vented heaters.

Contrary to the information supplied by the manufacturers, these devices are no longer approved by CABO (Council of American Building Officials) for use in one and two family dwellings. Prior code approval was removed in the 1992 edition and now only vented units may be installed.

These products have never been approved in Alaska and for good reason. There is overwhelming evidence to continue to restrict their use in residential installations in order to protect our property and the health and safety of our residents.

Sincerely,

Stephen O. Shows
Chief of Building Inspections

[hb543.044]

cc:
MEMBERS, ALASKA STATE SENATE
Tim Sullivan, Director, Alaska Craftsman Home Program
Rich Seifert, Energy Specialist, UAF/USDA CES
Steve Baden, Alaska Housing Finance Corp. Energy Programs
Ron Watts, Chief of inspections, Municipality of Anchoragge

04/26/94 PUBLIC OPINION MESSAGE SYSTEM POMS100
14:25:42 MEMBER OFFICE PHI Phillips LSNCAGA

From: Chief Dale M. Peters
PO Box 144

Naknek AK 99633 Tel: 246-4443
Bristol Bay Borough Fire Dept
NON CONSTITUENT Registered Voter Y
Bill# HB 543 Title: UNVENTED GAS HEATERS IN RESIDENTIAL BLDGS
Subject

OPPOSES THIS LEGISLATION
Message: DUE TO THE POSSIBILITY OF HIGHER LEVELS OF CARBON MONOXIDE BEING EMITTED FROM THIS APPLIANCE WHICH MAY POSE A VERY SERIOUS HEALTH AND LIFE SAFETY HAZARD WHEN INSTALLED IN RESIDENTIAL BUILDINGS. I FEEL THAT THIS IS A VERY SERIOUS ISSUE AND THAT IS WHY I AM OPPOSED TO THE BILL.

Entered By: LIOCPLW on 4/26/94 PomID 17677 Distribution 60
MSG:
Enter Next Message PF4 Menu PF6 WasteBasket PF7 Previous POM PF10 BigWaste

4BÜ X ë-ë27 LINE 1 COL 1

International Conference of Building Officials
International Association of Plumbing and Mechanical Officials

CERTIFIED
MECHANICAL INSPECTOR

SARA L. BOESSER

The individual named hereon has satisfactorily demonstrated knowledge of the Uniform Mechanical Code and its appropriate application by successfully completing the written examination prescribed and conducted as a joint effort of the International Conference of Building Officials and the International Association of Plumbing and Mechanical Officials.

Witnessed by our hand

this 21st *Day of* June 19 86

Certificate No. 18110

For the International Conference of Building Officials

James E. Gibbs
President

For the International Association of Plumbing & Mechanical Officials

Tom Higham
Executive Director

SARA L BOESSER
MECHANICAL INSPECTOR
1991 EDITION - UNIFORM MECHANICAL CODE
The individual named hereon is CERTIFIED in the category shown, having been so certified pursuant to successful completion of the prescribed written examination.
Expiration date: June 21, 1996
No. 18110
Sara L. Boesser
Not valid unless signed by certificate holder.
ICBO certification attests to competent knowledge of codes and standards.

Public Opinion Message

Title	First Name	Middle Name	Last Name	Suffix
	MICHAEL	ALBERT	HOLZMUELLER	

583 LONGSPUR LOOP, FAIRBANKS, ALASKA — Mailing Address — 99709 Zip

SAME — Home Address — Zip

479-6771 Telephone — ALASKA FIRE CHIEFS ASSOC. Affiliation

House Members					
Barnes		Hoffman#		Olberg#	
Brice		Hudson		Parnell	
Brown		James		Phillips	
Bunde		Kott		Porter	
Carney		Larson		Sanders	
Davidson		Mackie		Silton	
Davis B.		MacLean		Thernault	
Davis G		Menard		Ulmer	
Finkelstein		Moses		Vezey	
Foster		Mulder		Williams	
Green		Navarre		Willis	
Grussendon		Nicholia			
Hanley		Nordlunds			

Senate Members			
Adams	X	Lincoln#+	
Donley		Little	
Duncan		Miller+	
Ellis		Pearce	
Frank+		Phillips	X
Halford		Rieger	
Jacko		Salo	
Kertlula		Taylor	X
Leman	X	Zharoff	X

Caucuses	
Anchorage Caucus	
Fairbanks Caucus	
Mat-Su Caucus	
Bush Caucus	

Committees	
C&RA	S
Finance	
HESS	
Judiciary	
Labor & Comm	
Rules	
State Affairs	
Trans	

HB 543 — Bill#

Support [ ] oppose [X] Amend [ ]

Not Related [ ]

Subject

UNVENTED GAS SPACE HEATERS IN RESIDENTIAL BLDS.

50 Word Maximum Message

OSHA'S MAX LIMIT TO CARBON MONOXIDE (CO) IS 35ppm IN 8 HRS. UNVENTED GAS DEVICES CAN EMIT UP TO 200ppm. A RESIDENTS EXPOSURE WOULD BE GREATER THAN 8 HRS. CO IS CUMMULATIVE IN THE BODY. CO DD'S DO NOT SENSE LEVELS OF CO. ALASKAN HOMES ARE TIGHTLY SEALED AND DO NOT ALLOW FRESH AIR VENTILATION THAT IS REQUIRED BY THE DEVICE.

Date: April 25, 1994

Fax To: Senator Phillips
Chair, Community & Regional Affairs
Fax # 465-4979

From: Sara Boesser
Certified Mechanical Inspector
Box 34202
Juneau, AK 99803
Phone: 586-5230 (w)
Home fax: 789-7450

Total pages: 2

Regarding: **HB 543(STA) -- Do Not Pass this Potentially Deadly Bill**

Senator Phillips:

I am writing you to urge you in the strongest terms possible to NOT pass HB 543(STA). It would endanger many people's lives, by allowing unvented gas-fired appliances to be installed in residential (less than 4-unit) homes. If this is allowed, more people will get sick -- even die -- than if you leave state and local building codes untouched.

You will be lobbied to allow these heaters if the manufacturer's specs or ANSI allows them in residential buildings, despite the fact that the Uniform Mechanical Code, other applicable State Codes, and local Building Code adoptions specifically do not allow these units to be legally installed.

Those supporting these heaters will point out that when homeowners follow the manufacturer's labels and ANSI listing, that those warnings should be sufficient to provide safe use of these heaters.

But this is untrue. I am a certified mechanical inspector (International certification attached). I regularly inspect homes where these heaters have been installed illegally -- and I have never seen them used safely. Why? Because to prevent carbon monoxide poisoning, the manufacturer' label allows them in houses IF A WINDOW IS OPEN. The reality is, this type of heater is only auxiliary heat, used when it is so cold that regular heat sources cannot keep a home comfortable. Home owners just do not open a window when sub-freezing temperatures are driving their heat costs up.

The result? Up north several years ago, an entire family in a trailer suffered carbon monoxide poisoning due to an unvented gas appliance, and had to receive lengthy hospital treatment to recover. They were lucky to survive. A few of these appliances have a "safety" shut off that is supposed to kill the flame at specific low-oxygen points, but in the meantime abundant carbon monoxide fumes go directly into those houses too and are breathed by all present. With unvented residential gas appliances of any type, illness is frequent -- brain damage and even death can be the result in worst cases.

The manufacturer's small label is not sufficient protection from potentially deadly appliances. That is specifically why the national codes enforced in Alaska currently do not allow unvented home heaters.

Please, do not put peoples' lives in danger with passage of HB 543(STA).

Please soundly defeat HB543(STA).

Thank you,

Sara Boesser

ALASKA STATE MEDICAL ASSOCIATION

4107 Laurel Street • Anchorage, Alaska 99508-5334 • (907) 562-2662

April 22, 1994

Senator Randy Phillips
Alaska State Legislature
P. O. Box V (MS 3100)
Juneau, AK 99811

Dear Senator Phillips:

House Bill 543 is apparently now in your Community and Regional Affairs Committee. This bill would change the building code to allow unvented gas space heaters in residential buildings. One of our members, Dr. Mary Ellen Gordian, the medical officer for the Municipality of Anchorage, has grave concerns regarding the safety of unvented gas space heaters, especially with regards to emission of carbon monoxide and nitrogen dioxide. I would encourage you not to act on this bill until these safety questions have been answered.

If you have any questions regarding this bill, do not hesitate to contact me.

Sincerely yours,

Donald R. Lehmann, M.D., A.B.F.P.
President, Alaska Medical Association

DRL:bj

CITY OF PALMER

231 W. EVERGREEN AVE.
PALMER, ALASKA 99645

Phone (907) 745-3271

A HOME RULE CITY

April 20, 1994

The Honorable Randy Phillips, Chairman
Senate Community and Regional Affairs Committee
Alaska State Legislature
State Capitol (MS3100)
Juneau, AK 99801-1182

RE: HB543 (STA), An Act relating to unvented gas space heaters

Dear Senator Phillips:

The effect of House Bill 543 is to modify an internationally recognized standard (the Uniform Mechanical Code) for heating equipment, bypassing the experience and judgment of code enforcement personnel. In the past, other national organizations have written standards allowing for the use of equipment or materials that had not been adequately tested. You may remember the problems and subsequent recall of portable unvented kerosene heaters a few years ago.

I am concerned about the safe functioning of any unvented heating equipment used in Alaska's severe climate. With so many houses built or modified to be air-tight, obtaining fresh air for the occupants to breathe and heaters to burn requires permanent exterior openings. My 22 years of Alaskan experience in the design, construction and inspection of housing has been that, even knowing the necessity for the openings, the occupants will close those openings when conditions are cold or windy. The proven safety of approved heaters is certainly worth the minor cost increase.

The use of some types of unvented heaters is being considered by the Uniform Mechanical Code members. I think that Alaskans would be better served by allowing life safety decisions to be made by those organizations with the expertise and research capabilities upon which to base those decisions.

Sincerely,

Larry E. Teague

Larry E. Teague
Building Inspector

LET/jep

Work Phone: 745-3271
Home Phone: 694-2959

P.O. Box 770443
Eagle River, AK 99577

Senator Randy Phillips, Chairman
Senate Standing Committee, Community and Regional Affairs
Alaska State Legislature
State Capitol (MS 3100)
Juneau, AK 99801-1182

RE: House Bill 543

Randy:

It has come to my attention that the Senate Community and Regional Affairs Committee will be considering action on House Bill 543, in the near future. House Bill 543 amends the Uniform Mechanical Code adopted by the Department of Public Safety under A.S. 18.70.080 to allow the installation of unvented gas space heaters in residential buildings. I believe that such a code change may put the public at significant risk.

You are well aware that I am and have been employed by Enstar Natural Gas Company for over twenty years. During that time I have seen and heard of numerous carbon monoxide poisonings and a few untimely deaths as a result of equipment malfunctions, usually caused by do-it-yourselfers, from heating equipment which is inherently safer than the gas fired unvented space heater. I am, however, writing you not as a gas company employee, but rather as a personal friend and former constituent. My experiences give reason for personal concern for the safety and health of the people in our communities.

Normal oxygen content in the atmosphere is 20.9% or 209,000 parts per million (PPM). Carbon monoxide (CO), at levels of 100 PPM, which is .04% or .0004 can cause severe health problems to the human body. (As you can see, only a very small amount of CO in the atmosphere can be potentially life threatening.)

Unvented gas space heaters rely on the air in the room to provide oxygen for combustion. As the space heaters burn the gas and air, carbon dioxide and water are produced as by-products of combustion. In the tightly constructed homes in Alaska, air is not replaced quickly. As oxygen levels drop, and the heater continues to burn (less effectively), the by-products can become water and carbon monoxide (a result of this incomplete combustion).

The unvented gas space heaters, which I am familiar with, do have oxygen depletion sensors. There is no guarantee, however, that these oxygen sensors will not fail to operate as designed. If an oxygen sensor fails the end result could be tragic. Heres another thought. Its a cold winters night in Alaska, the unvented space heater shuts down as its designed to due to a lack of oxygen. The worried homeowner, in an attempt to keep his house from freezing up, bypasses the oxygen sensor, relites the space heater and goes to bed. The unvented gas space heater now continues to burn up more oxygen and produce more CO.

Randy, the only thing that should die, is this bill in committee.

Sincerely,

Bruce V. Zmuda

Bruce V. Zmuda

State of Alaska

House State Affairs Committee

Session
Rm. 102
State Capitol
Juneau, AK 99801
(907) 465-3719

Interim
119 N. Cushman St.
Suite 211
Fairbanks, AK 99701
(907) 456-5081

April 18, 1994

From: Joseph Easaw Jr.
Office of Al Vezey, Representative

To: Shirley Armstrong, Committee Aide
Senate Community and Regional Affairs

Subject: Teleconference on CSHB 543

Here are the following individuals who will be calling in to testify on CSHB 543 in the Senate CRA Committee meeting on April 21, at 9:00 AM.

Sue Walker
Chairperson Committee on Vent Free Heater Task Group
Ron Smith, Engineer
(502)745-7858
Bowling Green, KY.

Burgain Maeler
(615) 479-2842
Mr. Maeler will address tampering possibility of the ODS.

Joseph Mattingly
(703) 525-9565
Arlington, Va.

Keith Kettler
(303) 772-2430
Colorado

18720 Talarik Drive
Eagle River, AK 99577

April 18, 1994

Senator Randy Phillips, Chairman
Senate Standing Committee, Community and Regional Affairs
Alaska State Legislature
State Capitol (MS 3100)
Juneau, AK 99801-1182

RE: House Bill 543

Randy:

It is my understanding that the Senate Community and Regional Affairs Committee will be considering action on House Bill 543, in the very near future. House Bill 543 amends the Uniform Mechanical Code adopted by the Department of Public Safety under AS 18.70.080 to allow the installation of unvented gas space heaters in residential buildings. It is my opinion that passage of this legislation may put the public at significant risk.

As you know, I am employed by ENSTAR Natural Gas Company. However, I am writing you not as a gas company employee, but rather as a constituent. I have a personal concern for the safety and the welfare of our community as well as for the public in general.

Unvented gas space heaters rely on the air in the living space to provide oxygen for combustion. As the space heaters burn the gas, water vapor and carbon dioxide (CO_2) are produced as by products of combustion. In the tightly constructed Alaskan homes, air is replaced very slowly. This allows the CO_2 and the water vapor to accumulate and the oxygen to be depleted. As the oxygen level drops, and the heater continues to burn, the byproducts of combustion are no longer water vapor and CO_2 but water vapor and *carbon monoxide* (*CO*). Carbon Monoxide, as we all know, is life threatening in confined spaces.

The unvented gas space heaters, with which I am familiar, do have an oxygen depletion sensor. Still, there is no way to assure that the sensors are fail safe. If an oxygen depletion sensor fails, the results may be tragic. Additionally, the oxygen depletion sensor is easily bypassed. I can foresee a cold Alaskan night where the space heater, running all evening, shuts down because the oxygen in the room has been depleted. The unsuspecting home owner, concerned with the lack of heat, bypasses the sensor and goes to bed. The unvented gas space heater continues to operate, producing CO..... I don't know what more I can say.

Randy, please don't let this legislation become law.

Respectfully,

Bob

Robert R. Jensen

ALASKA HEALTH PROJECT

Information and Advocacy on Occupational and Environmental Health

19 April 1994

Senator Randy Phillips, Chairman
Senate Standing Committee - Community and Regional Affairs
Alaska State Legislature
State Capital (MS 3100)
Juneau, AK 99801-1182

RE: Opposition to HB 543, Unvented Gas Heaters

The Alaska Health Project (AHP) would like to express strong and consistent opposition to HB 543, a bill that would alter the Uniform Building Code to allow unvented gas space heaters in residential buildings in the state of Alaska.

The Alaska Health Project is dedicated to providing information on health, safety and is a strong advocate and resource for indoor air quality issues in the Alaska. AHP is convinced that HB 543 will not only decrease indoor air quality in those homes these units are installed but also lead to increases in health associated symptoms and possibly fatalities if these units are not properly installed, monitored and maintained.

The Alaska Health Project emphatically encourages that HB 543 <u>not</u> be passed and the following are some distinct reasons.

Unvented space heaters produce Carbon monoxide. Low concentrations of CO causes people to become ill. High concentrations can result in asphyxiation and death. This was almost the result during the Iditarod Sled Dog Race this year, (produced by an unvented space heater.) Alaska already has the highest CO death rates in the Union, passage of this bill would almost assure that honor or disgrace each and every year.

In addition to Co, the combustion process also produces nitric oxides. NOx cause damage, irritation to lung tissue and contribute to pulmonary edema.

These unvented space heaters produce a pound of water vapor as a by-product of combustion for every pound of fuel consumed. This addition of moisture only increases the condensation problems which may already be present or create one that didn't exist.

Alaska has wisely adopted the Uniform Building Code which prohibits such devices, and these standards should not changed in cold climate regions. State such as Minnesota, New Hampshire, and New York also prohibit these appliances.

1818 West Northern Lights Blvd., Suite 103, Anchorage, Alaska 99517
(907) 276-2864 Outside Anchorage (800) 478-2864 Fax (907) 279-3089

These unvented heaters have a device which will shut off the unit when the supply of oxygen drops to 18%. The Occupational Safety and Health Administration (OSHA) has a minimum requirement of 19.5% oxygen for workers. However, these oxygen depletion sensing devices are not CO detectors. The Burning of fuel with insufficient oxygen is one source of CO and a space heater could still be supplied with adequate oxygen and still produce CO because it was improperly installed or maintained.

If these appliances are properly installed and maintained, they do not pose a health risk. However, these heaters must be installed in a well ventilated area that has access to a source of combustion/makeup air. Due to the severe weather in Alaska, this is not always the case. Is it reasonable to believe that someone will open a window or provide a 5"x 6" hole in the dead of winter to allow for the recommended ventilation. This would allow for a draft, the unwelcome invitation of cold outside air into the home and thereby defeating the purpose of this heater.

The directions specify that for safe operation (which is possible) the appliance must be maintained and cleaned annually. These appliances can malfunction if they are not properly maintained, the burner unit gets dirty, or if the automatic shut off switch is bypassed, as could most likely happen in the rural areas of the state.

These devices are approved only as secondary heat sources - a point which is not clear in the instructions. Due to the high cost of electricity, it is very reasonable to assume that they will be used as the primary source of heating.

These appliances should not be installed in sleeping areas or bathrooms. It is expected that many of these units will be improperly installed in remote cabins and spaces to small for safe operation.

The Alaska Health Project understands the consumer appeal of these appliances, however, we also feel that these appliances can have an adverse effect on the safety and health of Alaskans.

In closing, while these unvented space heater appliances may have a place, the Uniform Building Code should <u>NOT</u> be amended to allow their use in Alaska.

AHP strongly encourages you <u>NOT</u> to pass HB 543.

Sincerely,

Thomas N. Brudnicki, REHS
Industrial Hygienist
Alaska Health Project

cc: Senators Loren Leman, Rick Halford

MUNICIPALITY OF ANCHORAGE
Municipal Manager's Office
Post Office Box 196650
Anchorage, Alaska 99519-6650
(907) 343-4433

TELECOPIER COVER LETTER
TELECOPIER NUMBER: (907) 343-4110

DATE: 4/20/94

FAX NUMBER: 465-4979

TOTAL NUMBER OF PAGES: 3 (including cover letter)

TO: Shirley Armstrong for Senate Comm. & Regional Affairs Committee

FROM: DAN MOORE, M.O.A.

PHONE NUMBER: 343-4282

COMMENTS:

Please distribute MOA's comments to all committee members prior to tomorrow morning's C&RA committee meeting.

Thanks for your help.

—Dm

FAX\COVERLTR

Municipality of Anchorage

P.O. BOX 196650
ANCHORAGE, ALASKA 99519-6650
TELEPHONE: (907) 343-4431
FAX: (907) 343-4991

Tom Fink, Mayor

OFFICE OF THE MAYOR

April 20, 1994

The Honorable Randy Phillips, Chairman
Senate Community and Regional Affairs Committee
Alaska State Capitol
Juneau, AK 99801

Dear Senator Phillips:

I have been informed that CSHB 543(STA) is scheduled for a teleconference tomorrow morning. The Municipality opposes this bill because of the serious potential health risks associated with allowing unvented gas space heaters in residential buildings. To clarify our opposition to the bill, I am providing the Committee with attached written comments prepared by Dr. Mary Ellen Gordian of the Municipality's Department of Health and Human Services. These comments cite a number of specific health risks that could occur if this bill were passed (see attachment).

I regret that due to a scheduling conflict, Dr. Gordian will be unable to participate in tomorrow's teleconference. Nonetheless, I request that the Municipality's comments be distributed to all Committee members prior to tomorrow's meeting, so that our concerns over the health implications of CSHB 543 (STA) are known.

Should the Committee require any additional information, please contact Dr. Gordian directly [illegible]3-6718.

Sincerely,

Tom Fink

Tom Fink
Mayor

legis\ltf20

Municipality of Anchorage

Tom Fink, Mayor

Department of Health and Human Services
825 "L" Street
P.O Box 196650 Anchorage, Alaska 99519-6650

April 18, 1994

House Bill 543 seeks to change the building code to allow unvented gas space heaters in residential buildings. Unvented gas heaters should not be allowed for the following reasons:

1) Carbon monoxide builds up with any combustion process. It has a high affinity for the hemoglobin in blood cells. One can be overcome by carbon monoxide before there is any measurable reduction in oxygen levels in air.

2) Combustion heaters also give off nitrogen dioxide, a respiratory irritant, and volatile organic chemicals. Without venting these air pollutants become concentrated in the indoor air. Studies show that most people spend 90% of their time indoors. It is the most susceptible groups-the young, the elderly, and the infirm-who spend the greatest amount of time indoors.

4) Non-combustion electric space heaters that do not require ventilation are available. All combustion heaters NEED ventilation including those specified in HB543 as stated in their package insert.

3) The package insert says that these heaters require 1 square inch of ventilation for every 1000 BTU. Alaska homes are generally well-insulated. Ventilation would have to come from open windows, not likely in Alaska in the winter.

5) People will not open their windows in the winter to achieve that ventilation, because they cannot see or smell carbon monoxide.

Prepared by

Mary Ellen Gordian

Mary Ellen Gordian, MD, MPH
Medical Officer

ATTACHMENT

HEATWORKS, INC.
PO BOX 771922
Eagle River, Alaska 99577
(907) 694-4928

April 18, 1994

Randy Phillips
Alaska State Legislature
State Capitol (MS 3100)
Juneau, Alaska 99801-1182

Dear Mr. Phillips,

I am writing this letter in regards to House Bill No. 543(STA). I have been in the heating trade for approximately 15 years, and I can assure you that if this bill passes there will be some major life, safety and health problems that will arise as a result of these types of unvented gas space heaters. Even if the unvented gas heaters are installed in accordance with the manufactures installation instructions, the occupants of the dwelling will not use the heater as recommended by the manufacture. Common sense will tell you that if it is 20 degrees below zero an occupant will not open a window to admit fresh outside air into the dwelling as recommended operating procedure by any manufacture of unvented gas space heaters. Carbon Monoxide is a silent killer and can even kill from appliances that are vented properly but do not have adequate fresh air for combustion. An unvented gas space heater is a preventable accident waiting to happen. Please vote no to House Bill No. 543(STA).

Sincerely,

Kit Dahlstrom

13135 Old Glenn Hwy
Eagle River, Alaska 99577
(907) 694-2190

2000 E. Dowling Rd., #6
Anchorage, Alaska 99507
(907) 561-2772

CURTIS PLUMBING & HEATING

4/15/94

Senator Rick Halford
Alaska State Legislature Rm. 111-C
State Capitol (MS3100)
Juneau, Alaska 99801-1182

RE: Amendment to, AS18.56.300(e)

Dear Rick,

It has come to my attention that the Senate is considering amendments to the above mentioned Statute concerning the approval of unvented gas heaters for installation in residences. If adopted the Statute would allow under Sec. 18.60.900, the installation of unvented gas space heaters in any residence, if installed in accordance with Manufactures installation instructions.

The Uniform Mechanical Code disallows this type of installation for reasons of extreme danger in the operation of this type of equipment. Alaska now leads the nation in deaths resulting from carbon monoxide poisoning. If allowed to pass this Statute, I am convinced, would add tragically to that statistic.

In my business I do not always agree with the Codes that are adopted, but in this case I am fully behind the Uniform Mechanical Code. In Alaska we are building tighter houses for good reason, to save on the fuel costs of operating the home. This trend as set forth in the State Energy Standard is accomplishing the desire for low fuel costs but the other side of the story is a potential danger if the ventilation needs are not met. I frequently find ventilation openings closed and homes configured in a dangerous manor. This is due to a lack of home owner understanding of the need for combustion air and the balance needed for clean burning equipment. The unvented gas heaters are a step backward in this problem. Until a fail safe method is devised for the operation of this type of equipment I am convinced that it should not be allowed to be installed.

In all the literature I have been exposed to, the factory requirement for installation is to disallow the unit in "sleeping quarters". There is no definition in the UMC for sleeping quarters. In Webster's it states that quarters are "Lodgings: place of abode". In my interpretation a Sleeping Quarters then is a residence which would preclude the installation in any residence.

Please consider very carefully your decisions concerning this amendment. If I thought it would be in any way beneficial I would not have such a firm resolve.

Sincerely,

Chuck Renfro, owner

cc: **Ramona Barnes**
Randy Phillips

Central Plumbing & Heating, Inc.

April 14, 1994

Senator Randy Phillips
Juneau, AK

Re: HB 543

Dear Senator Phillips,

The owners and tradesmen from Central Plumbing & Heating, Inc strongly oppose HB 543 which is currently before your committee. The allowance of unvented fuel fired heaters in any type of structure would put the occupants of that structure in danger of carbon monoxide poisoning. The recent experience of the [illegible] at Skewetna this year is a perfect example of the risks involved in operating unvented heaters. We urge your opposition.

Sincerely,

JoAnne Roller

JoAnne Roller
Office Manager
Central Plumbing, Inc.

212 E. International Airport Road • Anchorage, Alaska 99518-1594
(907) 562-2511 • FAX (907) 562-2519

Barrow Utilities and Electric Cooperative, Inc.

P.O. Box 449
Barrow, Alaska 99723
907-852-6166

April 14, 1994

Rick Halford, Senate President
Alaska State Legislature
State Capital (MS 3100)
Juneau, Alaska 99801-1182

RE: House Bill No. 543(STA)

Dear Senator,

It has come to our attention that there is a proposal before the Senate to amend Section 807(c) of the Uniform Mechanical Code to allow an unvented gas space heater to be installed or connected in a dwelling or dwelling unit.

It is Barrow Utilities & Electric Co-op, Inc.'s policy not to install or provide natural gas service to a dwelling or dwelling unit where there is an unvented room heater. It is also our policy to disconnect a natural gas service to any improperly installed heater or unvented heater if it is discovered by one or our employees or gas servicemen.

An unvented natural gas heater can produce carbon monoxide and become deadly. In our region of Alaska it is not always possible to open a window to vent such gases out therefor, proper venting of all heating appliances becomes very important.

Sincerely,

Barrow Utilities & Electric Co-op, Inc.

Shayne Coiley
Operations Manager

cc: Wayne Parkin, BUECI General Manager
Kenneth Young, ENSTAR Natural Gas Company

Scott's
Heating & Air Conditioning Services

3040 Arctic Circle
Anchorage, AK 99503
907-243-5818

TRANE™

Authorized
Dealer

4/15/94

Alaska State Legislature
State Capitol
Juneau, Alaska 99801-1182

ATT.: Randy Phillips, Chairman
Community and Regional Affairs

RE: H.B. 543 (STA)
An act relating to unvented gas space heaters in residential buildings.

As a licensed Mechanical Contractor in the state of Alaska since 1984, and working as a furnace installer since 1974, here and through out the state, I can not believe this bill has even been introduced. Each year there are many cases of carbon monoxide poisoning in homes, cabins, and yes, even tents, remembering the 6 people in the "Iditerod 1994" race that made the front page of the Daily News. I believe these units, unvented wall heaters, have their place. Maybe California or moderate climates to knock off the chill in the morning and that's it. There is no place in Alaska that these heaters are safe. Even though these heaters may have an oxygen depletion sensor, which can fail, or evan very easily be bypassed by any one, even a 10 year old with a paper clip!

These heaters are very inexpensive, therefor very easy to sell to unsuspecting consumers who are not educated in the sciences of tight construction, ventilation, and carbon monoxide poisoning.

Please do not support House Bill 543 (STA).

Sincerely,

Scott K. Moore

SCOTT K. MOORE

RSA
Engineering, Inc.

MECHANICAL AND ELECTRICAL
CONSULTING ENGINEERS

2522 Arctic Boulevard, Suite 200
Anchorage, Alaska 99503-2516
tel: (907) 276-0521
fax: (907) 276-1751

FACSIMILE TRANSMITTAL

attention: Sen. Randy P. Phillips

organization: AK State Legislature

from: Dick Armstrong

date: 4/14/94

project: House Bill 543

comments:

2 pages sent (including this sheet)

kindly call us at **(907) 276-0521** *if all pages were not received*

RSA

MECHANICAL AND ELECTRICAL
CONSULTING ENGINEERS

April 14, 1994

Senator Randy Phillips, Chairman
Senate Standing Committee - Community and
Regional Affairs
Alaska State Legislature
State Capitol (MS 3100)
Juneau, AK 99801-1182

Dear Senator Phillips:

REFERENCE: **House Bill No. 543**

It has come to our attention that the above referenced House Bill includes language that allows unvented gas heaters in residential buildings. We are adamantly opposed to this section of the bill for several reasons, as follows:

- Alaskan homes are generally constructed using air-tight vapor barriers that makes them "exceptic .ally tight" to air infiltration. Because of this, combustion air will quickly be used up, which cause the unvented heaters to put carbon monoxide into homes and expose people unnecessarily to a deadly gas.

- The Uniform Mechanical Code does not allow unvented gas heaters in residential dwellings, Section 807 (c).

- Such installations will pose a life/safety concern for Alaskans, especially in rural areas.

- The manufacturers require stringent conditions for operation, such as; windows must be open, cannot be installed in sleeping areas, etc. These conditions will be impossible to enforce.

We urge you to vote no when this bill is presented to your committee.

Very truly yours,

Richard S. Armstrong, P.E.
President

mma
94-419
cc: Senator Loren Leman

2522 Arctic Blvd. Suite 200 — Anchorage, AK 99503-2516 — Phone (907) 276-0521 — Fax 276-2761

Suburban Propane

Quantum 1200 E. Whitney Road • Anchorage, AK 99501
907-272-7581

April 14, 1994

Senator Randy Phillips
Juneau, Alaska
FAX 465-4928

Dear Senator Phillips,

It has been brought to my attention this morning that the Senate is about to consider a bill recently passed by the House, known as House Bill 543(STA). This Bill would alter the Uniform Building Code to allow unvented gas heaters in residential buildings in the State of Alaska.

I have been in the L.P. Gas business for over twenty seven years, most of that in a management capacity, and from that experience, would like to offer some of my concerns of the dangers of this Bill passing and becoming law.

1. These heaters ALL require 1 square inch of ventilation for each 1000 btu's of input. In a small 20,000 btu heater, this would require leaving a window cracked about one inch. A larger heater would require more. I think that it is reasonable to expect that this provision would be ignored in our cold climates. This coupled with the fact that our homes and cabins are deliberately built as air tight as possible, leaves me to expect that we will now have heaters installed that will be competing with people for the available oxygen. The Oxygen Depletion Sensors installed on these units will turn the units off when the oxygen level falls below 18.3 %, but the remaining oxygen in a small tight room may not be enough to sustain life for the night while a person is sleeping. In addition, if a O.D.S. were to keep turning off a heater (as its supposed to) there would be a great temptation for some to defeat the safety unit...a process that will take about two minutes.

2. My second concern is the enormous amount of water vapor that will be discharged into any building in which one of these units is installed. In the case of a propane fueled unit, nearly one gallon of water is discharged for every gallon of propane consumed. This water vapor will ice up first at the location where outside air is infiltrating, further reducing the available oxygen. Also, over a period of time, ice builds up in walls, ceilings, and floors where upon melting can cause significant damage.

Mr. Phillips, we have in the propane industry, heaters of the same size and approximate shape as these unvented heaters, that are VERY safe. They are called 'Direct Vent" heaters, and they both take their needed oxygen from the outside as well as vent the harmful by products of combustion to the outside. These units are approved and safe in sleeping rooms.

Please consider these facts before allowing this bill to progress. The potential danger to life and property, as a result of our unique climate and lifestyles is not worth the savings in heater cost and efficiency of unvented heaters. We know that many if not most of these heaters ,if allowed, will find themselves in small bush cabins, small cold bedrooms and are mostly do-it-yourself applications where the ventilation requirements and sleeping room limitations will be ignored. I would not put one in my own home or cabin.

Best Regards,

Bill Halterman
District Manager
Suburban Propane
Anchorage, Alaska

MOORE HEATING
AIR CONDITIONING
REFRIGERATION INC.

Senator Randy Phillips
Juneau, Ak.

April 14, 1994

Re: HB 543

Dear Senator Phillips,

We understand the passing of HB 543 would allow unvented heaters to be installed in any residential building in Alaska. The proposed bill also states that the unvented unit must be installed to manufacturer specifications.

The owners and associates of Moore Heating find this to be quite alarming. Even though the State of Alaska is taking the manufactures specifications into consideration, our concern is did the manufacturer take our climate into consideration when creating their specs.

The priority on our list of concerns would be the homeowners or occupants safety. Without proper air infiltration into the living space carbon monoxide poisoning could occur. We feel it is realistic to assume opening a window during some of our extreme winter temperatures to provide the required outside air is unlikely.

It has been our experience that consumers not only rely on the manufacturer for their safety, but also on the Distributor, Service Company and Fuel provider alike. Who is going to take responsibility for this new bill? If the above mentioned case were to occur, is the State of Alaska going to assume the liability for overriding the codes and regulations set forth by trained experts in this specific field? Codes were placed into effect to protect the general public who are uneducated in these areas. A large percentage of codes came about after unfortunate accidents occurred.

The negligent or naive consumer will look for someone to point the finger at and in to many cases an innocent party will pay the price, further affecting insurance rates that are already exorbitant.

We at Moore Heating strongly appose this bill and urge you to join us in opposition. Thank you for your consideration.

Sincerely,

Vanessa K. Jones
Vanessa K. Jones
President

Steven J. Parker
Steven J. Parker
Vice President

Wayne H. Jones
Wayne H. Jones
Sec/Tres.

510 E. Int'l Airport Road
Anchorage, Alaska 99518
(907) 561-1500
FAX (907) 562-0167

LENNOX

HEAT LOSS ANALYSIS inc

Scientific Building Inspection Services

Senator Randy Phillips, Chair
Committee on Community
and Regional Affairs

17 April 1994

4979
By facsimile: 465-~~3472~~
7 PAGES

Dear Senator Phillips:

I am writing to oppose the passage of House Bill 543, an act relating to unvented gas space heaters in residential buildings. I have two reasons why I feel this should not pass.

First of all, these devices can be dangerous. If not properly installed *and operated*, they can produce high levels of carbon monoxide and possibly cause death. While the act does require that they be installed according to manufacturer's instructions, these heaters are often purchased and installed by users who have no professional experience. Of greater concern is their operation. Instructions for these heaters require that fresh air be introduced to the room. The recommended measure is to open a window about two inches. How many users will follow this direction when it is 20 below outside? How many babysitters or children left alone will be responsible enough or trained well enough to follow this direction?

Secondly, this bill represents a subversion of the Uniform Mechanical Code. This code, which is based on years of research, testing, and experience does not allow the installation of unvented space heaters in residences. The method by which this bill was introduced appears to have no such foundation. It is my understanding that the act was brought forward because Enstar refused to connect gas to one of these heaters. The owner complained to Representative Barnes and the rest is legislative history. The Department of Public Safety, which should generate requests for code changes, does not seem to have been involved. It is very disturbing, and perhaps dangerous, to think that a building safety code could be altered or subverted at the whim of a legislator or an angry constituent.

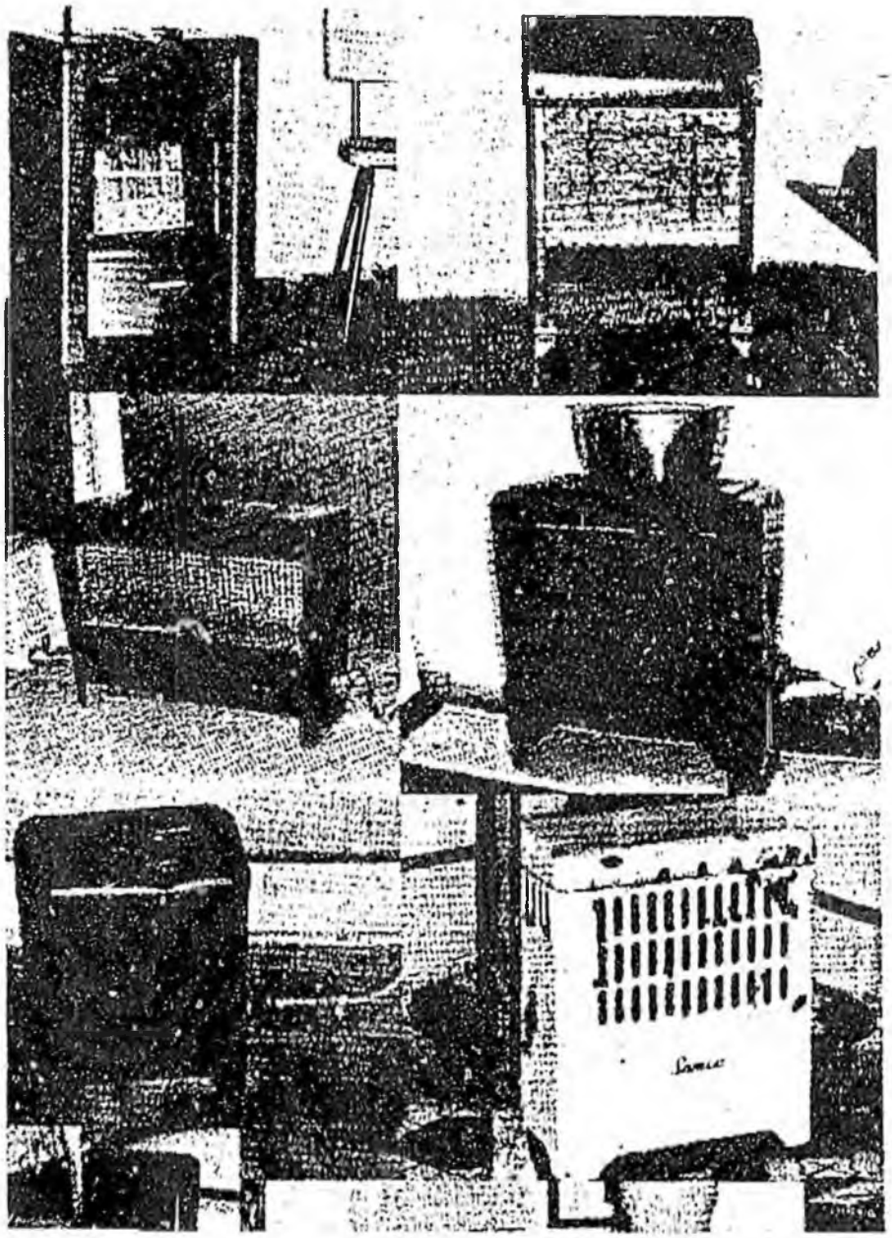
Please vote against House Bill 543.

Thank you,

Geoff Feller

4128 Wright Street • Anchorage, Alaska 99508 • (907) 563-0773 • Fax (907) 563-8061

Analysis of Space Heaters as a Possible Allowable Weatherization Measure



January 1991

ALASKA HOUSING
FINANCE CORPORATION
ENERGY RESOURCE AND INFORMATION CENTER
520 E 34TH AVENUE
ANCHORAGE, AK 99503-4180
(907) 564-0170 OR (800) 478-4636

heater is put into operation. In addition, common sense must be evident, and thorough instruction on space heater operation must be imparted to all occupants where portable space heaters are used.

Technical Specifications and Standards for Gas Space Heaters. The following ANSI standards apply to gas space heater equipment and installation[35-40].

ANSI Z21.11.1-81	Vented Gas-Fired Room Heaters
ANSI Z21.11.2-78	Unvented Gas-Fired Room Heaters
ANSI Z21.44-77	Direct Vent Gas-Fired Wall Heaters
ANSI Z21.48-79	Gas-Fired Floor Heaters
ANSI Z21.49-79	Vented Gas-Fired Wall Heaters
ANSI Z21.71-81	Automatic Pilot Ignition Systems - Field Installation
ANSI Z223.1	National Fuel Gas Code

The AGA conducts a laboratory testing program leading to certification of gas appliances and accessories, including gas space heaters. The purpose of this program is to assist consumers, local safety authorities and others in identifying those models of gas-using equipment that comply with ANSI standards, embodying reasonable concepts of safety, durability and performance, and are applicable to the equipment. Any advertising or display of an AGA mark on appliances or accessories is a representation that the equipment was in fact constructed to the design certified by the AGA laboratories. Recertification is required every calendar year[41].

Installation of Vented Space Heaters. According to ANSI Z223.1[35], it is recommended that space heaters installed in sleeping quarters or rooms generally kept closed be of the vented type, be connected to an effective flue or vent and be equipped with an automatic pilot. The certified designs of heaters are such that temperatures of adjacent combustible walls and surfaces will not be excessive when the heater is installed and used as specified in the manufacturer's instructions and on the marking plate. Certification assumes expected installation on wood floors.

Installation of Unvented Space Heaters. According to ANSI Z223.1[35], unvented heaters may not be installed in sleeping quarters, bathrooms or institutions such as homes for the aged, sanitariums, convalescent homes or orphanages. It should also be noted that the use of unvented space heaters in residences is illegal in California, New York, Arizona and Massachusetts. Unvented heaters require fresh air openings into the room in which the heater is installed. Certified designs for these heaters follow the same guidelines as those for vented heaters, except for those designed and marked for installation in incombustible fireplaces only.

Environmental Considerations

Combustion Products and Concentrations in Indoor Air. Indoor air pollution due to emissions from unvented gas-fired space heaters has been the subject of several research studies[31-36]. The primary indoor air pollutants identified as resulting from gas combustion in unvented space heaters are carbon monoxide (CO), carbon dioxide (CO_2), nitrogen oxide (NO_x), formaldehyde (HCHO) and submicron-size suspended respirable particles. Unburned hydrocarbons (fuel) have also been found, as well as a depletion of oxygen concentration in the heated space.

Table A-6 presents the averaged results of a GRI study on nine new unvented gas space heaters[31]. Among the nine, five were natural gas-fired heaters, four equipped with infrared tile burners and one with a blue-flame burner with ceramic radiating tile inserts. Four were propane gas-fired heaters, one equipped with an infrared tile burner and three equipped with blue-flame burners and ceramic radiating tile inserts. Pollutant concentrations are measured in pounds of pollutant emitted per million Btu of thermal energy consumed.

TABLE A-6

Pollutant Emissions (Pounds Per Million Btu) of Gas Space Heaters

Pollutant	Natural Gas		Propane	
	Blue Flame	Infrared	Blue Flame	Infrared
Nitrogen Dioxide (NO_2)	0.0300	0.0115	0.0315	0.0138
Nitrogen Oxide (NO)	0.0414	0.0008	0.0638	<0.0001
Carbon Monoxide (CO)	0.0667	0.1134	0.0441	0.1006
Formaldehyde (HCHO)	0.0007	0.0017	0.0010	0.0026
Particulates	0.0148	0.0008	0.0008	0.0003

Flue gas pollutant concentrations vary among heaters and also depend on burner tuning. A properly tuned burner will emit less CO and unburned hydrocarbons, but will generally emit more NO, than a poorly tuned burner.

The actual concentration of pollutants in a heated space is a function of the air change rate of the room being heated[34]. Table A-7 summarizes data from one study conducted to determine the effect of air change rate on indoor air pollutant

concentrations, along with "levels of concern" as determined by the World Health Organization (WHO).

New construction in Alaska is close to this level (up to ~.5 ACH).

TABLE A-7

Effect of Air Change Rate on Indoor Air Pollutant Levels for a Gas Space Heater

Pollutant/Gas	1.14 Air Changes/Hour	0.36 Air Changes/Hour	WHO Concern Levels
Carbon Dioxide (CO_2)	1,930 ppm	11,100 ppm	6,800 ppm
Carbon Monoxide (CO)	1.0 ppm	26 ppm	27 ppm
Nitrogen Dioxide (NO_2)	0.4 ppm	1.46 ppm	0.18 ppm

TOO HIGH FOR ALL

Typically, newly constructed residential structures have between .5 and 1 air changes per hour. The American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) standards recommend a minimum of .35 air changes per hour as a design condition for residential structures. Older houses and those that are not well insulated tend to have higher air change rates, although this should not outweigh the obvious need for adequate room ventilation if indoor air pollutant levels are to be minimized[37-40].

Health Effects of Gas-Heater-Produced Indoor Air Pollutants. Based on a review of available literature, the most extensively studied health risk associated with gas space heater emissions is that associated with CO[41,42]. Estimates from a Consumer Products Safety Commission study are that an average of 170 people die every year from CO poisoning associated with both vented and unvented gas space heaters[41]. CO binds with the hemoglobin in red blood cells in the same manner as oxygen does. This prevents sufficient oxygen uptake by the blood, and asphyxiation occurs if CO levels become too high. Long-term exposure to low levels of CO can cause damage to the central nervous system, the cardiovascular system, and the liver. It is also responsible for reduced learning ability in children.

NO_x pollutants are also toxic by inhalation[43,44]. They are a strong irritant to mucous membranes, and long-term exposure to low level concentrations can cause chronic respiratory illness[43], as well as stress on the cardiovascular system. Aldehydes such as HCHO are also irritants, and in higher concentrations (above 1 ppm) can cause headache, dizziness, nausea, coughing, chest constriction, and rapid heartbeat. Unburned hydrocarbons (fuel) and combustion products adsorbed onto respirable particulates can be toxic, and sometimes carcinogenic.

Excessive CO_2 does not have acute toxic effects in the concentrations typically found in rooms with unvented heaters. However, long-term exposure to high CO_2 concentrations (as well as low O_2 concentrations) can gradually deprive the body of sufficient oxygen and cause headaches, dizziness and loss of coordination.

Methods to Reduce Indoor Air Pollutant Levels from Unvented Space Heaters. Precise tuning of the burner air-to-fuel ratio is very important to reduction of CO emissions. If insufficient air (oxygen) enters into the combustion process, incomplete combustion will occur and a higher than acceptable proportion of CO will be produced, instead of CO_2.

The most direct method of reducing NO_x emissions is the reduction of flame temperature by insertion of ceramic or metallic screen material in the flame[40]. This is a potentially low-cost and simple method to apply. However, one potential drawback to reducing flame temperature is that CO emission levels may increase.

Methods to Reduce Indoor Air Pollutant Levels from Vented Space Heaters. Although vented gas heaters in proper working condition pose few problems for indoor air quality because combustion byproducts are vented outdoors, pollutants could be released indoors if certain mechanical difficulties exist in the flue pipe and heat exchanger that can cause exhaust gas backflow or leakage. It is advisable to perform periodic checkups and preventative maintenance on these components, with particular emphasis on the following:[24]

(1) Flue pipe - Check for and repair leaks and obstructions.

(2) Heat exchanger - Check for and repair cracks.

In addition to these measures, those discussed above for unvented heaters would be appropriate as well.

Moisture and Condensation Resulting from Gas Heater Operation. Although not generally considered a pollutant, a considerable quantity of water vapor is produced as a result of the oxidation of the hydrogen in fuel. Table A-8 shows the amount of water (liquid) produced per million Btu of fuel consumed for the components of natural gas and liquified petroleum gas.

TABLE A-8

Water Produced Per Million Btu of Fuel Consumed	
Fuel	Gallons of Water per Million Btu
Methane (natural gas)	11
Ethane (natural gas)	10
Propane (LPG)	9
Butane (LPG)	9

For a typical gas space heater rated at 30,000 Btu per hour, roughly one-third of a gallon of water (liquid equivalent) will be produced per hour. This is not a serious issue for vented heaters. However, for an unvented heater, considerable moisture will be accumulated in the heated space, and condensation may be a problem. Condensation becomes increasingly more severe as the outdoor temperature grows colder because more fuel is burned to maintain indoor comfort level, because wall surfaces upon which condensation can occur are cooler, and because occupants increase efforts to reduce outdoor air infiltration, an action that allows more moisture to remain in the heated space. Condensation also wets the insulation in a building, reducing its R-value. Condensation may cause dry rotting of window sills, structural parts, roof deck, etc.

PREFERRED
PLUMBING &
HEATING

335 Main Street Loop, Kenai, Alaska 99611
Phone: 907-283-7909

FAX: 907-283-7990

April 14, 1994

Mr. Randy Phillips
Alaska State Legislature
State Capitol (MS 3100) Rm. 103-C
Juneau, Alaska 99801-1182

Re: HB#543

Dear Legislator:

I am opposed to the passage of the above referenced Bill, "An Act Relating to Unvented Gas Heaters in Residential Buildings".

If a house is built to today's energy standards, an unvented heater burns oxygen out of the inside air and these houses are so air tight that life could be endangered. If this Bill were to pass, as a Mechanical Contractor licensed with the State of Alaska, I would never install an unvented heater because of the liability.

Respectfully yours,

Richard G. Smith

Preferred Plumbing & Heating

RGS:ble

ENERGY DESIGN ASSOCIATES, INC.

April 14, 1994

Senator Randy Phillips
Alaska State Legislature
State Capitol MS 3100
Juneau, AK 99801-1182

Dear Senator:

People will die. Unvented space heaters indoors will do this. Proposed House Bill No. 543 (STA) attempts to override building codes already in place preventing this tragedy. The proposed bill's aim is to specifically allow unvented space heaters in houses.

Unvented space heaters produce carbon monoxide. Low concentrations makes people sick. Higher concentrations kill. Alaska already has the highest carbon monoxide deaths per capita than any other state. Senator, do you want to be a part of a record breaking death toll?

In addition to carbon monoxide, these heaters produce nitric oxides. These gases damage lung tissue. And the damage is permanent.

Especially vulnerable to carbon monoxide and nitic oxides are children and the elderly. They are counting on you to do the right thing.

Finally, unvented space heaters produce a pound of water as a by-product for every pound of fuel burned. I am sure your own experiences tell you we don't need any more moisture condensation problems in our houses.

Current home ventilation systems are not designed to provide ventilation air for people and unvented space heaters. Opening windows is not an option. Would you open a window in Fairbanks or Barrow in the winter? This is exactly when such heaters will be used.

Please Senator Phillips, do not pass this Bill.

Sincerely,

Stuart D. Brooks

Stuart D. Brooks
President

17526 RACHEL CIRCLE EAGLE RIVER, ALASKA 99577 TELEPHONE (907) 696-5573

555 West Northern Lights Blvd., Suite 103, Anchorage, Alaska 99503-25
(907) 276-5864 FAX (907) 258-93
Fairbanks Branch, P.O. Box 72697, Fairbanks, Alaska 997
James E. Murphy, Executive Direct
Shannon R. Jones, Preside

AMERICAN LUNG ASSOCIATION of ALASKA

Dedicated to the conquest of lung disease and the promotion of lung health

April 18, 1994

Dear Legislator,

RE: OPPOSITION TO HB 543, UNVENTED GAS HEATERS

The American Lung Association of Alaska (ALAA) would like to express strong and consistent opposition to HB 543, a bill that would permit unvented gas space heaters in residential buildings.

ALAA's mission is *"Dedicated to the conquest of lung disease and the promotion of lung heath"* and ALAA has been a leader to improve indoor air quality in Alaska. To that end, we are convinced that HB 543 will not only DECREASE indoor air quality, but will indeed INCREASE the health risk for Alaskans who may use these devices.

WE STRONGLY ENCOURAGE THAT HB 543 NOT BE PASSED.

A few specific comments:

- Alaska has the highest per capita death rate from carbon monoxide (CO) poisoning in the country (1990 study by the Journal of the American Medical Association), and we again saw possible death during the 1994 Iditarod from CO poisoning. And while the heating device used during the Iditarod was not designed to be used unvented, this illustrates the lack of correct operational knowledge of heating sources that is of great concern to ALAA. CO is a colorless, odorless gas that can kill too often. We will not support any action that will increase the likelihood of increased CO poisonings.

- Alaska has wisely adopted the Uniform Building Code which prohibits such devices, and feel that these standards should not be changed in cold climate regions. They are prohibited in other severe weather climates such as Minneapolis, New Hampshire and New York State.

- These unvented heaters have a device which will shut it off when the supply of oxygen drops to 18%. However, these oxygen depletion sensing devices are not CO detectors. Burning of fuel with insufficient oxygen is one source of CO and a space heater could have sufficient oxygen and still produce unacceptable levels of CO because it was improperly installed or dirty.

- If these devices are properly installed and maintained, they do not pose a health risk. However, these heaters must be installed in a well ventilated area that has access to an

outside source. Due to our severe weather in Alaska, this is not the case. Is it really reasonable to expect that Alaskans will open a window or provide a hole 5" X 6" (for a 30,000 BTU device) in the dead of winter to allow for the recommended ventilation? This would rob the home of the heat generated by this device?

- The directions specify that for safe operation (which indeed is possible) the device must be cleaned annually. The devices can malfunction if they are not properly maintained, the burner gets dirty, or if the automatic shut off is bypassed. The directions for one of these heaters says that "more excessive cleaning may be required due to lint from carpeting, bedding material, etc... It is imperative that control compartment, burners and circulating air passageways of the appliance be kept clean." Such improper maintenance will increase the health risks. This lack of ongoing correct maintenance is one of ALAA's greatest concerns.

- These devices are approved only as a secondary source of heat - a point which is not clear in the instructions. Due to the high cost of electricity, it is very reasonable to assume that they will be used as the primary heat source, and thus increasing the health risk.

- These devices should not be installed in sleeping quarters or bathrooms, but the homeowner will have to purchase the device and read the directions before learning this. It is expected that many of these devices will be installed improperly in cabins and spaces too small for their safe operation.

- As with any issue, there are many additional factors to be considered, including the amount of water vapor that will be released inside the dwelling, potential problems with initial installation, lack of access to fresh air for combustion, etc.

- We understand the appeal of these devices, however we also feel that these devices will have an adverse effect on the long term health of Alaskans.

In summary, while these unvented devices have a place, the Uniform Building Code should NOT be amended to allow their use in Alaska. We encourage you to NOT pass HB 543.

Please feel free to contact me if you have any questions.

Sincerely,

James E. Murphy
Executive Director
American Lung Association of Alaska

\HB543-1.Mem

David A. Webb
2664 Seclusion Drive
Anchorage, Alaska 99504

April 13, 1994

Senator Randy Phillips
Alaska State Legislature
State Capitol (MS3100)
Juneau, Alaska 99801-1182

Re: CSHB 543(STA) Unvented Gas Space Heaters

Dear Randy:

I just learned that this bill has passed the House and has been sent to the Senate. I encourage you not only to vote against this measure but also to soundly cause its defeat.

I have been in the gas heating and appliance business for 29 years. Experience has taught me that unvented heaters are dangerously unsafe in this climate because our buildings are too tight to provide adequate combustion air plus dilution of the products of combustion. These units were designed to be used in "well ventilated areas" only. According to the manufacturers installation instructions, windows should be opened "1 or 2 inches" during operation. People do not leave windows open in Alaska.

These particular heaters are designed with an oxygen depletion sensor (ODS) to shut off the unit if the oxygen level in the surrounding atmosphere is reduced from standard 20% to about 18%. However, if no one is home when the unit shuts off, the building will freeze up. If someone is home, a window or door can be opened to clear the air enough to re-ignite the heater for a while longer. However, there is a limit to how many times the heater will go off when it's cold out before the operator bypasses the safety. Recently, I had occasion to examine one of these units and it took me about 30 seconds to disable the oxygen depletion sensor with a paperclip! Once the safety is disabled and the oxygen level falls, the heater will produce carbon monoxide resulting in illness or death of the building occupants.

The problem is compounded by the fact that a major product of combustion is water vapor. We have all been in a camper or motorhome when snow from boots and coats melted to the point where the air inside was wet--warm, but wet enough that our gear would barely dry. This excess moisture (humidity) freezes and ices over the cracks around windows and doors, further reducing air infiltration. In the case of the camper, the condition is safe because combustion air from outside is supplied directly to the burner through a duct designed into the heater. The heater is also vented outside so the products of combustion cannot cause additional air fowling.

The two appealing features of unvented heating equipment are that they are cheap (inexpensive) and they are 100% fuel efficient. However, these "advantages" are at the expense of safety. Additional efficiency is not gained if the operator has to leave a window open to use the heater. Since safe, 80%efficiency, vented units are readily available, these unvented features are disadvantages in cold climates.

Unvented heaters equipped with the oxygen depletion devices are probably safe in mild climates where windows can be cracked to allow proper ventilation, but they certainly do not belong in Alaska. To allow installation in this climate would be a public disservice. People who are not in the heating/ventilation business do not realize the danger of this type equipment to themselves and their families.

I urge you to vote no on this issue. The proper place for this bill is in the round file under your desk.

Regards,

David A. Webb
2664 Seclusion Drive
Anchorage, AK 99504

cc: Rick Hlford
Al Adams
Loren Leman
Robin Taylor
Fred Zharoff

PREFERRED
PLUMBING &
HEATING

335 Main Street Loop, Kenai, Alaska 99611
Phone: 907-283-7909

FAX: 907-283-7990

April 14, 1994

Ms. Gail Phillips
Alaska State Legislature
State Capitol (MS 3100) Rm.216C
Juneau, Alaska 99801-1182

Re: HB#543

Dear Legislator:

I am opposed to the passage of the above referenced Bill, "An Act Relating to Unvented Gas Heaters in Residential Buildings".

If a house is built to today's energy standards, an unvented heater burns oxygen out of the inside air and these houses are so air tight that life could be endangered. If this Bill were to pass, as a Mechanical Contractor licensed with the State of Alaska, I would never install an unvented heater because of the liability.

Respectfully yours,

Preferred Plumbing & Heating

RGS:blc

R-S PLUMBING & HEATING

12812 Old Glenn Hwy. • Eagle River, AK 99577
Fire Lake Plaza
694-6646

April 14, 1994

Senator Randy Phillips

Reg: House Bill #543 - Unvented Gas Heaters

Dear Senator;

As a member of the Mechanical and Plumbing Industry, I have a serious concern about the above mentioned bill.

Unvented gas heaters can pose a hazard of carbon monoxide poisoning, putting the public at great risk if this becomes Law.

Thank you for your attention..

Sincerely,

Robert Beesing
Owner
R & S Plumbing & Heating

4/15/94

Senator Rick Halford
Alaska State Legislature Rm. 111-C
State Capitol (MS3100)
Juneau, Alaska 99801-1182

RE: Amendment to, AS18.56.300(e)

Dear Rick,

It has come to my attention that the Senate is considering amendments to the above mentioned Statute concerning the approval of unvented gas heaters for installation in residences. If adopted the Statute would allow under Sec. 18.60.900, the installation of unvented gas space heaters in any residence, if installed in accordance with Manufactures installation instructions.

The Uniform Mechanical Code disallows this type of installation for reasons of extreme danger in the operation of this type of equipment. Alaska now leads the nation in deaths resulting from carbon monoxide poisoning. If allowed to pass this Statute, I am convinced, would add tragically to that statistic.

In my business I do not always agree with the Codes that are adopted, but in this case I am fully behind the Uniform Mechanical Code. In Alaska we are building tighter houses for good reason, to save on the fuel costs of operating the home. This trend as set forth in the State Energy Standard is accomplishing the desire for low fuel costs but the other side of the story is a potential danger if the ventilation needs are not met. I frequently find ventilation openings closed and homes configured in a dangerous manor. This is due to a lack of home owner understanding of the need for combustion air and the balance needed for clean burning equipment. The unvented gas heaters are a step backward in this problem. Until a fail safe method is devised for the operation of this type of equipment I am convinced that it should not be allowed to be installed.

In all the literature I have been exposed to, the factory requirement for installation is to disallow the unit in "sleeping quarters". There is no definition in the UMC for sleeping quarters. In Webster's it states that quarters are "Lodgings: place of abode". In my interpretation a Sleeping Quarters then is a residence which would preclude the installation in any residence.

Please consider very carefully your decisions concerning this amendment. If I thought it would be in any way beneficial I would not have such a firm resolve.

Sincerely,

Chuck Renfro, owner

cc: Ramona Barnes
Randy Phillips

18720 Talarik Drive
Eagle River, AK 99577

April 18, 1994

Senator Randy Phillips, Chairman
Senate Standing Committee, Community and Regional Affairs
Alaska State Legislature
State Capitol (MS 3100)
Juneau, AK 99801-1182

RE: House Bill 543

Randy:

It is my understanding that the Senate Community and Regional Affairs Committee will be considering action on House Bill 543, in the very near future. House Bill 543 amends the Uniform Mechanical Code adopted by the Department of Public Safety under AS 18.70.080 to allow the installation of unvented gas space heaters in residential buildings. It is my opinion that passage of this legislation may put the public at significant risk.

As you know, I am employed by ENSTAR Natural Gas Company. However, I am writing you not as a gas company employee, but rather as a constituent. I have a personal concern for the safety and the welfare of our community as well as for the public in general.

Unvented gas space heaters rely on the air in the living space to provide oxygen for combustion. As the space heaters burn the gas, water vapor and carbon dioxide (CO_2) are produced as by products of combustion. In the tightly constructed Alaskan homes, air is replaced very slowly. This allows the CO_2 and the water vapor to accumulate and the oxygen to be depleted. As the oxygen level drops, and the heater continues to burn, the byproducts of combustion are no longer water vapor and CO_2 but water vapor and *carbon monoxide* (*CO*). Carbon Monoxide, as we all know, is life threatening in confined spaces.

The unvented gas space heaters, with which I am familiar, do have an oxygen depletion sensor. Still, there is no way to assure that the sensors are fail safe. If an oxygen depletion sensor fails, the results may be tragic. Additionally, the oxygen depletion sensor is easily bypassed. I can foresee a cold Alaskan night where the space heater, running all evening, shuts down because the oxygen in the room has been depleted. The unsuspecting home owner, concerned with the lack of heat, bypasses the sensor and goes to bed. The unvented gas space heater continues to operate, producing CO..... I don't know what more I can say.

Randy, please don't let this legislation become law.

Respectfully,

Bob

Robert R. Jensen

ALASKA CRAFTSMAN HOME PROGRAM, INC.
900 WEST FIREWEED LANE SUITE 201
Anchorage, Alaska 99503-2509
(907) 258-2247 Fax: 258-5352

April 18, 1994

Senator Randy Phillips
Chairman Senate Committee on C&RA
Alaska State Legislature
State Capitol
Juneau, Alaska 99801-1182

Dear Senator Phillips:

I am writing to you today to express my deep concern for the residents of Alaska and their safety. I am referring to HB No. 543 that deals with the allowance of the installation of unvented space heaters in a residence. This is contrary to the Uniform Mechanical Code Section 807 subsection c. The codes are put in place to protect occupants from improper installations and thereby save their lives from possible carbon monoxide poisoning. This bill would jeopardize the lives of hundreds of Alaskans, by permitting both unscrupulous and unknowledgeable people to install unvented space heaters in what in the winter in Alaska are poorly ventilated residences.

I urge your defeat of this bill and recommend that this bill never see the light of day so that Alaskans in the future will be able to see the light of another day.

Timothy M. Sullivan
Executive Director

cc: Senator Al Adams
Senator Loren Leman
Senator Robin Taylor
Senator Fred Zharoff

P.O. Box 770443
Eagle River, AK 99577

Senator Randy Phillips, Chairman
Senate Standing Committee, Community and Regional Affairs
Alaska State Legislature
State Capitol (MS 3100)
Juneau, AK 99801-1182

RE: House Bill 543

Randy:

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You are well aware that I am and have been employed by Enstar Natural Gas Company for over twenty years. During that time I have seen and heard of numerous carbon monoxide poisonings and a few untimely deaths as a result of equipment malfunctions, usually caused by do-it-yourselfers, from heating equipment which is inherently safer than the gas fired unvented space heater. I am, however, writing you not as a gas company employee, but rather as a personal friend and former constituent. My experiences give reason for personal concern for the safety and health of the people in our communities.

Normal oxygen content in the atmosphere is 20.9% or 209,000 parts per million (PPM). Carbon monoxide (CO), at levels of 100 PPM, which is .04% or .0004 can cause severe health problems to the human body. (As you can see, only a very small amount of CO in the atmosphere can be potentially life threatening.)

Unvented gas space heaters rely on the air in the room to provide oxygen for combustion. As the space heaters burn the gas and air, carbon dioxide and water are produced as by-products of combustion. In the tightly constructed homes in Alaska, air is not replaced quickly. As oxygen levels drop, and the heater continues to burn (less effectively), the by-products can become water and carbon monoxide (a result of this incomplete combustion).

The unvented gas space heaters, which I am familiar with, do have oxygen depletion sensors. There is no guarantee, however, that these oxygen sensors will not fail to operate as designed. If an oxygen sensor fails the end result could be tragic. Heres another thought. Its a cold winters night in Alaska, the unvented space heater shuts down as its designed to due to a lack of oxygen. The worried homeowner, in an attempt to keep his house from freezing up, bypasses the oxygen sensor, relites the space heater and goes to bed. The unvented gas space heater now continues to burn up more oxygen and produce more CO.

Randy, the only thing that should die, is this bill in committee.

Sincerely,

Bruce V. Zmuda

Bruce V. Zmuda

SUPERIOR
Plumbing and Heating, Inc.
8861 ELIM STREET — PHONE 907-349-6572 — FAX # 907-349-4480
ANCHORAGE, ALASKA 99507

MECHANICAL CONTRACTORS

April 18, 1994

Alaska State Legislature
State Capitol (MS 3100)
Juneau, Alaska 99801-1182

Attention: Senator Rick Halford -
Senate President

Dear Senator:

It has come to my attention that Housebill #543(STA) regarding unvented gas space heaters in residential buildings has been introduced. We should not need a bill for this issue. A simple amendment to the code would suffice. Except few if any of the people knowledgeable about this subject would support such amendment because every year some people in Alaska die from CO-poisoning. I think we should leave the life safety codes as they are and not override sections with special interest bills.

Yours Sincerely,

Jan Van Den Top - P.E.
JVDT/lmf

P.O. Box 770443
Eagle River, AK 99577

Senator Randy Phillips, Chairman
Senate Standing Committee, Community and Regional Affairs
Alaska State Legislature
State Capitol (MS 3100)
Juneau, AK 99801-1182

Post-It™ brand fax transmittal memo 7671	# of pages ▸ 1
To RANDY PHILLIPS	From BRUCE ZMUDA
Co.	Co.
Dept.	Phone #
Fax #	Fax #

RE: House Bill 543

Randy:

It has come to my attention that the Senate Community and Regional Affairs Committee will be considering action on House Bill 543, in the near future. House Bill 543 amends the Uniform Mechanical Code adopted by the Department of Public Safety under A.S. 18.70.080 to allow the installation of unvented gas space heaters in residential buildings. I believe that such a code change may put the public at significant risk.

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The unvented gas space heaters which I am familiar with, do have oxygen depletion sensors. There is no guarantee, however, that these oxygen sensors will not fail to operate as designed. If an oxygen sensor fails the end result could be tragic. Heres another thought. Its a cold winters night in Alaska, the unvented space heater shuts down as its designed to due to a lack of oxygen. The worried homeowner, in an attempt to keep his house from freezing up, bypasses the oxygen sensor, relites the space heater and goes to bed. The unvented gas space heater now continues to burn up more oxygen and produce more CO.

Randy, the only thing that should die, is this bill in committee.

Sincerely,

Bruce V. Zmuda

Bruce V. Zmuda

18720 Talarik Drive
Eagle River, AK 99577

April 13, 1994

Senator Randy Phillips, Chairman
Senate Standing Committee, Community and Regional Affairs
Alaska State Legislature
State Capitol (MS 3100)
Juneau, AK 99801-1182

RE: House Bill 543

Randy:

It is my understanding that the Senate Community and Regional Affairs Committee will be considering action on House Bill 543, in the very near future. House Bill 543 amends the Uniform Mechanical Code adopted by the Department of Public Safety under AS 18.70.080 to allow the installation of unvented gas space heaters in residential buildings. It is my opinion that passage of this legislation may put the public at significant risk.

As you know, I am employed by ENSTAR Natural Gas Company. However, I am writing you not as a gas company employee, but rather as a constituent. I have a personal concern for the safety and the welfare of our community as well as for the public in general.

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The unvented gas space heaters, with which I am familiar, do have an oxygen depletion sensor. Still, there is no way to assure that the sensors are fail safe. If an oxygen depletion sensor fails, the results may be tragic. Additionally, the oxygen depletion sensor is easily bypassed. I can foresee a cold Alaskan night where the space heater, running all evening, shuts down because the oxygen in the room has been depleted. The unsuspecting home owner, concerned with the lack of heat, bypasses the sensor and goes to bed. The unvented gas space heater continues to operate, producing CO..... I don't know what more I can say.

Randy, please don't let this legislation become law.

Respectfully,

Robert R. Jensen

ALASKA HEALTH PROJECT
Information and Advocacy on Occupational and Environmental Health

19 April 1994

Senator Randy Phillips, Chairman
Senate Standing Committee - Community and Regional Affairs
Alaska State Legislature
State Capital (MS 3100)
Juneau, AK 99801-1182

RE: Opposition to HB 543, Unvented Gas Heaters

The Alaska Health Project (AHP) would like to express strong and consistent opposition to HB 543, a bill that would alter the Uniform Building Code to allow unvented gas space heaters in residential buildings in the state of Alaska.

The Alaska Health Project is dedicated to providing information on health, safety and is a strong advocate and resource for indoor air quality issues in the Alaska. AHP is convinced that HB 543 will not only decrease indoor air quality in those homes these units are installed but also lead to increases in health associated symptoms and possibly fatalities if these units are not properly installed, monitored and maintained.

The Alaska Health Project emphatically encourages that HB 543 not be passed and the following are some distinct reasons.

Unvented space heaters produce Carbon monoxide. Low concentrations of CO causes people to become ill. High concentrations can result in asphyxiation and death. This was almost the result during the Iditarod Sled Dog Race this year, (produced by an unvented space heater.) Alaska already has the highest CO death rates in the Union, passage of this bill would almost assure that honor or disgrace each and every year.

In addition to Co, the combustion process also produces nitric oxides. NOx cause damage, irritation to lung tissue and contribute to pulmonary edema.

These unvented space heaters produce a pound of water vapor as a by-product of combustion for every pound of fuel consumed. This addition of moisture only increases the condensation problems which may already be present or create one that didn't exist.

Alaska has wisely adopted the Uniform Building Code which prohibits such devices, and these standards should not changed in cold climate regions. State such as Minnesota, New Hampshire, and New York also prohibit these appliances.

1818 West Northern Lights Blvd., Suite 103, Anchorage, Alaska 99517
(907) 276-2864 Outside Anchorage (800) 478-2864 Fax (907) 279-3089

These unvented heaters have a device which will shut off the unit when the supply of oxygen drops to 18%. The Occupational Safety and Health Administration (OSHA) has a minimum requirement of 19.5% oxygen for workers. However, these oxygen depletion sensing devices are not CO detectors. The Burning of fuel with insufficient oxygen is one source of CO and a space heater could still be supplied with adequate oxygen and still produce CO because it was improperly installed or maintained.

If these appliances are properly installed and maintained, they do not pose a health risk. However, these heaters must be installed in a well ventilated area that has access to a source of combustion/makeup air. Due to the severe weather in Alaska, this is not always the case. Is it reasonable to believe that someone will open a window or provide a 5"x 6" hole in the dead of winter to allow for the recommended ventilation. This would allow for a draft, the unwelcome invitation of cold outside air into the home and thereby defeating the purpose of this heater.

The directions specify that for safe operation (which is possible) the appliance must be maintained and cleaned annually. These appliances can malfunction if they are not properly maintained, the burner unit gets dirty, or if the automatic shut off switch is bypassed, as could most likely happen in the rural areas of the state.

These devices are approved only as secondary heat sources - a point which is not clear in the instructions. Due to the high cost of electricity, it is very reasonable to assume that they will be used as the primary source of heating.

These appliances should not be installed in sleeping areas or bathrooms. It is expected that many of these units will be improperly installed in remote cabins and spaces to small for safe operation.

The Alaska Health Project understands the consumer appeal of these appliances, however, we also feel that these appliances can have an adverse effect on the safety and health of Alaskans.

In closing, while these unvented space heater appliances may have a place, the Uniform Building Code should <u>NOT</u> be amended to allow their use in Alaska.

AHP strongly encourages you <u>NOT</u> to pass HB 543.

Sincerely,

Thomas N. Brudnicki

Thomas N. Brudnicki, REHS
Industrial Hygienist
Alaska Health Project

cc: Senators Loren Leman, Rick Halford

MUNICIPALITY OF ANCHORAGE
Municipal Manager's Office
Post Office Box 196650
Anchorage, Alaska 99519-6650
(907) 343-4433

TELECOPIER COVER LETTER
TELECOPIER NUMBER: (907) 343-4110

DATE: 4/20/94

FAX NUMBER: 465-4979

TOTAL NUMBER OF PAGES: 3 (including cover letter)

TO: Shirley Armstrong for Senate Comm. & Regional Affairs Committee

FROM: DAN MOORE, M.O.A.

PHONE NUMBER: 343-4282

COMMENTS:

Please distribute MOA's comments to all committee members prior to tomorrow morning's C&RA committee meeting.

Thanks for your help.

—Dm

FAX\COVERLTR

Municipality of Anchorage

P.O. BOX 196650
ANCHORAGE, ALASKA 99519-6650
TELEPHONE: (907) 343-4431
FAX: (907) 343-4991

Tom Fink, Mayor

OFFICE OF THE MAYOR

April 20, 1994

The Honorable Randy Phillips, Chairman
Senate Community and Regional Affairs Committee
Alaska State Capitol
Juneau, AK 99801

Dear Senator Phillips:

I have been informed that CSHB 543(STA) is scheduled for a teleconference tomorrow morning. The Municipality opposes this bill because of the serious potential health risks associated with allowing unvented gas space heaters in residential buildings. To clarify our opposition to the bill, I am providing the Committee with attached written comments prepared by Dr. Mary Ellen Gordian of the Municipality's Department of Health and Human Services. These comments cite a number of specific health risks that could occur if this bill were passed (see attachment).

I regret that due to a scheduling conflict, Dr. Gordian will be unable to participate in tomorrow's teleconference. Nonetheless, I request that the Municipality's comments be distributed to all Committee members prior to tomorrow's meeting, so that our concerns over the health implications of CSHB 543 (STA) are known.

Should the Committee require any additional information, please contact Dr. Gordian directly 343-6718.

Sincerely,

Tom Fink

Tom Fink
Mayor

legis\ltf20

Tom Fink,
Mayor

Municipality of Anchorage

Department of Health and Human Services
825 "L" Street
P.O Box 196650 Anchorage, Alaska 99519-6650

April 18, 1994

House Bill 543 seeks to change the building code to allow unvented gas space heaters in residential buildings. Unvented gas heaters should not be allowed for the following reasons:

1) Carbon monoxide builds up with any combustion process. It has a high affinity for the hemoglobin in blood cells. One can be overcome by carbon monoxide before there is any measurable reduction in oxygen levels in air.

2) Combustion heaters also give off nitrogen dioxide, a respiratory irritant, and volatile organic chemicals. Without venting these air pollutants become concentrated in the indoor air. Studies show that most people spend 90% of their time indoors. It is the most susceptible groups-the young, the elderly, and the infirm-who spend the greatest amount of time indoors.

4) Non-combustion electric space heaters that do not require ventilation are available. All combustion heaters NEED ventilation including those specified in HB543 as stated in their package insert.

3) The package insert says that these heaters require 1 square inch of ventilation for every 1000 BTU. Alaska homes are generally well-insulated. Ventilation would have to come from open windows, not likely in Alaska in the winter.

5) People will not open their windows in the winter to achieve that ventilation, because they cannot see or smell carbon monoxide.

Prepared by

Mary Ellen Gordian

Mary Ellen Gordian, MD, MPH
Medical Officer

ATTACHMENT

CITY OF PALMER

231 W. EVERGREEN AVE
PALMER, ALASKA 99645

Phone (907) 745-3271

A HOME RULE CITY

April 20, 1994

The Honorable Randy Phillips, Chairman
Senate Community and Regional Affairs Committee
Alaska State Legislature
State Capitol (MS3100)
Juneau, AK 99801-1182

RE: HB543 (STA), An Act relating to unvented gas space heaters

Dear Senator Phillips:

The effect of House Bill 543 is to modify an internationally recognized standard (the Uniform Mechanical Code) for heating equipment, bypassing the experience and judgment of code enforcement personnel. In the past, other national organizations have written standards allowing for the use of equipment or materials that had not been adequately tested. You may remember the problems and subsequent recall of portable unvented kerosene heaters a few years ago.

I am concerned about the safe functioning of any unvented heating equipment used in Alaska's severe climate. With so many houses built or modified to be air-tight, obtaining fresh air for the occupants to breathe and heaters to burn requires permanent exterior openings. My 22 years of Alaskan experience in the design, construction and inspection of housing has been that, even knowing the necessity for the openings, the occupants will close those openings when conditions are cold or windy. The proven safety of approved heaters is certainly worth the minor cost increase.

The use of some types of unvented heaters is being considered by the Uniform Mechanical Code members. I think that Alaskans would be better served by allowing life safety decisions to be made by those organizations with the expertise and research capabilities upon which to base those decisions.

Sincerely,

Larry E. Teague

Larry E. Teague
Building Inspector

LET/jep

Work Phone: 745-3271
Home Phone: 694-2959

Alaska Fire Chief's Association

P.O. Box 8508 • Nikiski, Alaska 99635 • (907) 283-4202 • FAX 283-8404
Billy W. Harris
President

April 20, 1994

Senator Randy Phillips
Chairman
Community and Regional Affairs
State Capitol
Juneau AK 99801

Dear Senator Phillips:

At the Spring Chief's Conference in Anchorage, Alaska on April 20, 1994, the Alaska State Chief's Association reviewed and discussed HB-543 which deals with unvented gas space heaters.

We oppose HB-543 due to the following reasons:

1. Carbon monoxide poison is a serious threat to life from unvented heaters in tightly sealed Alaskan homes.

2. It is an improper practice to change National Codes and Standards by State Statute.

In closing the Alaska State Fire Chief's Association unanimously opposed this bill and we request your efforts to defeat this bill.

Sincerely,

Billy W. Harris

Billy W. Harris
President

CITY OF PALMER

231 W. EVERGREEN AVE
PALMER, ALASKA 99645

Phone (907) 745-3271

A HOME RULE CITY

April 20, 1994

The Honorable Randy Phillips, Chairman
Senate Community and Regional Affairs Committee
Alaska State Legislature
State Capitol (MS3100)
Juneau, AK 99801-1182

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Sincerely,

Larry E. Teague

Larry E. Teague
Building Inspector

LET/jep

Work Phone: 745-3271
Home Phone: 694-2959

ALASKA STATE MEDICAL ASSOCIATION
4107 Laurel Street • Anchorage, Alaska 99508-5334 • (907) 562-2662

April 22, 1994

Senator Randy Phillips
Alaska State Legislature
P. O. Box V (MS 3100)
Juneau, AK 99811

Dear Senator Phillips:

House Bill 543 is apparently now in your Community and Regional Affairs Committee. This bill would change the building code to allow unvented gas space heaters in residential buildings. One of our members, Dr. Mary Ellen Gordian, the medical officer for the Municipality of Anchorage, has grave concerns regarding the safety of unvented gas space heaters, especially with regards to emission of carbon monoxide and nitrogen dioxide. I would encourage you not to act on this bill until these safety questions have been answered.

If you have any questions regarding this bill, do not hesitate to contact me.

Sincerely yours,

Donald R. Lehmann, M.D., A.B.F.P.
President, Alaska Medical Association

DRL:bj

Municipality of Anchorage

P. O. BOX 196650
ANCHORAGE, ALASKA 99519-6650
(907) 786-8160

TOM FINK,
MAYOR

DEPARTMENT OF PUBLIC WORKS
(3500 East Tudor Road)

November 19, 1993

Mr. Keith L. Kettler
Kettler Enterprises
2333 Judson Street
Longmont, Colorado 80501

Re: Temco Unvented Decorative Gas Logs and Fireplaces.

Dear Mr. Kettler:

The Municipality of Anchorage, Department of Public Works, Building Safety Division. Is conditionally approving the request for approval of Temco unvented decorative gas log fireplaces as an alternate method and material under Section 107, Uniform Administrative Code. This is based on the A.G.A. - listed Temtex/Temco gas-fired, unvented room heaters meeting the intent of the requirements of Section 807 (c). 1991 Uniform Mechanical Code (UMC).

Th condition of the approval of the Unvented Decorative Gas Logs and Fireplaces: may be installed, used, maintained and permitted to exist in any Group R Occupancy except bathrooms and bedrooms. The unvented decorative gas logs are listed for only naturai gas burning with an open flame consisting of a metal frame or base supporting simulated logs which is designed so that its primary function lies in the aesthetic effect of the logs and the flame. An unvented fireplace is a listed unvented gas log permanently installed in a freestanding enclosure or zero clearance enclosure designed and approved for installation in walls or other building structures. Unvented gas logs and fireplaces are approved as follows.

(1) Shall be equipped with an approved oxygen-depletion sensor.
(2) Shall be listed.
(3) Shall not be installed in any room which does not have an alternative primary source of heat.
(4) Shall have free air volume of at least 50 cubic feet for each 1000 BTU's of thermal output.
(5) Shall be permanently installed.

(6) Shall not be equipped or connected to any automatic ignition or shut-off device except the oxygen-depletion sensor.

Sincerely

Ron Watts

Ron Watts
Chief of Building Inspections

cc: Plan Review Engineers
Mech/Plumbing Inspectors
File

MUNICIPALITY OF ANCHORAGE
Municipal Manager's Office
Post Office Box 196650
Anchorage, Alaska 99519-6650
(907) 343-4433

TELECOPIER COVER LETTER
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TOTAL NUMBER OF PAGES: 3 (including cover letter)

TO: Shirley Armstrong for Senate Comm. & Regional Affairs Committee

FROM: DAN MOORE, M.O.A.

PHONE NUMBER: 343-4282

COMMENTS:

Please distribute MOA's comments to all committee members prior to tomorrow morning's C&RA committee meeting.

Thanks for your help.

—Dm

FAX\COVERLTR

Municipality of Anchorage

P.O. BOX 196650
ANCHORAGE, ALASKA 99519-6650
TELEPHONE: (907) 343-4431
FAX: (907) 343-4991

Tom Fink, Mayor

OFFICE OF THE MAYOR

April 20, 1994

The Honorable Randy Phillips, Chairman
Senate Community and Regional Affairs Committee
Alaska State Capitol
Juneau, AK 99801

Dear Senator Phillips:

I have been informed that CSHB 543(STA) is scheduled for a teleconference tomorrow morning. The Municipality opposes this bill because of the serious potential health risks associated with allowing unvented gas space heaters in residential buildings. To clarify our opposition to the bill, I am providing the Committee with attached written comments prepared by Dr. Mary Ellen Gordian of the Municipality's Department of Health and Human Services. These comments cite a number of specific health risks that could occur if this bill were passed (see attachment).

I regret that due to a scheduling conflict, Dr. Gordian will be unable to participate in tomorrow's teleconference. Nonetheless, I request that the Municipality's comments be distributed to all Committee members prior to tomorrow's meeting, so that our concerns over the health implications of CSHB 543 (STA) are known.

Should the Committee require any additional information, please contact Dr. Gordian directly at 343-6718.

Sincerely,

Tom Fink

Tom Fink
Mayor

legis\ltf20

Tom Fink,
Mayor

Municipality of Anchorage

Department of Health and Human Services
825 "L" Street
P.O. Box 196650 Anchorage, Alaska 99519-6650

April 18, 1994

House Bill 543 seeks to change the building code to allow unvented gas space heaters in residential buildings. Unvented gas heaters should not be allowed for the following reasons:

1) Carbon monoxide builds up with any combustion process. It has a high affinity for the hemoglobin in blood cells. One can be overcome by carbon monoxide before there is any measurable reduction in oxygen levels in air.

2) Combustion heaters also give off nitrogen dioxide, a respiratory irritant, and volatile organic chemicals. Without venting these air pollutants become concentrated in the indoor air. Studies show that most people spend 90% of their time indoors. It is the most susceptible groups-the young, the elderly, and the infirm-who spend the greatest amount of time indoors.

4) Non-combustion electric space heaters that do not require ventilation are available. All combustion heaters NEED ventilation including those specified in HB543 as stated in their package insert.

3) The package insert says that these heaters require 1 square inch of ventilation for every 1000 BTU. Alaska homes are generally well-insulated. Ventilation would have to come from open windows, not likely in Alaska in the winter.

5) People will not open their windows in the winter to achieve that ventilation, because they cannot see or smell carbon monoxide.

Prepared by

Mary Ellen Gordian

Mary Ellen Gordian, MD, MPH
Medical Officer

ATTACHMENT

CITY OF KENAI

" Oil Capital of Alaska"

210 FIDALGO AVE., SUITE 200 KENAI, ALASKA 99611-7794
TELEPHONE 907-283-7535
FAX 907-283-3014

December 9, 1993

Keith Kettler
Kettler Enterprises
2333 Judson St.
Longmont, CO 80501

Dear Mr. Kettler:

After reviewing the conditional approval letter issued by the Municipality of Anchorage, the City of Kenai will also conditionally approve the use of Temco Unvented Decorative Gas Logs and Fireplaces.

The condition of the approval of the Unvented Decorative Gas Logs and Fireplaces: may be installed, used, maintained and permitted to exist in any Group R Occupancy except bathrooms and bedrooms. The unvented decorative gas logs are listed for only natural gas burning with an open flame consisting of a metal frame or base supporting simulated logs which is designed so that its primary function lies in the aesthetic effect of the logs and the flame. An unvented fireplace is a listed unvented gas log permanently installed in a freestanding enclosure or zero clearance enclosure designed and approved for installation in walls or other building structures. Unvented gas logs and fireplaces are approved as follows.

(1) Shall be equipped with an approved oxygen-depletion sensor.
(2) Shall be listed.
(3) Shall not be installed in any room which does not have an alternative primary source of heat.
(4) Shall have free air volume of at least 50 cubic feet for each 1000 BTU's of thermal output.
(5) Shall be permanently installed.
(6) Shall not be equipped or connected to any automatic ignition or shut-off device except the oxygen-depletion sensor.

Sincerely,

Robert C. Springer,
Building Official,
City of Kenai